(Pages : 3) G – 3905

Reg. No. : .....

Name : .....

Fourth Semester B.A./B.Sc. Degree Examination, July 2019

First Degree Programme under CBCSS

Language Course [Additional Language] – HINDI

HN 1411.1 POETRY, LONG POEMS AND CULTURE

(2013 Admission – 2016 Admission)

St. Xavier's College

Time : 3 Hours Max. Marks : 80

I. एक या दो वाक्यों में उत्तर लिखिए।

1. कबीर को किसने पाला – पोसा?

2. सूरदास के प्रमुख रचनाएँ कौन कौन सी हैं?

3. बिहारी किस राजा के दरबार के कवि थे?

4. 'देशगान' कविता में किसका चित्रण हुआ है?

5. धूमिल का पूरा नाम क्या है?

6. कमलावती किसकी पत्नी थी?

7. 'कामायनी' के रचयिता कौन है?

8. संस्कृति शब्द का निर्माण किन किन शब्दों से हुआ है?

P.T.O.

9. 'अरब सागर की राणी' नाम से प्रसिद्ध बन्दरगाह कौन सा है?

10. केरल से होकर बहनेवाली नदियों की संख्या कितनी है? (10 × 1 = 10 Mark

II. किन्हीं आठ प्रश्नों के लघु उत्तर लिखिए। (करीब **50** शब्दों में)

11. आँख की पुतली का उदाहरण देकर कबीर ने क्या कहा?

12. सूरदास ने कृष्ण के सिर की टोपी का कैसा वर्णन किया है?

13. 'नदीके द्वीप' कविता का प्रतिपाद्य क्या है?

14. अज्ञेय की रचनाओं का परिचय दीजिए।

15. प्रसादजी ने कमलावती के चरित्र चित्रण द्वारा क्या संकेत दिया है?

16. 'प्रवाद पर्व' का मुख्य विषय क्या है?

17. 'सभ्यता' शब्द का अर्थ समझाइए।

18. जैन धर्म के सिद्धान्त क्या थे?

19. केरलीय प्राचीन साहित्य का परिचय दीजिए।

20. केरल के प्रमुख पहाडों के नाम लिखिए।

21. केरल की प्रमुख कलाओं का नामोल्लेख कीजिए।

22. कथकली के विभिन्न संप्रदायों को समझाइए। (8 × 2 = 16 Marks)

III. किन्हीं छः प्रश्नों के उत्तर करीब **120** शब्दों में लिखिए।

23. जोग-जुगनि सिखए सबै, मनो महामुनि मैन।

चाहत प्रिय-अद्वैतता, काननु सेवत नैन।।। इसका भावार्थ लिखिए।

24. धूमिल की राय में शोषक समाज दलितों का कैसा शोषण कर रहा है?

St. Xavier's College

25. प्रौढ़ शिक्षा के पहले दिन में कवि के अनुभव पर प्रकाश डालिए।

26. "पुण्य ज्योति हीन कलुषित सौंदर्य का

गिरता नक्षत्र नीचे कालिमा की धारा सा

असफल सृष्टि सोती

प्रलय की छाया में" इन पंक्तियों की सप्रसंग व्याख्या कीजिए।

27. 'प्रवाद पर्व' का सारांश लिखकर उसका महत्व स्पष्ट कीजिए।

28. धर्म निरपेक्षावाद क्या है?

29. सांस्कृतिक विकास केलिए समर्पित संस्थाओं का परिचय दीजिए।

30. केरल के प्रमुख नदियों का परिचय दीजिए।

31. केरल की भौगोलिक स्थिति पर प्रकाश डालिए। (6 × 4 = 24 Marks)

IV. किन्हीं दो प्रश्नों के उत्तर करीब **250** शब्दों में लिखिए।

32. 'देशगान' कविता में अभिव्यक्त विचार व्यक्त कीजिए।

33. प्रलय की छाया में अभिव्यक्त प्रकृति का वर्णन कीजिए।

34. भारतीय संस्कृति की विशेषताओं पर प्रकाश डालिए।

35. केरलीय साहित्य, त्योहार और कलाओं का विस्तृत परिचय दीजिए। (2 × 15 = 30 Marks)

St. Xavier's College

(Pages : 3) G – 3914

Reg. No. : .....

Name : .....

Fourth Semester B.A./B.Sc. Degree Examination, July 2019

First Degree Programme under CBCSS

Malayalam : Language

Language Course IX – (Additional Language IV)

ML 1411.1 : വിനിമയം, സർഗ്ഗാത്മകരചന, ഭാഷാവബോധം

(2014 Admission Onwards)

St. Xavier's College

Time : 3 Hours Max. Marks : 80

I. ഒരു വാക്കിലോ പരമാവധി രണ്ടു വാക്യത്തിലോ ഉത്തരമെഴുതുക.

1. മലയാളലിപി ആദ്യമായി അച്ചടിച്ച ഗ്രന്ഥം ഏത്?

2. 'ലിറിക്കൽ ബാലഡ്സിന്' മുഖവുര (preface) എഴുതിയതാര്?

3. പൊതുജനനന്മയെ ലക്ഷ്യമാക്കി കേരളത്തിൽ പുറത്തിറങ്ങിയ മതേതരമായ ആദ്യപത്രം ഏത്?

4. ആകാശവാണി യുവാക്കൾക്കുവേണ്ടി 1969-ൽ ആരംഭിച്ച പ്രത്യേക പരിപാടിയുടെ പേര്?

5. 'കാഥികന്റെ പണിപ്പുര' എന്ന കൃതിയുടെ കർത്താവാര്?

6. ഹൈപ്പർ ടെക്സ്റ്റിന്റെ മലയാള പദം ഏത്?

7. മലയാളത്തിലെ ആദ്യത്തെ ത്രീഡി സിനിമ.

8. 1982-ലെ ഓടക്കുഴൽ അവാർഡ് നേടിയ സുഗതകുമാരിയുടെ കൃതി.

P.T.O.

9. 'Understanding Media' എന്ന കൃതിയുടെ കർത്താവാര്?

10. കേരള സർക്കാർ സിനിമയിലെ സമഗ്രസംഭാവനയ്ക്ക് നൽകുന്ന പുരസ്ക്കാരത്തിന്റെ പേരെന്ത്?

(10 × 1 = 10 Marks)

II. ഒരു ഖണ്ഡികയിൽ ഏതെങ്കിലും **എട്ടു** ചോദ്യത്തിന് ഉത്തരമെഴുതുക.

11. ബഹുജന ആശയ വിനിമയം (mass communication) എന്നതുകൊണ്ട് എന്താണ് അർത്ഥമാക്കുന്നത്?

12. സൈബർ സാഹിത്യം : എന്താണെന്ന് വിശദമാക്കുക.

13. വിവർത്തനം കൊണ്ടുള്ള നേട്ടങ്ങൾ എന്തെല്ലാം?

14. സർഗ്ഗാത്മകത (creativity) എന്നാലെന്ത്?

15. സ്രോതഭാഷയും ലക്ഷ്യഭാഷയും എന്തെന്ന് വിശദമാക്കുക.

16. ഊഷ്മളമാദ്ധ്യമവും ശീതമാദ്ധ്യമവും (Hot and Cool Medium) എന്താണെന്ന് ഉദാഹരണസഹിതം വിവരിക്കുക.

17. ഭരണഭാഷയ്ക്കുണ്ടായിരിക്കേണ്ട ഗുണങ്ങൾ എന്തെല്ലാം?

18. കലാഭിരുചി വളർത്തുന്ന റേഡിയോ പരിപാടികൾ ഏതെല്ലാം?

19. 'വിക്കിപീഡിയ' എന്താണെന്ന് വിശദമാക്കുക.

20. മലയാളത്തിലേക്ക് വിവർത്തനം ചെയ്യുക.

"Why did you choose India? And of all places in Indian, why this hell-hole, Calcutta"? I asked Mother Teresa. She let a gentle smile come over her face. "India was a missionary country. I was sent here. And I love the people of Calcutta. They have a warmth which you don't see anywhere else".

21. ഇംഗ്ലീഷിലേക്കു വിവർത്തനം ചെയ്യുക.

"ഹാ! പുഷ്പമേ, അധികതംഗപദത്തിലെത്ര
ശോഭിച്ചിരുന്നിതൊരു രാജ്ഞികണക്കയേ നീ".

22. 'All that glitters is not gold' - സമാനമായ മലയാള പഴമൊഴി കണ്ടെത്തി ആശയം വിശദമാക്കുക.

(8 × 2 = 16 Marks)

St. Xavier's College

III. ഓരോന്നിനും ഒന്നരപ്പുറത്തിൽ കവിയാതെ ഏതെങ്കിലും **ആറു** ചോദ്യത്തിന് ഉത്തരമെഴുതുക.

23. സർഗ്ഗാത്മകത വെറും അനുകരണമല്ല - സർത്ഥിക്കുക.

24. വിവർത്തനത്തിന്റെ സാംസ്കാരിക ധർമ്മമെന്ത്? വിശദമാക്കുക.

25. ദൃശ്യമാധ്യമങ്ങളുടെ കാലികപ്രസക്തി വിമർശനബുദ്ധ്യാ പരിശോധിക്കുക.

26. ആശയവിനിമയ പ്രക്രിയയിലെ പ്രധാന ഘടകങ്ങൾ ഏതെല്ലാം?

27. മലയാളപത്രപ്രവർത്തനമേഖലയ്ക്ക് ദിശാബോധം നൽകുന്നതിൽ സ്വദേശാഭിമാനി രാമകൃഷ്ണപിള്ള നൽകിയ സംഭാവനകൾ എന്തെല്ലാം?

28. മലയാളം ബ്ലോഗുകൾ - കുറിപ്പെഴുതുക.

29. 'ഒരു പൂവിരിയുന്നപോലെ തന്നിൽ കവിത ജനിക്കുന്നു' എന്ന് സുഗതകുമാരി വിവരിക്കുന്നതെങ്ങനെ?

30. കാവ്യഭാഷയെകുറിച്ച് വേഡ്സ്വർത്തിന്റെ സങ്കല്പം എന്ത്?

31. ഭരണഭാഷാ വിവർത്തകൻ നേരിടുന്ന പ്രശ്നങ്ങൾ എന്തെല്ലാം?

(6 × 4 = 24 Marks)

IV. മൂന്നു പുറത്തിൽ കവിയാതെ ഏതെങ്കിലും **രണ്ടു** ചോദ്യത്തിന് ഉത്തരമെഴുതുക.

32. 'മാധ്യമങ്ങളുടെ ധാർമ്മികതയിൽ വന്ന മാറ്റങ്ങളുടെ പ്രധാനകാരണം പരസ്യങ്ങളോടുള്ള വിധേയത്വമാണ്' - വിമർശബുദ്ധ്യാ പരിശോധിക്കുക.

33. 'നിന്റെ ഓർമ്മയ്ക്ക്' എന്ന കഥ മനസ്സിൽ രൂപപ്പെട്ട സാഹചര്യം എം.ടി. വാസുദേവൻ നായർ വിവരിക്കുന്നതെങ്ങനെ?

34. ഭരണഭാഷ പൂർണ്ണമായും മലയാളമാക്കുക എന്ന കേരളസർക്കാറിന്റെ പ്രഖ്യാപിതനയം പൂർണ്ണമായും സാധ്യമാണോ? - പരിശോധിച്ച് വിലയിരുത്തുക.

35. മലയാളം കമ്പ്യൂട്ടിംഗിന്റെ ചരിത്രം വിശകലനം ചെയ്യുക.

(2 × 15 = 30 Marks)

St. Xavier's College

(Pages : 3) G – 3916

Reg. No. : .....

Name : .....

Fourth Semester B.A./B.Sc. Degree Examination, July 2019

First Degree Programme Under CBCSS

LANGUAGE COURSE : VIII AND VI READINGS IN LITERATURE

(Common for B.A./B.Sc. EN 1411.1 and Career Related 2(a) EN 1411.3)

(2015 Admission Onwards)

St. Xavier's College

Time : 3 Hours Max. Marks : 80

I. Answer **all** questions, each in a word or a sentence.

1. How does Jacques portray the lover?
2. What did the pale kings and princes tell the knight – of – arms?
3. What did Sophocles hear on the shores of the Aegean?
4. Where does Ulysses expect to meet Achilles again?
5. How many languages does Kamala Das claim to know?
6. What is the title of Lowes Dickinson's book?
7. What according to Priestly is the main theme of Wordsworth?
8. Why did Dr. Raman deviate from his usual course in the case of Gopal?
9. How did the lady in K.R. Meera's story come to know about the fellow patient's death?
10. What did the prisoner do in the last two years of his confinement?

(10 × 1 = 10 Marks)

P.T.O.

II. Answer any **eight**, each in a short paragraph not exceeding **50** words.

11. Wordsworth's contemplation on his life and that of the fellow poets.

12. What was Yeat's attitude to his lady-love and her husband?

13. What is Owen's concept about soldiers in the front line?

14. Robert Frost's concept of building walls.

15. What is Satchidanandan's explanation for God's stammering when He Created Man?

16. Bring out Priestly's attitude to Thoreau and Whitman.

17. Summarize Einstein's concept of the motives for scientific research.

18. Give some of the popular legends about Nehru.

19. Describe "African Dream" of family life.

20. Give an account of the eccentricities of Mr. Nuttel.

21. What is Sherlock's attitude to Balu?

22. Explain the miracle which brought Gopal back to life.

(8 × 2 = 16 Marks)

III. Answer any **six**, each in a paragraph not exceeding **100** words.

23. Bring out the transition from the "lover" to the "soldier" as presented by William Shakespeare.

24. Describe the knight's dream at the Elfin Grot.

25. Give an account on Arnold's views on the modern man and his world.

26. Ulysses' concept of Telemachus.

St. Xavier's College

27. Evaluate the effect of the constable's visit on the poet.

28. Kamla Das' attitude to male ego and patriarchal society.

29. How does Sarojini Naidu propose to overcome fate which may rob her of her power of articulation?

30. Describe the humiliation and discrimination that Blacks had to experience in South Africa.

31. Sherlock's status in Balu's sister's house.

(6 × 4 = 24 Marks)

IV. Answer any **two** in about **300** words.

32. Justify Kamala Das' assertion of feminity in the poem Introduction.

33. Consider Wilfred Ownen's poem Insensibility as a depiction of the "Unresolved tension of pity and anger at war".

34. Evaluate Mandela's presentation of the misery of Blacks in South Africa.

35. Bring out the tension and fury in Balu's attitude to Sherlock.

(2 × 15 = 30 Marks)

St. Xavier's College

(Pages : 3) G – 3918

Reg. No. : .....

Name : .....

Fourth Semester B.A./B.Sc. Degree Examination, July 2019

First Degree Programme under CBCSS

Language Course (Additional Language IV) – Hindi

HN 1411.1 : DRAMA, TRANSLATION AND CORRESPONDENCE

(2017 Admission)

St. Xavier's College

Time : 3 Hours Max. Marks : 80

I. एक से दस तक सभी प्रश्नों के उत्तर एक शब्द या वाक्य में लिखिए।

1. अनुवाद की व्युत्पत्तिपरक अर्थ क्या है?
2. To bell the cat का समानार्थी हिन्दी अभिव्यक्ति क्या है?
3. 'बिना दीवारों के घर' में कितने दृश्य हैं?
4. Acknowledgement का हिन्दी समानार्थी शब्द क्या है?
5. 'बिना दीवारों के घर' किसने लिखा है?
6. पत्र लेखन में अंग्रेजी के from केलिए स्वीकृत हिन्दी शब्द क्या है?
7. शोभा की बेटी का नाम क्या है?
8. 'बिना दीवारों के घर' का प्रथम मंचन किस साल हुआ था?
9. जीजी का घर कहाँ है?
10. शोभा किस पद पर काम कर रही है? **(10 × 1 = 10 Marks)**

P.T.O.

II. निम्नलिखित प्रश्नो से किन्हीं आठ के उत्तर करीब 50 शब्दों में लिखिए।

11. स्वतंत्रानुवाद क्या है?

12. बिना दीवारों के घर की बुनियादी समस्या क्या है?

13. विद्या कोई चाय या चावल तो नहीं जिसे आप पैसे से खरीद लेंगे – किसने किससे कहा?

14. अनुवाद की परिभाषा दीजिए।

15. शोभा और जीजी के बीच के संबन्ध पर टिप्पणी लिखिए।

16. शब्दानुवाद की व्याख्या कीजिए।

17. शोभा के नौकरी करने के संबन्ध में अजित की आपत्ति क्या है?

18. वाक्यात्मक स्तर पर अनुवाद में आनेवाली विषमतायें क्या-क्या हैं?

19. अपनी गल्ती मानकर आदमी छोटा नहीं होता समझे? किसने किससे कब कहा?

20. कोशगत स्तर पर अनुवाद में आनेवाली विषमतायें क्या क्या हैं?

21. कभी-कभी आदमी अपना मुख खो बैठता है तो चाहता है सारी दुनिया का सुख लूट लें – कौन किसके बारे में किससे कहती हैं?

22. जयंत और मीना के वैवाहिक जीवन एक त्रासदी है। क्यों? **(8 × 2 = 16 Marks)**

III. निम्नलिखित में से किन्हीं छः प्रश्नों के उत्तर करीब 120 शब्दों में लिखिए।

23. अनुवाद के कितने प्रकार होते हैं? वे क्या-क्या हैं?

24. व्यक्ति जीवन में पत्र लेखन का महत्व क्या है?

25. अनुवाद करते समय अनुवादक के सामने क्या क्या समस्यायें आती हैं?

26. अजीत-शोभा, जयंत-मीना के पारिवारिक संबन्धों में क्या-क्या समानतायें और विषमतायें हैं?

27. जीजी के चरित्र की विशेषतायें बताइए।

28. शोभा के नौकरी करने में अजित क्यों बाधा उपस्थित करता है?

St. Xavier's College

29. बिना दीवारों के घर के नारी पात्रों का संक्षिप्त परिचय दीजिए।

30. पुस्तक विक्रता के यहाँ संपन्न होनेवाले वार्तालाप तैयार करें कम से कम आठ विनिमय अनिवार्य है।

31. नाटक–बिना दीवारों के घर में चर्चित 'घर' क्या है? व्याख्या कीजिए। **(6 × 4 = 24 Marks)**

IV. किन्हीं दो प्रश्नों के उत्तर लिखिए (करीब 250 शब्दों में)

32. मान लें आपने कुछ सामग्रियाँ खरीदने का आदेश दिया था लेकिन उनके मिलने में बहुत देरी हो रही है। इस विषय पर शिकायती पत्र तैयार कीजिए।

33. कथावस्तु संक्षेप में बताकर बिना दीवारों के घर नाटक के नामकरण की सार्थकता पर विचार कीजिए।

34. बिना दीवारों के घर नाटक की प्रमुख समस्यायें क्या–क्या हैं – विवेचना कीजिए।

35. निम्नलिखित गद्यांश का हिन्दी में अनुवाद कीजिए।

The Government, however cannot do everything by itself. So it looks to the people for help. In fact the most wonderful thing about our plans is the way in which the people have come forward to improve their lines by working together. By far the best example of this is the community development programme. This is the right step in the right direction. It will lead us to progress and prosperity. On it depends the future of India to a large extent.

(Government सरकार, infact वास्तव में, plans योजनायें, improve सुधारना, community development programme सामुदायिक विकास कार्यक्रम, direction दिशा, properity समृद्धिशाली, extent अधिकांश रूप से)

(2 × 15 = 30 Marks)

St. Xavier's College

(Pages : 3) G – 3931

Reg. No. : .....

Name : .....

Fourth Semester B.A. Degree Examination, July 2019

First Degree Programme Under CBCSS

History

Core Course V

HY 1442 – HISTORY OF MODERN WORLD – Part I

(2013 Admission onwards)

St. Xavier's College

Time : 3 Hours Max. Marks : 80

PART – A

Answer **all** questions in one or two sentences each.

1. Henry the navigator
2. Humanism
3. Erasmus
4. Selling Indulgences
5. Ignatius Loyola
6. Copernicus
7. Bill of Rights 1689

P.T.O.

8. The stamp Act

9. San Martin

10. Class struggle

(10 × 1 = 10 Marks)

PART – B

Answer **any eight** from the following not exceeding one paragraph.

11. Colorious Revolution

12. Mercantilism

13. Commercial Revolution

14. Calvinism

15. Storming of the Bastille

16. Impact of Colonialism

17. Bosten tea party

18. Tennis court Oath

19. Venezuelan war of Independence

20. Paris commune

21. United states declaration of Independence

22. Democratic Socialism

(8 × 2 = 16 Marks)

St. Xavier's College

PART – C

Answer **any six** of the following.

23. What are the factors responsible for the rise of modern world?

24. Explain commercial revolution and its consequences.

25. Briefly review the growth of renaissance science.

26. Analyse the role of printing press in spreading modern ideas.

27. What are the causes of Reformation in Europe?

28. Examine civil war in England.

29. Describe Latin American wars of Independance.

30. How did the scientific revolution help to bring about the Industrial revolution?

31. Discuss the role of Karl Marx in the history of Socialist movement.

(6 × 4 = 24 Marks)

PART – D

(Long Essay)

Answer **any two** of the following.

32. Examine geographical discoveries during renaissance period.

33. Explain causes and consequences of the French revolution.

34. How colonialism led to scramble for Africa?

35. Describe the emergence of socialist ideas and its impact on modern world.

(2 × 15 = 30 Marks)

St. Xavier's College

(Pages : 3) G – 3934

Reg. No. : .....

Name : .....

Fourth Semester B.A. Degree Examination, July 2019

First Degree Programme Under CBCSS

Economics

EC 1441: MICRO ECONOMICS I

(2013-14 Admissions)

St. Xavier's College

Time : 3 Hours Max. Marks : 80

SECTION – A

Answer in **one or two** sentences (attempt all questions)

1. Positive economics
2. Cross elasticity of demand
3. Normal good
4. Returns to a factor
5. Production function
6. Product differentiation
7. Budget line
8. Equi-marginal utility principle
9. Engel curve
10. Price

(10 × 1 = 10 Marks)

P.T.O.

SECTION – B

Answer **any eight** questions not exceeding one paragraph. Each question carries 2 marks

11. Distinguish micro and macro economics
12. Discuss the conditions of Consumer equilibrium
13. Linear homogenous production function
14. Define consumer surplus
15. Explain Elasticity of supply
16. Expansion path
17. Define mixed economy
18. What is Price Mechanism?
19. What are the Exceptions to the law of demand
20. State the Assumptions of cardinal utility analysis
21. What are the Features of a socialist economy
22. Distinguish between inferior good and Giffen good

(8 × 2 = 16 Marks)

St. Xavier's College

SECTION – C

Answer **any six** questions, not exceeding 120 words. Each question carries 4 marks.

23. "Scarcity and choice" constitute the basic economic problem. Explain.
24. Discuss different degrees of elasticity of supply.
25. Explain the concept of Marshall's concept of consumer surplus.

26. What are the Factors affecting supply of a commodity.

27. Explain the relation between TU and MU.

28. What are the practical importances of price elasticity of demand?

29. State the Reveled preference theory.

30. Explain economies and diseconomies of scale.

31. What is income-consumption curve?

(6 × 4 = 24 Marks)

SECTION – D

Answer **any two** questions, not exceeding four pages. Each question carries 15 marks:

32. Explain the distinction between Micro and Macro economics.

33. Explain consumer equilibrium under IC analysis.

34. Critically examine the law of variable proportions and compare it with Laws of returns to scale.

35. Define price elasticity demand, different types of price elasticity of demand and methods of measuring price elasticity.

(2 × 15 = 30 Marks)

St. Xavier's College

(Pages : 3) G – 3935

Reg. No. : .....

Name : .....

Fourth Semester B.A. Degree Examination, July 2019

First Degree Programme under CBCSS

Economics

EC 1442 – MACRO ECONOMICS I

(2013-14 Admissions)

St. Xavier's College

Time : 3 Hours Max. Marks : 80

SECTION I

Answer **all** questions in one or two sentences. Each question carries **1** mark.

1. Stock Variable.
2. Net National Product.
3. Real Money.
4. Macro Economics.
5. Personal income.
6. Green GDP.
7. Price Flexibility.
8. Induced investment.
9. Disposable income.
10. Laissez-faire Policy.

(10 × 1 = 10 Marks)

P.T.O.

SECTION II

Answer **any eight** questions not exceeding one paragraph. Each question carries 2 marks.

11. Explain New Keynesian theory.

12. Explain Speculative motive under Keynesian Liquidity Preference theory.

13. Elucidate GNP deflator.

14. Distinguish between Partial and General Equilibrium.

15. Differentiate between National Income from Current and Constant Prices.

16. Explain Classical Dichotomy.

17. Describe National Income Accounts.

18. Explain the significance of Macroeconomics.

19. Examine the relevance of Say's Law under Money economy.

20. Explain Classical system without Saving and investment.

21. Explain Neutrality of Money.

22. Explain Pigou Effect.

(8 × 2 = 16 Marks)

St. Xavier's College

SECTION III

Answer **any six** questions not exceeding 120 words. Each question carries 4 marks.

23. Explain the principle of Effective Demand.

24. Explain the contribution of New Classicism.

25. Describe the post Keynesian developments.

26. Explain the concept of "Supply creates its Own Demand".

27. Discuss Keynes criticisms towards Classical theory.

28. Explain the future of Green GDP.

29. Explain the role of taxation and Government Expenditure in National Income determination.

30. Explain Classical System with Saving and Investment.

31. Explain Keynes Labour Market Theory.

(6 × 4 = 24 Marks)

SECTION IV

Answer **any two** questions, not exceeding four pages. Each question carries **15** marks.

32. Explain the circular flow of income and expenditure in a four sector model.

33. Explain the Classical theory of employment and output determination.

34. Examine the contribution of classical school of thought to economics.

35. Explain Keynes psychological law of consumption. Explain its importance in the determination of income and employment in the economy.

(2 × 15 = 30 Marks)

St. Xavier's College

(Pages : 3)

G – 3939

Reg. No. : .....

Name : .....

Fourth Semester B.A Degree Examination, July 2019

First Degree Programme under CBCSS

Complementary Course: VII

PS 1431 – INTERNATIONAL POLITICS

(Common for Philosophy, Economics, History, English, Islamic History, Sociology)

(2013-2016 Admission)

St. Xavier's College

Time : 3 Hours

Max. Marks : 80

I. Answer **all** the questions in **one** or **two** sentences. **Each** question carries **1** mark.

1. League of Nations
2. Energy Crisis
3. Veto Power
4. Foreign Policy
5. Balance of Power
6. ASEAN
7. Ideology
8. Diplomacy
9. The Unit Veto System
10. Stockholm Conference

(10 × 1 = 10 Marks)

P.T.O.

II. Answer any **eight** questions. **Each** question carries **2** marks.

11. What are the major causes of Global Warming?

12. Differentiate National Politics and International Politics.

13. What is National Morale?

14. What are the different types of Weapons of Mass Destruction?

15. Enumerate the major causes of International Terrorism.

16. Suggest some remedies for Food Crisis.

17. Comment on Leadership as an essential element of National Power.

18. Write a brief note on E.U.

19. Define International Law.

20. Write a note on Treaty on the Non-Proliferation of Nuclear Weapons (NPT)

21. Examine the role of International Court of Justice in International Politics.

22. Write a note on National Interest.

(8 × 2 = 16 Marks)

III. Answer any **six** questions. **Each** question carries **4** marks.

23. Describe Morton Kaplan's System theory.

24. Outline the structure and purposes of United Nations Organization.

25. Explain the concept of Sovereignty in International Politics.

26. Trace the evolution of International Politics.

St Xavier's College

27. Critically examine Idealist approach to the study of International Politics.

28. Discuss the impact of Globalization on Developing Countries.

29. Write a note on SAARC.

30. State the major characteristics of Modern State System.

31. Discuss Geography as an element of National Power.

(6 × 4 = 24 Marks)

IV. Essay question. Answer any **two**. **Each** question carries **15** marks.

32. 'Nationalism is a powerful force in modern world'. Discuss.

33. Explain the Scope of International Politics.

34. Write an essay on UN and International Peace.

35. Critically examine the role of power in the relations among nations

(2 × 15 = 30 Marks)

St. Xavier's College

(Pages : 3) G – 3995

Reg. No. : .....

Name : .....

Fourth Semester B.A. Degree Examination, July 2019

FDP Under CBCSS

PL 1432 : MODERN INDIAN THOUGHT

(2014 Admn - 2016 Admn)

Time : 3 Hours Max. Marks : 80

St. Xavier's College

SECTION – A

Answer **all** questions in one word or to a maximum of two sentences. Each question carries **1** marks. Write notes on the following.

1. Kerala Renaissance.
2. Darsanamala.
3. Divine Life.
4. Bhakti Yoga.
5. Super mind.
6. Humanism.
7. Over Mind.
8. Jivan Mukta.
9. Viswabharati.
10. Integral Yoga.

(10 × 1 = 10 Marks)

P.T.O.

SECTION – B

Answer **any eight** questions in a paragraph. Each question carries **2** marks.

11. How did Swami Vivekananda explain Jnana Yoga?

12. Elucidate the concept of Jivan Devata in Tagore's philosophy.

13. Which are the three kinds of transformation necessary for ascending to the higher realms in the philosophy of Sri Aurobindo?

14. Write a short note on Theerthapada system of Chattampi Swamikal.

15. Examine the contributions of Raja Ram Mohan Roy to the Indian Renaissance movements.

16. Analyse the importance of religious tolerance in the philosophy of Sree Narayana Guru.

17. Discuss the relevance of humanism in the philosophy of Rabindranath Tagore.

18. Elucidate the aim of Integral Yoga of Sri Aurobindo.

19. Expound the concept of ego in the philosophy of Mohammed Iqbal.

20. What do you mean by Religious Mind according to Jiddu Krishnamurthi?

21. Discuss the views of Chattampi Swamikal on caste system.

22. Give a brief account of Universal religion of swami Vivekananda.

(8 × 2 = 16 Marks)

St Xavier's College

SECTION – C

Answer **any six** questions in 120 words each. Each question carries **4** marks.

23. Write a short note on Swami Vivekananda's concept of four Yogas.

24. Examine the concept of creation as expound by Sri Aurobindo.

25. Explain the relevance of seven fold ignorance in Sri Aurobindo.

26. Discuss the importance of the concept of freedom according to Jiddu Krishnamurti.

27. Give an account of the 'Religion of love' in the philosophy of Chattampi Swamikal.

28. Briefly explain the eight fold path envisaged by Sree Narayana Guru in his social philosophy.

29. Examine the concept of God in Mohammad Iqbal's philosophy.

30. Why do we call Vivekananda's philosophy as Neo-Vedanta?

31. Bring out the features of social philosophy of Chattampi Swamikal.

(6 × 4 = 24 Marks)

SECTION – D

Answer **any two** questions in about **600** words each. Each question carries **15** marks.

32. 'The implications of Spiritual humanism are transparent in the whole philosophy of Swami Vivekananda'. Analyse this statement by explaining the important features of spiritual humanism of Swami Vivekananda.

33. Examine the importance of the Advaitic re-interpretation in the philosophy of Sree Narayana Guru.

34. 'Yoga is the realisation of divinity here-on the earth in the bodily state itself'. - Explain this statement highlighting the important aspects of integral yoga of Sri Aurobindo.

35. Give an account of the characteristics features of Modern Indian thought.

(2 × 15 = 30 Marks)

St. Xavier's College

(Pages : 3) G – 4020

Reg. No. : .....

Name : .....

Fourth Semester B.A. Degree Examination, JULY 2019

First Degree Programme Under CBCSS

PL1432 - MODERN INDIAN THOUGHT

Complementary Course

(2017 Admin)

St. Xavier's College

Time : 3 Hours Maximum Marks : 80

SECTION A

Answer all questions in one word or to a minimum of two sentences

Each question carries 1 mark

1. What according to Sri Aurobindo the most important character of evolution?
2. What is the highest ideal of a karma yoga according to Swami Vivekananda?
3. Atmopadesa satakam is an important work of which philosopher?
4. Which philosopher founded the Ramakrishna Mission?
5. Freedom form the known is an important work of which philosopher?
6. Why is philosophy in India often called Darshana?
7. What is the content of Vedadikara Nirupanam?
8. What are the four ways to liberation according to Vivekananda?
9. Mention two important works of Dr.B.R.Ambedkar.
10. What are the three processes involved in evolutionary growth according to Sri Aurobindo?

(10 × 1 = 10 Marks)

P.T.O.

SECTION – B

Answer **any 8** questions in a paragraph each

Each question carries 2 marks.

11. Write a note on the integrate philosophy of Sri Aurobindo.
12. What is self-abnegation according to Swami Vivekananda?
13. One caste, one religion, one God for man, is an important teaching whom and what does he intend by this teaching?
14. Write the similarity of teachings in J.Krishnamurthy and Buddhism
15. Comment on Sree Narayan Guru's religious tolerance.
16. What are the gradations of Mind according to Sri Aurobindo?
17. What were the important characteristics of Modern Indian thought?
18. Examine Chattampi Swamikkal's role in reviving Advaita.
19. Explain the concept of Universal Religion in Tagore's Philosophy.
20. 'Truth is a pathless land' who propounded this and what does he mean by it?
21. Write a short note on human destiny as discussed by Dr.Mohammed Iqbal.
22. What is Universal religion according to Swami Vivekandnada?

(8 × 2 = 16 Marks)

St. Xavier's College

SECTION – C

Answer **any 6** questions in 120 words each

Each question carries 4 marks.

23. Describe briefly Sri Aurobindo's theory of creation.
24. Sri Narayana suggests three essential steps to social progress, what were they? Discuss.
25. Freedom means freedom from the known, explain.

26. Write an essay on the concept of 'Khudi' or self in Dr.Iqbal's philosophy.

27. Elaborate on the content of Sree Narayan Guru's Jati nirnayam.

28. Write the concept of Jivan Devatu in Tagore philosophy.

29. Write a short essay on Jnana Yoga as described by Swami Vivekananda.

30. How does Sri Aurobindo differentiate between Mind an Supermind?

31. What were the basic teachings of Neo Buddhism?

(6 × 4 = 24 Marks)

SECTION – D

Answer **any 2** questions in about 600 words each

Each question carries 15 marks.

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32. Write an essay on the Indian Renaissance Movement with special emphasis on the changes in the Philosophical outlook in that period.

33. Swami Vivekananda's philosophy is called Practical Vedanta, comment

34. Write an essay on Sri Aurobindo's Integral Yoga.

35. Elucidate the role of Chattampi Swamikkal in the revival of Kerala Society?

(2 × 15 = 30 Marks)

(Pages : 3)

G – 4023

Reg. No. : .....

Name : .....

Fourth Semester B.A. Degree Examination, July 2019

First Degree Programme under CBCSS

Complementary Course : VII

PS 1431 : INTERNATIONAL POLITICS

(Common for Philosophy, Economics, History, English, Islamic History, Sociology)

(2017 Admission)

St. Xavier's College

Time : 3 Hours

Max. Marks : 80

I. Answer **all** questions in **one** or **two** sentences. **Each** question carries **1** mark.

1. Veto Power
2. Foreign Policy
3. Balance of Power
4. Treaty of Westphalia
5. Supra Nationalism
6. Unit Veto System
7. Disarmament
8. Power
9. Terrorism
10. Nation State

(10 × 1 = 10 Marks)

P.T.O.

II. Answer any **eight** questions. **Each** question carries **2** marks.

11. Write a brief note on International Court of Justice.

12. Distinguish between National Politics and International Politics.

13. Write a note on National Interest.

14. What is meant by Global Warming?

15. Define international Law and bring out its sources.

16. Write down the major objectives of SAARC.

17. Write a note on the concept of Sovereignty in International Politics.

18. Quality of leadership is the most essential element of National Power. Comment.

19. Write a note on Weapons of Mass destruction.

20. Find out the major causes of International Terrorism.

21. What are the basic purposes of UNO?

22. Write a brief note on the aims and objectives of ASEAN.

(8 × 2 = 16 Marks)

III. Answer any **six** questions. **Each** question carries **4** marks.

23. Examine the impact of Globalization on Developing Countries.

24. Trace the evolution of International Politics.

25. Comment on Idealist theory in the study of International Politics.

26. Explain the basic features of Modern State System.

27. Find out the effects of Energy Crisis on Global Politics.

28. Explain the essential elements of Nationalism.

St. Xavier's College

29. What are the features of Kaplan's System theory in International politics?

30. Examine the reasons for Food Crisis.

31. Discuss the significance of European Union.

(6 × 4 = 24 Marks)

IV. **Essay** question. Answer any **two**. Each question carries **15** marks.

32. Discuss the role of UN in maintaining international peace and security.

33. Explain the nature and scope of International Politics.

34. Discuss the various elements that determine National Power of the state.

35. Examine Morgenthau's theory of Realism in the study of International Politics.

(2 × 15 = 30 Marks)

St. Xavier's College

(Pages : 3) G – 4042

Reg. No. : .....

Name : .....

Fourth Semester B.Sc. Degree Examination, July 2019

First Degree Programme under CBCSS

Complementary Course

PY 1431.2 : ATOMIC PHYSICS, QUANTUM MECHANICS AND ELECTRONICS

(for Chemistry and Polymer Chemistry)

(2013 Admission Onwards)

St Xavier's College

Time : 3 Hours Max. Marks : 80

SECTION – A

Answer **all** questions in **one** or **two** sentences. **Each** question carries **1** mark.

1. Specify the possible quantum transitions in Balmer series.
2. How the angular momentum and magnetic dipole moment of an orbiting electron are directed.
3. Write down the electronic configuration of Magnesium.
4. What distinguishes a Type I and Type II superconductors?
5. Write the form of normalization condition for a wave function ψ.
6. What is the relation between wave function and probability density?
7. If the wavelength of an electromagnetic wave is about the size of the diameter of an apple, what type of radiation is it?

P.T.O.

8. Which type of diode is used for voltage regulation?

9. Which is the most lightly doped region in a transistor?

10. Which of the transistor configuration is generally used for impedance matching?

(10 × 1 = 10 Marks)

SECTION – B

Answer any **eight** questions not exceeding a paragraph. **Each** question carries **2** marks.

11. State Bohr's correspondence principle.

12. Write how the orbital quantum number is related to orbital angular momentum of an electron.

13. Prove that K-shell can have only two electrons according to Pauli's exclusion principle.

14. What is Critical field regarding superconductivity.

15. Write any two applications of superconductors.

16. What are inadequacies of Classical Physics?

17. What are essential properties of an acceptable wave function?

18. Describe Planck's hypothesis.

19. Explain the ripple factor of a rectifier? Compare the ripple factors of a half wave and full wave rectifiers.

20. Write two properties of zener diode which makes it unique against an ordinary diode.

21. Which of the transistor configuration is mostly preferred and why?

22. Draw frequency response curve of a CE amplifier and indicate band width.

(8 × 2 = 16 Marks)

St. Xavier's College

SECTION – C

Answer any **six** questions. **Each** question carries **4** marks.

23. Discuss the spectral series of hydrogen atom using energy level diagram.

24. Explain L-S coupling in atoms.

25. Discuss the isotope effect of superconductors.

26. Find normalization constant A for the wave function $\psi = Ae^{im\phi}$ for $\phi = 0$ to 2π.

27. Obtain steady state form of Schrodinger equation.

28. Write a short note on NMR and ESR spectroscopy.

29. Explain the forward and reverse biasing of a junction diode, define knee voltage and breakdown voltage.

30. Discuss about the voltage divider bias in amplifier circuits.

31. For a transistor circuit, the values of base current and collector current are 40 μA and 0.00196A. Find α and emitter current.

(6 × 4 = 24 Marks)

SECTION – D

Answer any **two** questions. **Each** question carries **15** marks.

32. Discuss the vector atom model and the associated quantum numbers.

33. Describe the energy and wave function quantization of a particle in a potential box.

34. Discuss about the six spectroscopic regions in electromagnetic spectrum.

35. Explain an *npn* transistor. Describe the input and output characteristics of a transistor in common base configuration.

(2 × 15 = 30 Marks)

St Xavier's College

(Pages : 3) G – 4093

Reg. No. : .....

Name : .....

Fourth Semester B.Sc. Degree Examination, July 2019

(First Degree Programme under CBCSS)

Complementary Course for Physics

CH 1431.1 : SPECTROSCOPY AND MATERIAL CHEMISTRY

(2017 Admn.)

Time : 3 Hours Max. Marks : 80

SECTION – A

Answer **all** questions .Each question carries 1 mark:

1. What is the unit of wave number?
2. What range of wavelength is utilized in IR spectroscopy?
3. For NMR spectroscopy, ———— region of electromagnetic radiations are used.
4. What is specific selection rule for rotational spectrum?
5. Identify a functional group where $\pi - \pi^*$ transition occurs?
6. Define the term Ligands.
7. The ore of calcium is ————.
8. What is an Ores?
9. Mechanical grinding is ———— approach in Nanomaterial synthesis.
10. The cantilever which probes the surface has an atomically sharp tip which is brought into contact with the surface are used in ———— Microscopy.

(10 × 1 = 10 Marks)

P.T.O.

St. Xavier's College

SECTION – B

Answer any **eight** questions. Each question carries **2** marks.

11. Discuss Splitting pattern in NMR spectra of Ethanol.

12. What is the expression for Quantized rotational energy level of diatomic molecule?

13. The stokes lines in Raman spectra are more intense than anti-stokes line. Why?

14. Give one example each for low spin complexes and high spin complexes.

15. Define the term metallurgy.

16. What is zone refining?

17. What is mean by Crystal field stabilization energy?

18. What is Nanoscience?

19. Discuss in brief about Sol Gel Process.

20. What are Quantum dots?

21. What is the principle involved in Scanning Tunnelling Microscopy?

22. What is Superconductivity?

(8 × 2 = 16 Marks)

St Xavier's College

SECTION – C

Answer any **six** questions. Each question carries **4** marks. :

23. What kind of molecule gives Microwave spectra?

24. What are the types of Electronic transition occurs in Electronic spectroscopy and what range of wavelength they get absorbed?

25. What are the important postulates of Werner's coordination theory?

26. Describe the splitting of d-orbitals in Tetrahedral complexes by Crystal field theory.

27. Write a short note on Van Ankel Method.

28. Describe how the Titanium metal is extracted from its Ores.

29. Give an account of top-down approach in preparation of Nanomaterials.

30. Write a short note on Optical properties of Nanomaterials.

31. Describe what are the types of Liquid crystals.

(6 × 4 = 24 Marks)

SECTION – D

Answer any **two** questions. Each question carries **15** marks. :

32. What are the basic factors that affect Chemical Shift in NMR spectroscopy?

33. What are the basic postulates of valence bond theory? Give an account of how the Crystal field theory differs from Valence Bond Theory.

34. (a) State and Illustrate Frank-Condon principle.

(b) Give short note on following terms :
- (i) Bathochromic shift,
- (ii) Hypsochromic shift,
- (iii) hyperchromic shift and
- (iv) Hypochromic shift.

35. Discuss the various applications of Nanomaterials.

(2 × 15 = 30 Marks)

St. Xavier's College

(Pages : 3) G – 4105

Reg. No. : .....

Name : .....

Fourth Semester B.Com. Degree Examination, July 2019

First Degree Programme under CBCSS

Language Course VI: EN 1411.2 READINGS IN LITERATURE

(2015 Admission Onwards)

Time : 3 Hours Max. Marks : 80

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I. Answer **all** questions, each in a word or a sentence

1. What are the seven stages in the life of a man?
2. Who is the speaker in the poem *Ulysses*?
3. Why does Wilfred Owen say that the soldiers are "gaps for filling"?
4. To what is the process of mending wall compared?
5. What is the Kamala Das' complaint to her critics and friends?
6. What is the nature of the religion in the orient?
7. What is the one sentence comment made by the author about Vera's nature?
8. What did the Lawyer do at the end of the bet?
9. Why did the people hesitate to go to Dr. Raman?
10. What is the opinion of Kumarettan about America?

(10 × 1 = 10 Marks)

P.T.O.

II. Answer any **eight,** each in a short paragraph not exceeding **50** words

11. Describe the lady in the poem *La Belle Dame Sans Merci.*

12. Describe the people of Ithaca.

13. Pity of war as presented by Wilfred Owen.

14. Describe the physical process of mending a wall.

15. Elements of patriarchy in the poem *An Introduction.*

16. Why is tolerance essential in post-war world?

17. Explain the religion of fear.

18. What are Nehru's views on hero-worship?

19. How is the Communicable ward different from other wards?

20. What was the reason given by Veera for Nuttle's sudden exit?

21. Why did the lawyer renounce the bet?

22. What did Balu do to pass time in the house of his sister?

(8 × 2 = 16 Marks)

III. Answer any **six** each in a paragraph, not exceeding **100** words.

23. Irony in the poem *Insensibility.*

24. Comment on the imagery used in the poem *Mending Walls.*

25. Tolerance as a virtue.

26. Explain the relationship between science and religion.

27. How did Lahore congress affect Nehru?

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28. Examine critically the character of Dr. Raman.

29. Significance of the title *Yellow is the Colour of Longing.*

30. Conflict between Veera and Nuttel in *The Open Window*

31. The conflict between Sherlock and Balu.

IV. Answer any **two** in about **300** words. **(6 × 4 = 24 Marks)**

32. Sketch the character of Ulysses.

33. Consider *La Bella Dame Sans Merci* as a typical romantic poem.

34. How is love portrayed in the story *Yellow is the Colour of Longing?*

35. Describe how Anton Chekov uses the surrounding atmosphere to help readers predict the nature of future events.

(2 × 15 = 30 Marks)

St Xavier's College

(Pages : 3) G – 4110

Reg. No. : .....

Name : .....

Fourth Semester B.Com. Degree Examination, July 2019

First Degree Programme under CBCSS

Elective Course II: Stream I – Finance

CO 1461.1 – PROJECT FINANCE

(2013 Adm onwards)

St. Xavier's College

Time : 3 Hours Max. Marks : 80

PART – A

Answer **all** questions in one word or to a maximum of two sentences each. Each question carries 1 mark.

1. What is project?
2. What is meant by feasibility analysis?
3. What is copyright?
4. What is a disaster project?
5. IDBI was established in 1964 as a wholly owned subsidiary of_____
6. List out industrial development banks in India.
7. SIDBI stands for.
8. What are the sources of business idea?

P.T.O.

9. How business risk differs from financial risk?

10. Name any two modern technique of risk analysis.

(10 × 1 = 10 Marks)

PART – B

Answer **any eight** questions in not exceeding one paragraph each. Each question carries 2 marks.

11. What are the essential features of a project?

12. Describe the objectives of project appraisal.

13. Explain the term simulation analysis.

14. Mention the requisite of an ideal project report.

15. Explain trademark.

16. "A well planned project is a stepping stone for successful implementation of a project". List out the importance of project planning.

17. What do you mean by project management?

18. Define project lifecycle. Mention various stages in project life cycle.

19. What are the objectives of feasibility analysis?

20. Mention the sources of funding for a project.

21. What are the main objectives of SIDBI?

22. Distinguish between feasibility report and project report?

(8 × 2 = 16 Marks)

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PART – C

Answer **any six** questions in about 120 words each. Each question carries 4 marks.

23. Briefly state the contents of a project report.

24. Explain the stages in project formulation.

25. Write a note on different types feasibility analysis.

26. Briefly explain the different types of project.

27. Explain the functions of IFC.

28. Explain social cost benefit analysis.

29. Market appraisal of a project is concerned with the market for the product. Explain.

30. State the advantages of retained earnings as a method of project financing.

31. Describe the benefits of risk analysis in a project.

(6 × 4 = 24 Marks)

PART – D

Answer **any two** questions in not exceeding 4 pages. Each question carries 15 marks.

32. What is project formulation? Explain its stage.

33. Give on account of development banks in India providing finance for project.

34. Explain the traditional and modern technique of risk analysis of a project.

35. What is project appraisal? Explain its importance and various methods of project appraisal.

(2 × 15 = 30 Marks)

St. Xavier's College

(Pages : 3)

G – 4115

Reg. No. : .....

Name : .....

Fourth Semester B.Com. Degree Examination, July 2019

First Degree Programme Under CBCSS

Core Course CO 1441 / CC 1442

CAPITAL MARKET

(Common for Commerce/Commerce with Computer Application)

(2014 Admission Onwards)

St. Xavier's College

Time : 3 Hours

Max. Marks : 80

SECTION - A

Answer **all** questions to a maximum of two sentences. Each question carries **1** mark.

1. What do you mean by financial market?
2. What is kerb trading?
3. What is QIP?
4. Define derivatives.
5. Who are Book Runners?
6. What is red herring prospectus?
7. Expand DFHI.
8. What is a forward contract?
9. What are swaps?
10. What is notice money?

(10 × 1 = 10 Marks)

P.T.O.

SECTION - B

Answer any **eight** questions in not exceeding one paragraph each. Each question carries **2** marks.

11. What is dematerialization of securities? List two benefits.

12. Discuss the merits of T-Bills.

13. What are Depository Receipts.

14. Describe 'Wash sales'.

15. Mention the objectives of SEBI.

16. Who is a Registrar to an issue?

17. Explain ASBA.

18. What is Underwriting?

19. Who are Commission brokers?

20. What is Cornering?

21. How is an investor different from a speculator?

22. What is ESOP?

(8 × 2 = 16 Marks)

SECTION - C

Answer any **six** questions in not exceeding 120 words each. Each question carries **4** marks.

23. Explain the advantages of listing.

24. Discuss the steps in book-building process.

St. Xavier's College

25. Explain the terms (a) New issue (b) Public issue (c) Bonus issue and (d) Right issue.

26. State the powers of SEBI.

27. Distinguish between futures and options.

28. Write a note on any four innovative financial instruments.

29. Give a brief account on the members of stock exchange.

30. Discuss the functions of a depository.

31. Describe the various types of debentures.

(6 × 4 = 24 Marks)

SECTION - D

Answer any **two** questions in not exceeding 4 pages each. Each question carries **15** marks.

32. Give a brief account on the management of SEBI.

33. Critically evaluate the recent trends in Indian Capital Market.

34. Describe the important intermediaries in the new issue market and their role in issue management.

35. Discuss the procedure of trading in Indian Stock Exchanges.

(2 × 15 = 30 Marks)

St. Xavier's College

(Pages : 3) G – 4116

Reg. No. : .....

Name : .....

Fourth Semester B.Com. Degree Examination, July 2019

FIRST DEGREE PROGRAMME UNDER CBCSS

Core Course : CO 1442/TT 1442 CX 1442/HM 1442/CC 1443

BANKING THEORY AND PRACTICE

(Common for Commerce/Commerce and Tourism and Travel Management/Commerce and Tax Procedure and Practice/Commerce and Hotel Management and Catering/Commerce with Computer Application)

(2014 Adm onwards)

St Xavier's College

Time : 3 Hours Max. Marks : 80

SECTION – A

Answer **all** questions in one word or to a maximum of two sentences each. Each question carries **1** mark.

1. Define banking according to Banking Regulation Act 1949.
2. Give full form of ECS.
3. What is SWIFT?
4. What is SLR?
5. What do you mean by Open Market Operation?
6. What is mutilated Cheque?
7. What is NPA?

P.T.O.

8. What is e-Banking?

9. What is Demand Deposit?

10. Who is a Paying Banker? **(10 × 1 = 10 Marks)**

SECTION – B

Answer **any eight** questions in not exceeding one paragraph. Each question carries **2** mark.

11. Mention four characteristics of Central bank.

12. What are sound commercial banking principles?

13. Distinguish Repo and Reverse Repo.

14. State the meaning of Financial inclusion

15. What do you mean by endorsement? Who can endorse an instrument?

16. What are the features of negotiable instrument?

17. Mention the characteristics of electronic payments

18. Distinguish Bill of Exchange and Promissory Notes.

19. What do you mean by credit control?

20. What are the Objectives of selective credit control?

21. Write a note on Regional Rural Banks.

22. What is banker's right of lien? **(8 × 2 = 16 Marks)**

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SECTION – C

Answer **any six** questions in about 120 words each. Each question carries **4** mark.

23. What are the differences between holder and holder in due course?

24. Write a note on mobile banking. What are the advantages of mobile banking?

25. State the differences between debit card and credit card.

26. Distinguish quantitative and qualitative credit control.

27. What are the differences between Cheques and Promissory Notes?

28. What do you mean by banking ombudsman? What are the powers of Banking Ombudsman?

29. List the Retail banking Products and services

30. What are the benefits of Mobile banking?

31. What are the precautions to be taken while opening account in the name of a firm? **(6 × 4 = 24 Marks)**

SECTION – D

Answer **any two** questions in not exceeding 4 pages each. Each question carries **15** mark.

32. Describe the functions of Central Bank.

33. What do you understand by Banker's Right of General Lien? What are the circumstances under which banker can exercise its right of general lien?

34. What is Crossing of Cheques? Explain and Illustrate different types of crossing.

35. Describe the Banking Sector Reforms in India. **(2 × 15 = 30 Marks)**

St. Xavier's College

(Pages : 3) G – 4150

Reg. No. : .....

Name : .....

Fourth Semester B.A. Degree Examination, July 2019

Career Related First Degree Programme under CBCSS

Malayalam and Mass Communication

Core Course

MX 1441 : സാഹിത്യനിരൂപണം : സിദ്ധാന്തവും, പ്രയോഗവും

(2014 Admission Onwards)

St Xavier's College

Time : 3 Hours Max. Marks : 80

I. ഒരു വാക്കിലോ രണ്ടു വാക്യത്തിലോ ഉത്തരം എഴുതുക.

1. 'നാട്യശാസ്ത്ര'ത്തിന്റെ കർത്താവ് ആര്?

2. വഞ്ചിപ്പാട്ടിൽ ഉപയോഗിക്കുന്ന വൃത്തമേത്?

3. സാഹിത്യവിദ്യ ആരുടെ കൃതിയാണ്?

4. ഒരേ ശബ്ദധാരയിൽനിന്ന് രണ്ടർത്ഥങ്ങളുടെ അനുഭവമുണ്ടാക്കുന്ന അലങ്കാരമേത്?

5. ജതംജഗംഗം എന്ന ഗണവ്യവസ്ഥയിൽ വരുന്ന വൃത്തം ഏത്?

6. രോഗത്തിന്റെ പൂക്കൾ - ആരുടെ രചനയാണ്?

7. രൗദ്രരസത്തിന്റെ സ്ഥായിഭാവമേത്?

8. വിദ്യാവിനോദിനിയുടെ പത്രാധിപർ ആരായിരുന്നു?

P.T.O.

9. ഫെമിനിസത്തിന്റെ ബൈബിൾ എന്നറിയപ്പെടുന്ന കൃതി ഏത്?

10. റിപ്പബ്ലിക് എന്ന കൃതിയുടെ കർത്താവ്?

(10 × 1 = 10 Marks)

II. അരപ്പുറത്തിൽ കവിയാതെ **എട്ടു** ചോദ്യത്തിന് ഉത്തരമെഴുതുക.

11. സഹൃദയൻ - നിർവ്വചിക്കുക.

12. അർത്ഥാന്തരന്യാസവും അപ്രസ്തുതപ്രശംസയും തമ്മിലുള്ള വ്യത്യാസമെന്ത്?

13. ദളിതിസം - കുറിപ്പെഴുതുക.

14. ക്ലാസ്സിസത്തിന്റെ പൊതുസ്വഭാവമെന്ത്?

15. ധ്വനി - നിർവ്വചിക്കുക.

16. വൃത്തം - വിശദീകരണക്കുറിപ്പ് തയ്യാറാക്കുക.

17. മഞ്ജരിയുടെ ലക്ഷണം സോദാഹരണം വിശദമാക്കുക.

18. 'തന്റെ ഈ അധിക അവകാശവാദം പുരുഷൻ ഭൂമിയിൽ മാത്രമല്ല, സ്വർഗ്ഗത്തിലും സ്ഥാപിച്ചിട്ടുണ്ട്. വിവക്ഷിതമെന്ത്?

19. കവി ശബ്ദത്തിന് പ്രാചീന ഭാരതീയാചാര്യന്മാർ നല്കിയ നിർവ്വചനമെന്ത്?

20. അലങ്കാരത്തിന് ഏ.ആർ. നല്കുന്ന നിർവ്വചനമെന്ത്?

21. രൂപഭദ്രതാവാദം - കുറിപ്പെഴുതുക.

22. ഘടനാവാദത്തെ പരിചയപ്പെടുത്തുക.

(8 × 2 = 16 Marks)

III. ഒരു പുറത്തിൽ കവിയാതെ **ആറു** ചോദ്യത്തിന് ഉത്തരമെഴുതുക.

23. 'കവികൾ അവർ സൃഷ്ടിച്ചിട്ടുള്ള സ്ത്രീകഥാപാത്രങ്ങളിലൂടെയാണ് ജീവിക്കുന്നത്' എന്ന പ്രസ്താവന കുമാരനാശാന്റെ കാര്യത്തിൽ എത്രമാത്രം പ്രസക്തമാണ്?

St. Xavier's College

24. മലയാളഗദ്യസാഹിത്യത്തിന്റെ വളർച്ചയ്ക്ക് കേരളവർമ്മ വലിയ കോയിത്തമ്പുരാൻ വഹിച്ച പങ്കെന്ത്?

25. കാല്പനിക പ്രസ്ഥാനത്തിന്റെ മുഖ്യസവിശേഷതകൾ എന്തെല്ലാം?

26. ചങ്ങമ്പുഴക്കവിതയുടെ മഹത്ത്വമായി ബി. രാജീവൻ ചൂണ്ടിക്കാണിക്കുന്നതെന്ത്?

27. സാമ്യോക്തി വിഭാഗത്തിൽപ്പെട്ട രണ്ട് അലങ്കാരങ്ങളെ സോദാഹരണം പരിചയപ്പെടുത്തുക.

28. പാരിസ്ഥിതിക വിമർശനം എന്നാലെന്ത്?

29. മലയാളത്തിൽ മാർക്സിസ്റ്റ് നിരൂപണം പ്രബലമായ ഒരു ശാഖയാണ്. വിലയിരുത്തുക.

30. വീണപൂവ് ഒരു പ്രതീകാത്മകവിലാപകാവ്യമാണെന്ന് ഡോ. എം. ലീലാവതി സമർത്ഥിച്ചിരിക്കുന്നതെങ്ങനെ?

31. മലയാള നിരൂപണരംഗത്ത് കെ.പി. അപ്പന്റെ സ്ഥാനം വിലയിരുത്തുക.

(6 × 4 = 24 Marks)

IV. മൂന്നു പുറത്തിൽ കവിയാതെ **രണ്ടു** ചോദ്യത്തിന് ഉത്തരമെഴുതുക.

32. 'സാഹിത്യത്തിലെ സ്ത്രീ' എന്ന ലേഖനത്തിലൂടെ മുണ്ടശ്ശേരി അവതരിപ്പിക്കുന്ന ആശയം സംഗ്രഹിക്കുക.

33. മലയാള വിമർശനത്തിന്റെ വളർച്ചയിൽ പത്രമാസികകൾ വഹിച്ച പങ്ക് വിലയിരുത്തുക.

34. കാവ്യപ്രയോജനത്തെ സംബന്ധിച്ചുള്ള ഭാരതീയ ആലങ്കാരികന്മാരുടെ അഭിപ്രായങ്ങൾ ക്രോഡീകരിക്കുക.

35. പാശ്ചാത്യസാഹിത്യസിദ്ധാന്തങ്ങൾ മലയാളത്തിലെ ആധുനികനിരൂപണത്തിൽ ചെലുത്തിയ സ്വാധീനത്തെപ്പറ്റി ഉപന്യസിക്കുക.

(2 × 15 = 30 Marks)

St. Xavier's College

(Pages : 3)

G – 4151

Reg. No. : .....

Name : .....

Fourth Semester B.A. Degree Examination, July 2019

(Career Related First Degree Programme Under CBCSS)

Malayalam and Mass Communication

Vocational Course V

MX 1471 ADVERTISING

(2014 Admission onwards)

St. Xavier's College

Time : 3 Hours

Max. Marks : 80

I. Answer all questions in one word or to a maximum of two sentences.

1. ASCI
2. David ogilvy
3. Flight
4. Classified Ad
5. Flier
6. Brand
7. Story board
8. Logo
9. Amul girl
10. Alyque Padamsee

(10 × 1 = 10 Marks)

P.T.O.

II. Answer any **eight** of the following, each one not exceeding 60 words.

11. What do you mean by media schedule?

12. Write on online advertisements and its relevance.

13. What do you mean by prestige advertising?

14. What do you mean by Marketing Mix?

15. Explain and expand DAGMAR

16. What do you mean by brand loyalty?

17. Write on the challenges faced by television Ads.

18. What do you mean by VALS?

19. Explain the importance of Direct Marketing.

20. Explain story boarding and its importance in creating an electronic adverting.

21. Explain the term brand loyalty.

22. Write a short note on major brands of India.

(8 × 2 = 16 Marks)

III. Answer any **six** of the following, each one not exceeding 120 words.

23. Explain how the growth of middle class in India have boosted the Advertising sector.

24. Write a short history of advertising in India

25. What are the essential qualities of a good advertising?

26. Write on the role of copy writer in creating an effective advertisement.

27. Write on the importance of magazines as a specialized medium of advertising.

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28. What do you moan by public service advertising?

29. "Advertisements create unnecessary needs". Do you agree? Explain.

30. What do you mean by code of ethics in advertising?

31. Comment on the importance and relevance of radio advertisements.

(6 × 4 = 24 Marks)

IV. Write essay an any **two** of the following, each one not exceeding 500 words.

32. Explain the origin and development of advertising and also explain its importance in the life of the people.

33. What are the major types of advertising? Explain.

34. "Media planning is one of the most important areas of advertising". Comment.

35. "Advertising act as a supporting industry as far as mass media is concerned". Comment on the relationship between mass media and advertising.

(2 × 15 = 30 Marks)

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(Pages : 3)

G – 4152

Reg. No. : .....

Name : .....

Fourth Semester B.A. Degree Examination, July 2019

Career Related First Degree Programme Under CBCSS

Malayalam and Mass Communication.

Vocational Course VI

MX 1472 CORPORATE COMMUNICATION AND MEDIA MANAGEMENT

(2014 Admn onwards)

St. Xavier's College

Time : 3 Hours

Max. Marks : 80

PART – A

Answer **all** the ten questions, each one in one or two sentences.

1. IPRA
2. Logo
3. News Letter
4. Internal Public
5. Corporate Social Responsibility
6. Lobbying
7. In House PR

P.T.O.

8. Edward Bernays

9. Vertical Integration

10. Online Communication

(10 × 1 = 10 Marks)

PART – B

Answer **any eight** of the following each one not exceeding 60 words.

11. Private Sector PR activities

12. Write a note on the external publics in PR.

13. Write a note on the need of ethics in PR.

14. Write a note on the impact of PR in attitude change of the public.

15. Explain the term propaganda.

16. Write a note on any one of the PR campaigns of the central government.

17. Objectives of Corporate Communications.

18. Corporate image

19. Sales Promotion and PR

20. Role of Press Release in PR

21. Crisis PR

22. What is cross-media ownership?

(8 × 2 = 16 Marks)

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PART – C

Answer **any six** of the following each one not exceeding 120 words.

23. Explain the importance of Corporate Communications.

24. What are the roles and responsibilities of a PRO?

25. List the different types of PR campaigns with suitable examples.

26. Differentiate between the practices of PR and Journalism.

27. How online communication helps a corporate company to achieve their PR goals?

28. Differentiate between PR in Public sector and private sector.

29. Write notes on major professional organisations in the field of Public Relations.

30. Explain the types of Newspaper ownerships in India.

31. Discuss the significance of crisis management in PR.

(6 × 4 = 24 Marks)

PART – D

Write essays on **any two** of the following each one not exceeding 500 words.

32. Discuss in detail about the evolution of Corporate Communications as a professional discipline.

33. Elaborate the different types of skills needed for an effective PR professional.

34. Describe in detail the various types of ownership patterns of Indian Media.

35. Discuss in detail the role played by Corporate Communication in building the image of a Business house.

(2 × 15 = 30 Marks)

St. Xavier's College

(Pages : 3)

G – 4153

Reg. No. : .....

Name : .....

Fourth Semester B.A. Degree Examination, July 2019

Career Related First Degree Programme under CBCSS

Malayalam and Mass Communication

Complementary Course

MX 1431 : മാധ്യമാനന്തര വിവർത്തനം

(2014 Admission Onwards)

St. Xavier's College

Time : 3 Hours

Max. Marks : 80

I. ഒരു വാക്കിലോ രണ്ടു വാക്യത്തിലോ ഉത്തരമെഴുതുക.

1. 'വിവർത്തനത്തിന്റെ ഭാഷാശാസ്ത്ര ഭൂമിക' എന്ന ഗ്രന്ഥം രചിച്ചതാര്?

2. ന്യൂസ്പേപ്പർ ബോയ് എന്ന സിനിമയ്ക്ക് ആധാരമായ ചെറുകഥ?

3. അകിര കുറസോവയുടെ ഡ്രീംസ് എന്ന സിനിമാപാക്കേജിലെ കാക്കകൾ (crows) ആരുടെ, ഏത് ചിത്രത്തിന്റെ വിവർത്തനമാണ്?

4. 'സാഹിത്യവും സിനിമയും ഒരു ചിഹ്നശാസ്ത്ര പഠനം' എന്ന കൃതിയുടെ കർത്താവ്?

5. 'നഷ്ടപ്പെട്ട നീലാംബരി' എന്ന ചെറുകഥയ്ക്ക് എത്ര ഭാഗങ്ങളുണ്ട്?

6. എം.ടി. വാസുദേവൻ നായരുടെ 'പള്ളിവാളും കാൽച്ചിലമ്പു'മെന്ന ചെറുകഥയുടെ ചലച്ചിത്രാവിഷ്കാരം ഏത്?

7. മലയാളത്തിലെ ആദ്യ അനുവർത്തന ചലച്ചിത്രം.

P.T.O.

8. കളിയാട്ടം എന്ന ചലച്ചിത്രം പുറത്തിറങ്ങിയ വർഷം.

9. പുരാണകഥയെ ഉപജീവിച്ചുണ്ടായ ഇന്ത്യയിലെ ആദ്യ അനുവർത്തന ചലച്ചിത്രം ഏത്?

10. ജി. അരവിന്ദന്റെ കാഞ്ചനസീത ചലച്ചിത്രത്തിന് ആരുടെ നാടകത്തോടാണ് കടപ്പാട്?

(10 × 1 = 10 Marks)

II. ഒരു ഖണ്ഡികയിൽ കവിയാതെ **എട്ടു** ചോദ്യത്തിന് ഉത്തരമെഴുതുക.

11. പുനഃരാഖ്യാനം, പുനഃസൃഷ്ടി എന്നിവ വ്യത്യാസപ്പെടുന്നതെങ്ങനെ?

12. സിനിമയിൽ വിവർത്തനം എന്നതുകൊണ്ട് അർത്ഥമാക്കുന്നതെന്ത്?

13. പരാവർത്തനം എന്നാൽ എന്തെന്നു വിശദമാക്കുക.

14. മുട്ടത്തുവർക്കിയുടെ ചലച്ചിത്രമായ ഏതെങ്കിലും നാല് നോവലുകളുടെ പേരെഴുതുക.

15. സമീപദൃശ്യം (close up) എന്നാൽ എന്ത്? സിനിമയിൽ ഈ ദൃശ്യത്തിനുള്ള പ്രാധാന്യമെന്ത്?

16. ചിത്രകലയിലെ ക്യൂബിസം സിനിമ ഉൾക്കൊണ്ടതെങ്ങനെ?

17. സാഹിത്യത്തിലും സിനിമയിലും ചിഹ്നം എന്നതുകൊണ്ട് അർത്ഥമാക്കുന്നതെന്ത്?

18. മലയാളത്തിലെ അനുവർത്തന ചലച്ചിത്രങ്ങൾക്ക് നാടകത്തോടുള്ള ബന്ധം വ്യക്തമാക്കുക.

19. കഥയിലെ സുഭദ്ര സിനിമയിൽ ഭദ്രയായപ്പോൾ സംഭവിച്ച പ്രധാന മാറ്റങ്ങൾ ഏവ?

20. അനുഷ്ഠാനകലയായ തെയ്യത്തിന്റെ പശ്ചാത്തലം കളിയാട്ടം സിനിമയുടെ കഥാഗതിയിൽ ഭാഗഭാക്കാവുന്നതെങ്ങനെ?

21. തിരക്കഥയിലെ ദുരന്തകഥാപാത്രമാണ് വൈകുണ്ഠശാസ്ത്രികൾ - വിലയിരുത്തുക.

22. കളിയാട്ടത്തിലെ താമരയ്ക്ക് ഒഥല്ലോയിലെ ഡെസ്ഡിമോണയുമായി സാദൃശ്യം കല്പിക്കാനാവുമോ?

(8 × 2 = 16 Marks)

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III. **120** വാക്കിൽ കവിയാതെ **ആറു** ചോദ്യത്തിന് ഉത്തരമെഴുതുക.

23. "സിനിമയ്ക്ക് ഏറ്റവുമടുത്ത ബന്ധം നാടകവുമായിട്ടാണെന്ന് പറയുമ്പോഴും ഈ രണ്ട് കലാരൂപങ്ങൾ തമ്മിൽ മൗലികമായ വ്യത്യാസങ്ങളും കാണാം" - സമർത്ഥിക്കുക.

24. അനുവർത്തനം സവിശേഷമായ ഒരു സർഗ്ഗാത്മകപ്രക്രിയയാണെന്ന് പറയുന്നതെന്തുകൊണ്ട്?

25. മാധ്യമാന്തര വിവർത്തനം എന്നാൽ എന്തെന്ന് ഉദാഹരണസഹിതം വിശദീകരിക്കുക.

26. ലോക സിനിമയിലെ ആദ്യകാല അനുവർത്തനങ്ങളുടെ ചരിത്രം ക്രോഡീകരിക്കുക.

27. പുരാണേതിഹാസങ്ങളെയും വടക്കൻപാട്ടുകളെയും അവലംബിച്ച് മലയാളത്തിലുണ്ടായ ചലച്ചിത്രങ്ങളെ അനുവർത്തനമായി കണക്കാക്കാമോയെന്ന് പരിശോധിക്കുക.

28. "മലയാളത്തിലെ അനുവർത്തന സിനിമകളിൽ ഏറിയ പങ്കും നോവലുകളാണ്". സിനിമാചരിത്രം മുൻനിർത്തി ചർച്ചചെയ്യുക.

29. ചിത്രകലയും സിനിമയും തമ്മിലുള്ള സാദൃശ്യം വിലയിരുത്തുക.

30. സിനിമയുടെ പ്രമേയം പ്രേക്ഷകനിലേക്ക് എത്തിക്കുന്നതിൽ ദൃശ്യത്തോടൊപ്പം ശ്രാവ്യത്തിനും പങ്കുണ്ടെന്ന് പറയാനുള്ള കാരണങ്ങളേവ?

31. നഷ്ടപ്പെട്ട നീലാംബരി ചലച്ചിത്രമാക്കിയപ്പോൾ വരുത്തിയിട്ടുള്ള മാറ്റങ്ങൾ ഏവ?

(6 × 4 = 24 Marks)

IV. മൂന്നു പുറത്തിൽ കവിയാതെ ഏതെങ്കിലും **രണ്ടു** ചോദ്യത്തിന് ഉത്തരമെഴുതുക.

32. സിനിമയും സാഹിത്യവും തമ്മിലുള്ള ബന്ധം വിശകലനം ചെയ്യുക.

33. ഷേക്സ്പിയറുടെ ഒഥല്ലോയും ജയരാജിന്റെ കളിയാട്ടവും തമ്മിലുള്ള സാജാത്യവൈജാത്യങ്ങൾ ക്രോഡീകരിക്കുക.

34. അനുവർത്തനത്തിന്റെ വൈവിധ്യം മലയാള സിനിമയിൽനിന്ന് ഉദാഹരണ സഹിതം ചർച്ച ചെയ്യുക.

35. ഭദ്രയും രാമാനുജ ശാസ്ത്രികളും തമ്മിലുള്ള പ്രണയം മൂലകഥയിൽ നിന്ന് വ്യത്യസ്തമായി വിശദമായ രംഗങ്ങളിലൂടെ ചലച്ചിത്രത്തിൽ ആവിഷ്കരിക്കുന്നതെങ്ങനെ?

(2 × 15 = 30 Marks)

St. Xavier's College

(Pages : 3)

G – 4178

Reg. No. : .....

Name : .....

Fourth Semester B.Sc. Degree Examination, July 2019

(Career Related First Degree Programme Under CBCSS)

Group 2(a) Botany and Biotechnology

BB 1441 : HORTICULTURE, MUSHROOM CULTIVATION AND MARKETING

(2013 Admission Onwards)

St. Xavier's College

Time : 3 Hours

Max. Marks : 80

SECTION – A

Answer **all** questions. Each question carries 1 mark each. Answer in a sentence.

1. Define spawn.
2. What is milky mushroom?
3. Name any one disease of mushroom.
4. What is the role of sphagnum in potting?
5. Name any two types of soil.
6. What is farm yard manure?
7. Which one is the main rooting hormonal in horticulture?
8. What is drip irrigation?
9. What are carpet beds?
10. Define parthenocarpy.

(10 × 1 = 10 Marks)

P.T.O.

SECTION – B

Answer any **eight** questions. **Each** question carries 2 marks each. Answer not to exceed one paragraph.

11. What are garland and bouquet?

12. What is Vermiculture?

13. What are cuttings?

14. Explain Hydroponics.

15. Write notes on bonsai.

16. What are weedicides? Give an example.

17. What is a rockery?

18. Describe the morphology of pleurotus.

19. Write notes on compost.

20. Give an account of Poisonous mushrooms.

21. What is blanching?

22. Define edges.

(8 × 2 = 16 Marks)

St. Xavier's College

SECTION – C

Answer any **six** questions. **Each** question carries **4** marks. Answer not to exceed 120 words.

23. Which are the methods of preservation of vegetables and fruits?

24. Describe the different types of layering.

25. Write an account of cultivation of Oyster mushroom.

26. Describe the structure and life cycle of Agaricus.

27. Explain briefly the common diseases of vegetable crops and fruits.

28. Which are the contents of potting mixture? Explain.

29. Describe any four components of Garden.

30. Write notes on biofertilizers and chemical fertilizers.

31. Give an account of common edible mushrooms and poisonous mushrooms.

(6 × 4 = 24 Marks)

SECTION – D

Answer any **two** questions. **Each** question carries **15** marks. Answer not to exceed 3 pages.

32. What is grafting? Explain with diagram, the different types of grafting.

33. What are the different methods of cultivation of mushrooms?

34. Give an account of various types of flower arrangements in horticulture.

35. Write an essay with regard to the harvesting of fruits and vegetables.

(2 × 15 = 30 Marks)

St. Xavier's College

(Pages : 3) G – 4179

Reg. No. : .....

Name : .....

Fourth Semester B.Sc. Degree Examination, July 2019

Career Related First Degree Programme under CBCSS

Core Course BB 1442 / BV 1442.1 : CELL BIOLOGY, PLANT BREEDING AND EVOLUTIONARY BIOLOGY

(2013 Admn onwards)

(Common for Group 2(a) Botany and Biotechnology and Group 2(b) Biotechnology)

St. Xavier's College

Time : 3 Hours Max. Marks : 80

SECTION – A

Answer **all** questions in a word or 1 or 2 sentences. Each question carries 1 mark. :

1. What do you mean Genetic drift?
2. What is Endoplasmic reticulum?
3. What is Mutation?
4. Who introduced the theory of natural selection?
5. Give two examples of special types of chromosomes.
6. What do you mean by Polyploidy?
7. What do you mean by Euchromatin?

8. What is Heterosis?

9. Expand NBPGR.

10. Name two physical mutagens.

(10 × 1 = 10 Marks)

SECTION – B

Answer any **eight** questions. Each question carries 2 marks. Answer not to exceed **1** paragraph.

11. Give a note on Mutation breeding.

12. How parallel evolution differs from convergent evolution?

13. Differentiate between Aneuploidy and Euploidy.

14. What do you mean by Lamarckism'? What are its main postulates'?

15. Differentiate between intergeneric and interspecific hybridization with examples.

16. What is the difference between a synthetic variety from a composite variety?

17. What are Histones?

18. What are Golgi bodies?

19. What is a Satellite DNA?

20. What do you mean by Industrial Melanism?

21. What is fluid-mosaic model of plasma membrane?

22. Give a note on Chlorophylls.

(8 × 2 = 16 Marks)

St. Xavier's College

SECTION – C

Answer any **six** questions. Each question carries **4** marks. Answer not to exceed **120 words** :

23. Explain the steps involved in Hybridization.

24. Explain the various methods involved in the selection of varieties for plant breeding.

25. Give a note on the functions of mitochondria.

26. Give the differences between Macro and Micro evolution.

27. Describe the various modes of chromosomal structural aberrations.

28. Describe the structure and function of Lampbrush chromosomes.

29. What are Lysosomes? What are their functions?

30. Briefly describe the various stages involved in Mitosis.

31. Explain the Germ plasm theory of August Weisman.

(6 × 4 = 24 Marks)

SECTION – D

Answer any **two** questions. Each question carries **15** marks. Answer not to exceed **3 pages** :

32. What is Plant breeding? Describe its objectives.

33. Describe Charles Darwin's theory of Organic Evolution by Natural selection.

34. Describe the various stages of Meiosis.

35. Describe in detail the structure and functions of Mitochondria with the aid of a diagram.

(2 × 15 = 30 Marks)

St. Xavier's College

(Pages : 3)

G – 4180

Reg. No. : .....

Name : .....

Fourth Semester B.Sc. Degree Examination, July 2019

Career Related First Degree Programme under CBCSS

Group 2(a) : Botany and Biotechnology

Vocational Course – BB 1471 : MOLECULAR BIOLOGY

(2013 and 2014 Admn)

St. Xavier's College

Time : 3 Hours

Max. Marks : 80

PART – A

Answer **all** questions in a word or **1** or **2** sentences. **Each** question carries **1** mark.

1. Name the scientist who discovered Jumping genes.
2. What are antiparallel strands?
3. What are cohesive ends?
4. What is core particle?
5. What is the function of DNA methylase enzyme?
6. Define Operon.
7. Define peptide bond.
8. What is a regulatory gene?
9. What is the quaternary structure?
10. Define Plasmid.

(10 × 1 = 10 Marks)

P.T.O.

PART – B

Answer **any eight** questions. Each question carries **2** marks. Answer not to exceed **1** paragraph

11. Write in the contribution of H.G. Khorana:

12. Write short notes about Reverse transcriptase.

13. What is wobble hypothesis?

14. What are genes? Define.

15. Differentiate between sense and antisense RNA.

16. Write short notes on Nucleoproteins.

17. What is palindrome DNA?

18. What is the function of CAT box?

19. What are translational inhibitors?

20. What are Base analogues?

21. Differentiate between leading strand and lagging strand.

22. What way transition differs from transversion?

(8 × 2 = 16 Marks)

St Xavier's College

PART – C

Answer **any six** questions. **Each** question carries **4** mark. Answer not to exceed **120** words.

23. Mention any six historical events in molecular biology.

24. Why is it said that Genetic code is universal?

25. Explain the process transcription.

26. How nucleases are classified? What is their function?

27. Write a short account on replication fork.

28. Write an account on exons.

29. What do you mean by repression and induction of *lac* operon?

30. Write on RNA polymerases.

31. Describe the properties of genetic materials.

(6 × 4 = 24 Marks)

PART – D

Answer **any two** questions. **Each** question carries **15** marks. Answer not to exceed **3** pages.

32. Describe the structure of double stranded DNA as proposed by Watson and Crick.

33. Write an account on Mitochondrial genome.

34. Write an essay on the various types of RNA studied by you.

35. Describe the process of Protein synthesis in true nucleated life forms.

(2 × 15 = 30 Marks)

St. Xavier's College

(Pages : 3)

G – 4208

Reg. No. : .....

Name : .....

Fourth Semester B.Sc. Degree Examination, July 2019

Career Related First Degree Programme Under CBCSS

Group 2(a) : Botany and Biotechnology

VOCATIONAL COURSE BB 1471 : MOLECULAR BIOLOGY

(2015 Admn onwards)

St. Xavier's College

Time : 3 Hours

Max. Marks : 80

SECTION – A

Answer **all** questions in a word or **1** or **2** sentences. **Each** question carries **1** mark.

1. Define the scope of molecular biology.
2. Name two model organisms in molecular biology.
3. Define anticodon.
4. Write short note on Base pair.
5. What is Cistron?
6. Write on Supercoils DNA.
7. Name the organism in which RNA serves as a genetic material.
8. What is Z DNA?
9. Name the scientist who first identified DNA.
10. What is an Amino acid?

(10 × 1 = 10 Marks)

P.T.O.

SECTION – B

Answer **any eight** questions. **Each** question carries **2** marks. Answer not to exceed **1** paragraph.

11. Name the inhibitor of translation and its mode of action.

12. Write short notes on arabinose operon.

13. What is Wobble pairing?

14. What is the function of Ligase?

15. What for Hershey and Chase became famous?

16. What is attenuation?

17. Write notes on DNA polymerase 11.

18. What is Chargaff rule?

19. Explain the function of A and P site of ribosome subunit.

20. Write a brief account on post translational modification of proteins.

21. Explain the contribution of Conrat and Singer.

22. Expand A, T, G and U.

(8 × 2 = 16 Marks)

St. Xavier's College

SECTION – C

Answer **any six** questions. Each question carries **4** mark. Answer not to exceed **120** words.

23. Distinguish between DNA polymerase and RNA polymerase.

24. Explain the experiment of Lederberg and Tatum.

25. Describe the three types of bonds present in DNA molecule. Give details and diagram.

26. Describe the structure of Nucleosome.

27. Describe the structure of a eukaryotic gene.

28. Describe the important steps involved in mRNA translation.

29. Write an account on different types of transposons. Define transposable element.

30. What is Operon concept?

31. What is polycistronic mRNA? Mention its function?

(6 × 4 = 24 Marks)

SECTION – D

Answer **any two** questions. **Each** question carries **15** marks. Answer not to exceed **3** pages.

32. Write a detailed account on the features of Genetic code.

33. Describe the process of Eukaryotic transcription.

34. Write the details of the experiments conducted by Griffith and Avery, McCarty and MacLeod (two experiments) to prove that DNA is the genetic material.

35. Describe the role of the enzymes in DNA replication.

(2 × 15 = 30 Marks)

St. Xavier's College

(Pages : 3)

G – 4209

Reg. No. : .....

Name : .....

Fourth Semester B.Sc. Degree Examination, July 2019

Career Related First Degree Programme under CBCSS

Group 2(a) Botany and Biotechnology

Vocational Course - BB 1472 : IMMUNOLOGY

(2015 Admission onwards)

Time : 3 Hours

Max. Marks : 80

St. Xavier's College

SECTION – A

Answer **all** questions in a word or 1 sentences. Each question carries **1** mark. :

1. Define immunity.
2. What are interferons?
3. What is allotype?
4. What is opsonisation?
5. What are adjuvants?
6. Name two viral vaccines.
7. Write briefly on complement fixation test.
8. What are Haptens?
9. What is IgD?
10. What is anaphylactic shock?

(10 × 1 = 10 Marks)

P.T.O.

SECTION – B

Answer any **eight** questions. Each question carries **2** marks. Answer not to exceed **1** paragraph.

11. Write four characteristics of antigen antibody reactions.

12. How are hypersensitivity reactions classified?

13. What is agglutination?

14. What is secondary response?

15. What is pernicious anaemia?

16. What are idiotypes?

17. Name four types of dentritic cells.

18. What are isotypic determinants?

19. Write a note on multivalent subunit vaccine.

20. Comment on synthetic peptide.

21. Write a note on ABO blood group.

22. What are immunogens?

(8 × 2 = 16 Marks)

St. Xavier's College

SECTION – C

Answer any **six** questions. Each question carries **4** marks. (Answer not to exceed **120** words :

23. What are toxoids ? How is it prepared?

24. Explain the structure of IgG.

25. Explain ELISA.

26. Explain the different types of agglutination tests.

27. Write a note on molecular events in activation of B- cells.

28. Explain the structure of Lymph glands.

29. Explain Haematopoiesis.

30. Explain briefly the cells involved in immunity.

31. What is immunodiffusion ? Explain its application.

(6 × 4 = 24 Marks)

SECTION – D

Answer any **two** questions. Each question carries **15** marks. (Answer not to exceed **3** pages) :

32. What are monoclonal antibodies and how it differ from polyclonal antibodies? Explain hybridoma technology.

33. Briefly explain different types of immunity.

34. Explain any three autoimmune diseases you have studied.

35. Write an essay on therapeutic antibodies.

(2 × 15 = 30 Marks)

St. Xavier's College

(Pages : 4) G – 4008

Reg. No. : .....

Name : .....

Fourth Semester B.A. Degree Examination, July 2019

First Degree Programme Under CBCSS

Economics

Core Course – EC 1442 – MACRO ECONOMICS I

(2015 Admission onwards)

St. Xavier's College

Time : 3 Hours Max. Marks : 80

PART – A

Answer **all** questions, Each question carries one mark.

1. GDP
2. Partial Equilibrium
3. Macro Statics
4. Autonomous investment
5. Stock variable
6. Wage flexibility
7. Nominal GNP
8. Aggregate demand function

P.T.O.

9. Structural unemployment

10. Saving

(10 × 1 = 10 Marks)

PART – B

Answer **any eight** questions not exceeding one paragraph. Each question carries 2 marks.

11. Differentiate between Actual GNP and Potential GNP.

12. Explain Social Accounting.

13. Explain money illusion.

14. Explain the role of taxation in the determination of National Income.

15. Explain Classical dichotomy.

16. Differentiate between Exogenous and Endogenous variables.

17. Is it often asserted that budget deficit crowds out private investment? Do you agree? Explain.

18. Explain Neutrality of Money.

19. Explain Keynesian Effect.

20. Elucidate GNP Deflator.

21. Explain the future of Green GDP.

22. Differentiate between National Income at current and constant prices.

(8 × 2 = 16 Marks)

St. Xavier's College

PART – C

Answer **any six** questions not exceeding 120 words. Each question carries 4 marks.

23. What are the limitations of estimating National Income in India?

24. Examine the relevance of say's law of market in the classical theory.

25. Distinguish between autonomous investment and induced investment. Explain the factors that determine the level of investment in the economy.

26. What are the major assumptions of Classical theory?

27. Explain three pillars of classical economics.

28. Explain how National Income is determined in an open economy in Keynesian macroeconomic system.

29. Explain circular form of income and expenditure in a four sector model.

30. Explain Keynesian labour market theory.

31. What are the factors that determine aggregate demand?

(6 × 4 = 24 Marks)

St Xavier's College

PART – D

Answer **any two** questions, not exceeding four pages. Each question carries 15 marks.

32. Explain Keynesian concept of aggregate demand. How is the aggregate demand function different from Classical demand function?

33. Explain Classical theory of income and employment? Briefly point out Keynes criticism of Classical theory.

34. Briefly explain Fisher's transaction approach to demand for money. Classical economists consider money as a medium of exchange. Examine critically.

35. Explain the various concepts under national income accounting.

(2 × 15 = 30 Marks)

St. Xavier's College

(Pages : 4) G – 3909

Reg. No. : .....

Name : .....

Fourth Semester B.A./B.Sc. Degree Examination, July 2019

First Degree Programme under CBCSS

Language Course (Additional Language) – LATIN

LT 1411.1 : CULTURE AND CIVILIZATION IN LATIN

(2013 Admission Onwards)

St. Xavier's College

Time : 3 Hours Max. Marks : 80

PART – A Responde omnibus

1. Explica '*dies lustricus*'
2. Expande 'Ps'
3. Indica verum (T) au falsum (F)

   The Armenian translation of the Bible is called 'Vulgate'
4. Who is the author of *Aeneid*?
5. Who commissioned S. Jerome to bring out a new Latin edition of the Bible?
6. Who is the historian of the golden Age of Latin?
7. Name the oldest literary text preserved in any Indo – European language.
8. Explica *'paterfamilias'*
9. Describe '*himation*'
10. Qui erat Juno?

(10 × 1 = 10 Marks)

P.T.O.

PART – B Responde octo de datis

11. Adepta aptum cum apto

(a)	Tertullian	-	the branch to which English belongs
(b)	Ulfilas	-	Indian
(c)	Vedas	-	ecclesiastical writer
(d)	West Teutonic	-	translated the New testament into Gothic

12. Explica

Genus in lingua Latina

13. Scribe breviter de sequentibus verbis

(a) Lacerna

(b) Lan istae

14. Redde Anglice

(a) Reginae ancillis viam monstramus.

(b) Hastae et sagittae agricolam non delectant.

15. Redde Latine

(a) The book is on the table.

(b) The queen is coming into the school.

16. Write the Latin root of the following English words

(a) Laboratory

(b) Terrace

17. Explain: "ubi tu Gaius, ego Gaia."

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18. Briefly describe 'salutatio' et 'deductio' in ancient Latin culture

19. Explain about the Roman marriage.

20. Briefly describe ancient Roman religion.

21. Explain the etymological difference between 'pallium' and 'palla'.

22. Briefly explain Pompey's contribution to ancient Roman theatre.

(8 × 2 = 16 Marks)

PART – C Responde sex de datis

Explica sententias datas

23. Ancient Roman entertainments

24. Briefly explain the fashion and clothing of Ancient Roman people.

25. Explain Grimm's Law

26. Explain the education system of the Roman people.

27. Explain the isolated Position of Armenian language in the Indo — European family.

28. Explain the transportation system of the Ancient Roman civilization.

29. What is dialect? What was the dialect of people of Latium?

30. Which are the eight living branches of indo-European family?

31. Write a short note on the Celtic group of Languages.

(6 × 4 = 24 Marks)

PART – D Responde duo de datis

32. Latin as the parent language of Romance languages.

33. What are the major differences between Latin and English.

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34. Temporibus antiquis _____1_____ (eramus, erant, erat) rex, Midas. Nomen regis erat _____2_____ (clarus, clarum, clara) quod amicus Bacchi erat. Bacchus ab _____3_____ (hostes. hostium, hostibus) captus erat. A Mida _____4_____ (liberatus, liberate, liberatum) erat. Bacchus vero fuit (laeti, laetis, laetus). Bcchus _____5_____ (eius, eorum, ei) nuntiavit: 'donum _____6_____ (dabis, dabimus, dabo).' Hoc regi gratum _____7_____ (erant, eramus. erat) _____8_____ (Donurn, donis, donorum) accepit. Postea multa in _____9_____ (aurus, aura, aurum) vertebantur, si ea tangebat. Rex donum _____10_____ (deus, deis, dei) bene amabat.

35. Regina cum poeta in scholam _____1_____ (venimus, veniunt, venit).

Puellae per silvam ad _____2_____ (scholam, schola, scholarum) veniunt.

Poeta cum _____3_____ (nautarum, nautis, nauta) ad reginam venit.

Puellae post _____4_____ (scholam, schola, scholarum) aquam potant.

_____5_____ (Ancillae, Ancillis, Ancillas) rosis aram ornat.

Agricola in silva _____6_____ (laborant, laboramus, laborat).

Regina ex _____7_____ (scholarum, scholis, schola) venit.

Agricola hasta _____8_____ (Nauta, nautis, nautam) vulnerat.

_____9_____ (Filia, filiis, Filiae) rosis reginam delectant.

Aqua sub _____10_____ (via, viarum, viam) venit.

(2 × 15 = 30 Marks)

St. Xavier's College

(Pages : 4) G – 3930

Reg. No. : .....

Name : .....

Fourth Semester B.A. Degree Examination, July 2019

First Degree Programme under CBCSS

History

Core Course IV

HY 1441 – MEDIEVAL INDIA : SOCIO-CULTURAL PROCESSES

(2013 Admission onwards)

St. Xavier's College

Time : 3 Hours Max. Marks : 80

PART – A

Answer **all** questions in one or two sentences.

1. Jauhar
2. Battle of Talikotta
3. Ibn Batuta
4. Khalisa lands
5. Bahlol Lodhi
6. Mahadawi Movement

P.T.O.

7. Khanquahs

8. Sir. Thomas Roe

9. Diwan-i-khairat

10. Quwwat-ul-Islam Mosque

(10 × 1 = 10 Marks)

PART – B

Answer **any eight** from the following not to exceed one paragraph.

11. The Forty

12. Role of ulemas in Delhi Sultanate

13. Amir Khusru

14. Jagirdari system

15. Muhammed-bin-Kasim

16. Din-Ilahi

17. Abul Fazal

18. Tuzuk-i-Babari

19. Murshid Quli Khan

20. The Satnamis

21. Chauth and Sardeshmukhi

22. Malik kafur

(8 × 2 = 16 Marks)

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PART – C

Answer **any six** of the following not to exceed 120 words.

23. Why the First Battle of Panipat (1526) is considered as one of the most decisive battles in Indian History.

24. "Kingship knows no Kinship". How far this dictum is true in the case of Ghiyasuddin Balban.

25. Examine the political condition of India at the time of Baburs' invasion.

26. Estimate the contributions of Adi Sankara in the emergence of Bhakti movement.

27. Prepare a brief sketch of the Land Revenue system introduced by Akbar.

28. How far the religious policy of Aurangazeb led to the decline of the Mughal empire?

29. Examine the factors that formed the foundation of the Sikh Khalsa.

30. Evaluate the salient features of Chola Administrative System.

31. Write a note on the development of literature and art during the period of Vijayanagar rulers.

(6 × 4 = 24 Marks)

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PART – D

Long Essay

Write **any two** of the following.

32. "Allauddin Khelji was a dynamic ruler who turned a small principality of Delhi into an empire comprising almost the whole of India". Comment on this statement.

33. Discuss the development of literature, art and architecture under the cholas.

34. Examine the various factors that facilitated the decline of Mughal empire.

35. Evaluate the development of Sanskrit and Hindi literature during the Medieval period.

(2 × 15 = 30 Marks)

St. Xavier's College

(Pages : 4) G – 3988

Reg. No. : .....

Name : .....

Fourth Semester B.A. Degree Examination, July 2019

First Degree Programme under CBCSS

Complementary Course for Economics

MM 1431.5 : MATHEMATICS FOR ECONOMICS – IV

(2013 Admission onwards)

Time : 3 Hours Max. Marks : 80

SECTION – I

Answer the first **ten** questions are compulsory. They carry 1 mark each:

1. Find the order of the differential equation $y\left(\frac{dy}{dx}\right)^2 + 2x\frac{dy}{dx} - y = 0$.

2. Find $\frac{dy}{dx}$ if $x - y = \pi$.

3. Give an example for non homogeneous differential equation.

4. Write the general form of a second order linear differential equation with constant coefficients.

5. The total revenue in Rupees received from the sale of x units of a product is given by $R(x) = 13x^2 + 26x + 15$. Find the marginal revenue when $x = 7$.

6. Represent the following family of curve differential equation $y = Ce^{2x}$.

7. Find the general solution of $4\frac{d^2y}{dx^2} + 4\frac{dy}{dx} - 3y = 0$.

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8. If the marginal revenue is zero, then the elasticity of demand is _____.

9. Find the marginal cost function from the total cost function $T = 60 + 10x + 15x^2$.

10. If $y = a^x$ satisfies the differential equation $\frac{dy}{dx} = y$; Find a.

(10 × 1 = 10 Marks)

SECTION – II

Answer any **Eight** questions from among the equations 11 to 22. These questions carry 2 marks each.

11. Solve $\frac{dy}{dx} = \sin 3x$.

12. Solve $\frac{dy}{dx} + 3x^2y^2 = 0$.

13. Find the general solution of $y'' - y = 0$.

14. Find the general solution of $x^2\frac{d^2y}{dx^2} - 20y = 0$.

15. Find the second order differential equation satisfying $y = x^5 + x^{-5}$.

16. Verify that $y = x^3$ is a solution of the differential equation $\frac{d^2y}{dx^2} - 2\frac{dy}{dx} + 5y = 5x^3 - 6x^2 + 6x$.

17. Show that $y = a\,e^{x^n}$ is an integral of $\frac{dy}{dx} = ny\,x^{n-1}$.

18. Find the differential equation of the family of parabolas $y = cx^2$.

19. Solve $(x - y)\,dx + x\,dy = 0$.

20. Solve $\cos^2 x\frac{dy}{dx} + y = \tan x$.

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21. Find the slope of the average cost curve in terms of average cost and marginal cost.

22. Find the average revenue and marginal revenue functions from the total revenue function $R = 100x - x^2$.

(8 × 2 = 16 Marks)

SECTION – III

Answer any **six** questions from among the equations 23 to 31. These questions carry 4 marks each.

23. Derive Domar's capital expansion model.

24. Solve $\frac{d^2y}{dx^2} - \frac{3dy}{dx} + 2y = x^2 + e^{4x}$.

25. Solve $\frac{d^2y}{dx^2} + 4y = \sin 3x$.

26. Find the differential equation of which $y = (c_1 + c_2 x)e^{3x}$ is a solution, where c_1 and c_2 are constants.

27. $\frac{d^2y}{dx^2} + a^2y = 0$ solve it.

28. What is the marginal revenue function for the demand $p = \sqrt{a - bx}$?

29. Find the total cost, average cost and variable functions if the marginal cost is $m = 50 + 10q + 25q^2$.

30. Solve : $xy\frac{dy}{dx} = x^2 + y^2$.

31. Solve $\frac{dy}{dx} - 2y = 8e^x$.

(6 × 4 = 24 Marks)

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SECTION – IV

Answer any **two** questions from among the questions 32 to 35. These questions carry 15 marks each.

32. (a) If the demand law is $p = a - bx$. find the total revenue functions and marginal revenue functions.

(b) The demand function of a monopolist is $p = 15 - 2x$ and cot function is $c(x) = x^2 + 2x$. Find

(i) marginal cost

(ii) average cost

(iii) average cost when the output is 4 units.

33. (a) Find the differential equation corresponding to the family of curve $y = cxe^x$.

(b) Solve the differential equation $\frac{dy}{dx} = (1+x)(1+y^2)$.

34. (a) Find a second order homogeneous linear differential equation for which $\cos 2\pi x$ and $\sin 2\pi x$ are solutions.

(b) Solve $x^2 \frac{dy}{dx} = y^2 + xy + x^2$.

(c) Find the particular solution of $\frac{d^2y}{dx^2} - 6\frac{dy}{dx} + 9y = 0, y(0) = 2, y'(0) = 10$.

35. Solve

(a) $y'' + y' - 6y = -6x^3 + 3x^2 + 6x$

(b) Solve $y'' - 6y' + 13y = 4e^{3x}$, $y(0) = 2, y'(0) = 4$.

(2 × 15 = 30 Marks)

St. Xavier's College

(Pages : 4) G – 4007

Reg. No. : .....

Name : .....

Fourth Semester B.A. Degree Examination, July 2019

First Degree Programme under CBCSS

Economics

Core Course IV

EC 1441 : BASIC TOOLS FOR ECONOMICS – I

(2015 Admission Onwards)

St. Xavier's College

Time : 3 Hours Max. Marks : 80

SECTION – I

Answer in **one** or **more** sentences. Attempt **all** questions

1. Define integration.
2. Saving function.
3. Linear equation.
4. Cubic function
5. Exogenous variable
6. Quadratic equation
7. Minor of a determinant
8. Break-even point

P.T.O.

9. Cross elasticity of demand

10. Ad joint matrix

(10 × 1 = 10 Marks)

SECTION – II

Answer any **eight** questions not exceeding one paragraph. **Each** question carries **2** mark.

11. Difference between a constant and a variable.

12. Solve the equation $x^2 - 2x - 15 = 0$.

13. Define an inflexion point.

14. Find the rank of the matrix $\begin{bmatrix} 5 & 2 & 1 \\ 0 & 1 & 3 \\ 2 & 1 & 0 \end{bmatrix}$

15. State the conditions of maxima and minima.

16. Find equilibrium prices and quantities for the two commodity market model with the conditions

$X_{d1} = 6 - P_1 - P_2,\ X_{s1} = -2 + P_2$

$X_{d2} = 10 - P_1 - P_2,\ X_{s1} = 3 + P_1 + P_2$

17. Find the value of determinant $A = \begin{bmatrix} 1 & 2 & 3 \\ 2 & 3 & 1 \\ 3 & 2 & 1 \end{bmatrix}$.

18. Distinguish between implicit and explicit function.

19. Distinguish between diagonal matrix and unit matrix.

20. Solve the equation $26 - 2x = 8x - 44$.

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21. Explain discrete and continuous variables.

22. State the rules of differentiation.

(8 × 2 = 16 Marks)

SECTION – III

Answer any **six** questions not exceeding **120** words. **Each** question carries **4** marks.

23. Find the adjoint of a matrix $A = \begin{bmatrix} 1 & -2 & 3 \\ 2 & 3 & -1 \\ -3 & 1 & 2 \end{bmatrix}$.

24. Solve $X^2 - 12X - 160 = 0$.

25. State the rules of integration.

26. Briefly explain constraint optimization.

27. Explain the economic applications of differential calculus.

28. Find the marginal and the average function for the total function and evaluate them at $Q = 3$ and $Q = 5$, $TR = 12Q - Q^2$.

29. What are the different types of algebraic functions?

30. Find AB and BA and verify whether $AB = BA$ if $A = \begin{pmatrix} 4 & 9 & 8 \\ 7 & 6 & 2 \\ 1 & 5 & 3 \end{pmatrix}$

$B = \begin{pmatrix} 1 & 2 & 0 \\ 5 & 3 & 1 \\ 0 & 2 & 4 \end{pmatrix}$.

31. Find the maxima and minima value of the function $Y = 2X^3 - 12X + 3X^2$.

(6 × 4 = 24 Marks)

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SECTION – IV

Answer any **two** questions, not exceeding **four** pages. **Each** question carries **15** marks.

32. Solve the following equation using Cramer's rule :

$$2X + 4Y - Z = 52$$
$$-X + 5Y + 3Z = 72$$
$$3X - 7Y + 2Z = 10$$

33. Describe the uses of derivatives in economics and state the conditions under which a function reaches maximum and minimum.

34. Solve the equation by matrix inverse method

$$4X + 3Y = 28$$
$$2X + 5Y = 42$$

35. Examine the application of integration in economic analysis.

(2 × 15 = 30 Marks)

St. Xavier's College

(Pages : 4) G – 4032

Reg. No. : .....

Name : .....

Fourth Semester B.Sc. Degree Examination, July 2019

First Degree Programme Under CBCSS

Complementary Course for Mathematics

ST 1431.1 – STATISTICAL INFERENCE

(2013 Admission)

St. Xavier's College

Time : 3 Hours Max. Marks : 80

SECTION – A

Answer **all** questions. **Each** question carries **1** mark.

1. Define point estimation.
2. What do you mean by completeness of an estimate?
3. Define minimum variance unbiased estimate.
4. What is the interval estimate of the population mean when population variance is known?
5. What is a hypothesis?
6. Define critical region of a test.
7. Distinguish between null and alternative hypothesis.
8. Distinguish between type I and type II errors.
9. Discuss any two applications of chi square test.
10. Explain briefly local control in experimental design.

(10 × 1 = 10 Marks)

P.T.O.

SECTION – B

Answer any **eight** questions. **Each** question carries **2** marks.

11. Define consistency. State and prove the sufficient conditions for consistency.

12. When would you say that an estimate is more efficient than another?

13. Find by the method of moments, an estimate for the Poisson parameter λ.

14. Explain the method of maximum likelihood estimation.

15. Define sufficiency.

16. Derive the confidence interval for the variance of a normal distribution.

17. If $X_1, X_2, \ldots, X_n$ is a random sample from a normal population with mean μ and variance I, show that $t = \frac{1}{n}\sum_{i=1}^{n} X_i^2$ is an unbiased estimate of $\mu^2 + 1$.

18. State the Neyman-Pearson theorem in funding the maximum powerful critical region.

19. A population has pdf $f(x) = \frac{1}{4}$, $\theta - 2 \leq X \leq \theta + 2$. To test H_o: $\theta = 5$ against $H_1 = \theta = 8$, based on a sample of size 1, it is suggested to reject the hypothesis if $\chi \geq 6$. Find the significance level and power of the test.

20. Explain paired t test.

21. Explain the test procedure in testing the equality of variances of two normal populations.

22. Explain briefly randomization and replication in the design of experiments.

($8 \times 2 = 16$ Marks)

St. Xavier's College

SECTION – C

Answer any **six** questions. **Each** question carries **4** marks.

23. State Fisher-Neyman factorization theorem. Use it to show that sample mean is sufficient for estimating the parameter μ in (μ, σ) where σ is known.

24. If the random variable X has pdf $f(x) = (\beta + 1)\, \chi^{\beta}$, $0 \leq \chi \leq 1$, $\beta > 0$. Obtain the maximum likelihood estimate of β.

25. A random sample of size 10 from a normal population with S.D 5 gave the following observations : 65, 72, 71, 85, 73, 76, 67, 70, 74, 76. Calculate the 95% confidence interval for the population mean.

26. Explain testing of equality of proportions of items in the same class on the basic of two independent samples drawn from two populations.

27. The following data gives marks obtained by a sample of 10 students before and after a period of training. Assuming normality test whether the training was of any use.

Student no :	1	2	3	4	5	6	7	8	9	10
Before :	91	95	81	83	76	79	101	85	88	81
After :	88	89	97	88	92	92	90	99	97	87

28. A machine puts out 16 imperfect articles in a sample of 500. After the machine was overhauled it puts out 3 imperfect articles in a batch of 100. Has the machine improved in its performance?

29. Explain the chi-square test of goodness of fit.

30. Show that if t is a consistent estimator of θ, then t^2 is also a consistent estimator of θ^2.

31. What are the important assumptions underlying the analysis of variance techniques?

($6 \times 4 = 24$ Marks)

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SECTION – D

Answer any **two** questions. **Each** question carries **15** marks.

32. (a) Discuss the desirable properties of a good estimator.

(b) Derive the confidence interval for the difference of means of two normal populations.

(c) A random sample of 20 bullets produced by a machine shows an average diameter of 3.5 mm and a S.D of 0.2 mm. Assuming that the diameter measurement follows $N(\mu, \sigma)$, obtain a 95% internal estimate for the mean and 99% interval estimate for the true variance.

33. (a) Estimate the parameters of a normal population by the method of moments.

(b) State Cramer-Rao Lower Bound for the variance of an unbiased estimator of a parameter θ.

(c) Explain method of minimum variance estimation show that the minimum variance unbiased estimator for the parameter μ is the sample mean when sample is drawn from $N(\mu, \sigma)$, σ known.

34. (a) Explain chi-square test of independence of qualitative characteristics.

(b) A die was thrown 180 times. The following results were obtained.

No. turning up :	1	2	3	4	5	6
Frequency :	25	35	40	22	32	26

Test whether the die is unbiased

35. (a) Explain analysis of variance.

(b) Derive the ANOVA table foe one way classification.

(2 × 15 = 30 Marks)

St. Xavier's College

(Pages : 4) G – 4033

Reg. No. : .....

Name : .....

Fourth Semester B.Sc. Degree Examination, July 2019

First Degree Programme under CBCSS

Complementary Course

PY 1431.1/PY 1431.3 MODERN PHYSICS AND ELECTRONICS

(For Mathematics and Statistics)

(2013 Admission onwards)

St. Xavier's College

Time : 3 Hours Max. Marks : 80

PART – A

Answer **all** questions. Each question carries **1** marks.

1. State Pauli's exclusion principle.

2. Write down the expression for the activity law of radioactive material.

3. What is packing fraction?

4. Give the position — momentum uncertainty principle.

5. Name any two nuclear detectors.

6. What is peak inverse voltage?

7. Explain d.c. load line.

8. Most of the transistors are npn type, why?

9. Distinguish between a nibble and a byte.

10. Give the truth table of a NAND gate.

(10 × 1 = 10 Marks)

PART – B

Answer **any eight** questions. Each question carries **2** marks.

11. Briefly explain L-S coupling.

12. Explain the features of nuclear forces.

13. Briefly explain radioactive dating.

14. Give the probabilistic interpretation of wave function.

15. Describe Plank's hypothesis.

16. Define ripple factor. Compare the values of ripple factors of half–wave and full–wave rectifiers.

17. Distinguish between an avalanche break down and zener break down.

18. Explain biasing of a transistor. What is the need for biasing a transistor?

19. Draw the circuit diagram of a full wave bridge rectifier. Compare its input and out waveforms.

20. What are the advantages of voltage divider biasing?

21. Discuss the rules of binary addition, subtraction and multiplication.

22. How can you convert a decimal number into an octal number? Give an example.

(8 × 2 = 16 Marks)

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PART – C

Answer **any six** questions. Each question carries **4** marks

23. If the disintegration constant of a radioactive substance is 9.345×10^{-8}, calculate its half-life period.

24. Calculate the wavelength associated with a particle of mass 0.01 gm moving with a velocity of 2000 m/s, h= 6.624×10^{-34}js.

25. Calculate the binding energy of an $\alpha-$ particle in Joules mass of $\alpha-$ particle=4.03188u, mass of proton = 1.00728u and mass of neutron = 1.00866u.

26. A Si diode dissipates 4W for a forward dc current of 3A. Calculate the forward voltage drop across the diode and its bulk resistance given knee voltage of Si diode = 0.7V.

27. If a transistor is biased with V_{cc}=12V, R_c =2KΩ I_B = 30 μA, then draw DC load line.

28. If the collector current changes from 2 mA to 3 mA in a transistor when collector emitter voltage is increased from 2V to by, what is the output resistance?

29. An ac supply of 230 V is applied to a half wave rectifier through a transformer of turn ratio10:1.Determine the dc output voltage.

30. Convert the decimal number 12.75 into its binary equivalent and $(11111001001)_2$ into its octal equivalent.

31. Draw the standard symbol and equivalent circuit of the NAND gate. Explain its logical operations.

(6 × 4 = 24 Marks)

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PART – D

Answer **any two** questions. Each question carries **15** marks

32. Explain vector atom model. Discuss the quantum numbers associated with vector atom model.

33. A particle is in a box. Obtain its energy value and wave function.

34. Describe an experiment to draw the input and output characteristics of a CE-NPN transistor configuration. Indicate the active, saturation and cut-off regions.

35. What are logic gates? Discuss the logical operations of the basic gates using equivalent electronic circuits.

(2 × 15 = 30 Marks)

St. Xavier's College

(Pages : 4) G – 4035

Reg. No. : .....

Name : .....

Fourth Semester B.Sc. Degree Examination, July 2019

First Degree Programme under CBCSS

Physics

Core Course

PY 1441 : ELECTRODYNAMICS

(2013 Admission)

St. Xavier's College

Time : 3 Hours Max. Marks : 80

SECTION – A

Answer **all** questions in **1** or **2** sentences. Each question carries **1** marks. :

1. What is electric flux?
2. State Lenz's law.
3. What is the relation between magnetic field and vector potential?
4. What is an acceptor circuit?
5. What are bound charges?
6. What is the work done in moving a unit charge from one point to another over an equipotential surface?
7. What is the use of choke in ac circuits?

8. What is Lorentz force?

9. Define electro motive force.

10. What is an ideal current source?

(10 × 1 = 10 Marks)

SECTION – B

Answer **any eight** questions, not exceeding **a paragraph**. Each question carries **2** marks.

11. Show that induced electric field is nonconservative.

12. List the properties of paramagnetic materials.

13. The electric field due to an infinite plane sheet of charge is independent of the distance from it. Comment.

14. Derive the Poisson's equation in magnetostatics.

15. How bound charges are produced inside a dielectric material?

16. Derive Gauss's law for dielectrics.

17. Derive the wave equation for E and B for electromagnetic waves in vacuum.

18. Find the RMS value of a.c.

19. Explain Biot-Savart law for line, surface and volume current distributions.

20. Find the expression for force per unit length between two infinite current carrying conductors.

21. Discuss about magnetic charge.

22. Explain the Maxwell's equations inside matter.

(8 × 2 = 16 Marks)

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SECTION – C

Answer any **six** questions. Each question carries **4** marks. :

23. Find the energy of a uniformly charged sphere of radius R and total charge Q.

24. A series LCR circuit is connected to 200V, 50Hz mains. If R=10 Ω and C=20 μF, what should be the value of the inductor to obtain maximum current in the circuit?

25. An alpha particle moves with a velocity of 0.6c parallel to a very long straight conductor carrying a current of 0.5A at a distance of 5cm from the conductor. Find the force experienced by the alpha particle.

26. Two infinite parallel planes carry equal but opposite uniform charge density $\pm \sigma$. Find the field

    (a) To the left of both

    (b) Between them

    (c) To the right of both.

27. Which one of the following is an impossible electrostatic field

    (a) $\vec{E} = k[xy\hat{x} + 2yz\hat{y} + 3xz\hat{z}]$

    (b) $\vec{E} = k[y^2\hat{x} + (2xy + z^2)\hat{y} + 2yz\hat{z}]$.

28. An infinite number of charges each equal to q are placed along the x axis at $x = 1$, $x = 2$, $x = 4$, $x = 8$... and so on.

    (a) What will be the potential at $x = 0$ due to this set of charges?

    (b) What will be the potential of the above setup, if consecutive charges have opposite sign

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29. A circular coil of radius 1cm with 100 turns is rotated at 60cps in a magnetic field. The emf induced in the coil has a maximum value of 12.3volts. Find the value of magnetic field.

30. A sphere of radius R carries a polarization $\vec{P}(r) = k\vec{r}$, where k is a constant and $\vec{r}$ is the vector from the centre. Calculate the bound charges σ_b and ρ_b.

31. A long straight wire, carrying a uniform charge of $10\,\mu$C/m, is surrounded by rubber insulation out to a radius 0.6cm. Find the electric displacement and electric field at 1m away from the wire.

(6 × 4 = 24 Marks)

SECTION – D

Answer any **two** questions. Each question carries **15** marks. :

32. State and prove Gauss's law in electrostatics. Derive the expression for electric field due to a uniformly charged solid sphere at a point outside, on the surface and inside the sphere. Also sketch the variation of electric field with distance.

33. Derive the boundary conditions for electric field, electric potential and electric displacement.

34. Discuss in detail Thevenin's theorem, Norton's theorem and maximum power transfer theorem.

35. Derive the expression for total current in a parallel LCR circuit and explain how it depends on the applied frequency. Obtain an expression for resonant frequency.

(2 × 15 = 30 Marks)

St. Xavier's College

(Pages : 4) G – 4037

Reg. No. : .....

Name : .....

Fourth Semester B.Sc. Degree Examination, July 2019

(First Degree Programme under CBCSS)

Complementary Course for Physics

CH 1431.1 : PHYSICAL AND INORGANIC CHEMISTRY

(2013 - 2016 Admns)

St. Xavier's College

Time : 3 Hours Max. Marks : 80

Section A 1mark (answer in one word/sentence)

Answer all questions

1. Acid catalyzed hydrolysis of methyl acetate is a ———— reaction.
2. The rate of reaction ———— with increase of temperature.
3. What is the unit of second order rate constant?
4. What is critical solution temperature?
5. Quantum yield is ————
6. Name one law of photochemistry
7. The process of producing Cold light is called—

8. The primary process in the hydrogen chlorine reaction is called the _____

9. For an ideal solution the values of ΔH mixing and ∇V mixing are _____and _____

10. Alum purifies muddy water by _____

(10 × 1 = 10 Marks)

Section B, 2 marks (short answer type)

Answer any **eight** questions

11. Why most of the reactions does not occur at room temperature?

12. Define half life period of a reaction.

13. Define activation energy.

14. What do understand by photosensetisation?

15. Define the term critical miscellar concentration.

16. Define distribution law.

17. What is the effect of impurities on the critical solution temperature of phenol-water system.

18. Write the formula of stable hydrates in ferric chloride—water system

19. What are azeotropes?

20. What is reverse osmosis?

21. What is the condition for the formation of low spin complexes?

22. What is the equation for Beer-Lambert's law? Explain the terms.

(8 × 2 = 16 Marks)

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Section C 4 Marks (Short essay)

Answer any **six** questions

23. Explain the collision theory of reaction rates.

24. Derive the expression for the rate constant of a first order reaction.

25. Explain the different types of catalysis.

26. Explain the terms stable equilibrium and metastable equilibrium

27. Explain how Raoult's law is used for determination of molecular mass of non volatile solute?

28. Explain the $H_2 - C1_2$ reaction in photochemistry.

29. Explain the determination of Avogadro number by using Brownian movement.

30. Explain the valence bond theory of octahedral complexes.

31. Write a note on fractional distillation.

(6 × 4 = 24 Marks)

Section D 15 Marks (long essay)

Answer any **two** questions

32. (a) Briefly explain different laws of photochemistry. 8

    (b) Discuss the various factors affecting the rate of a reaction. 7

33. (a) Explain the intermediate compound formation theory and adsorption theory of catalysis. 7

    (b) Explain the application of co-ordination chemistry in qualitative analysis. 8

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34. (a) Explain the vapour pressure- composition curve for non ideal solutions. 8

(b) Explain the crystal filed theory of tetrahedral complexes. 7

35. (a) Explain the different applications of colloids. 8

(b) Explain the phase diagram of KI - water system. 7

(2 × 15 = 30 Marks)

St. Xavier's College

(Pages : 4) G – 4040

Reg. No. : .....

Name : .....

Fourth Semester B.Sc. Degree Examination, July 2019

(First Degree Programme under CBCSS)

Chemistry

Core Course

CH 1441 : ORGANIC CHEMISTRY I

(2013 - 2016 Admns)

St. Xavier's College

Time : 3 Hours Max. Marks : 80

SECTION – A (ONE WORD)

*Answer **all** questions. Each question carries 1 mark.*

1. Give example for an axially chiral molecule.
2. Carbohydrates are better represented by _____ projection formula.
3. Chloro acetic acid is more acidic than acetic acid. Justify.
4. The hybridisation of nitrogen in pyridine is _____.
5. What will be the major product obtained on adding HCl to 3,3-dimethylbut-1-ene?
6. Acetylene on reaction with ozone followed by hydrolysis will yield _____.

7. Out of the following groups which one is ***meta*** directing

   (a) -F,

   (b) -CH = CHR,

   (c) -CHO,

   (d) -NHR

8. Draw the structure of 6-amino-2-naphthol.

9. Number of π electrons in cyclopentadienyl cation is _____.

10. Metals in Grignard reagent and Reformatsky reactions are _____ and _____.

(10 × 1 = 10 Marks)

SECTION – B (SHORT ANSWER)

*Answer any **eight** questions. Each question carries **2** marks.*

11. What happens when toluene is treated with alkaline $KMnO_4$? Alkaline condition is preferred in this reaction. Why?

12. Write the ***R*** and **S** configurations of lactic acid.

13. Give example for stereoselective reaction.

14. Identify the differences between conformations and configurations.

15. Explicit the importance of stereochemistry in pharmaceutical field.

16. If indole is protonated the stability will decrease. Justify.

17. Explain hyper conjugation effect with an example.

18. What are Grignard reagents? How it can be synthesized?

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19. Explain the *erythro* and *threo* classification of stereoisomers.

20. Electromeric effect is very important in explaining electrophilic and nucleophilic reactions of carbonyl compounds. Justify.

21. In dehydrohalogenation usually Saytzeff product is preferred. Give reason.

22. Write a note about atrop isomers.

(8 × 2 = 16 Marks)

SECTION – C (SHORT ESSAY)

Answer **any six** questions. Each question carries **4** marks.

23. α substitution of naphthalene is preferred over β substitution in aromatic electrophilic reaction. Give reasonable explanation.

24. Explain the directive influence of -Cl and $-NO_2$ groups on electrophilic and nucleophilic substitution to benzene.

25. Explain the mechanism of Friedel-Crafts acylation of benzene.

26. Draw and explain the energy profile diagram for conformations of cyclohexane.

27. Explain the optical isomerism in tartaric acid with ***R*** and **S** representations.

28. Give four synthetic applications of ethylacetoacetate.

29. How ozonolysis helps in determining the position of double bond in alkenes?

30. How resonance energy of benzene can be calculated from heat of hydrogenation?

31. Briefly explain the mechanism of E1 and E2 reaction. **(6 × 4 = 24 Marks)**

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SECTION – D (ESSAY)

Answer **any two** questions. Each question carries **15** marks.

32. (a) Discuss the formation, stability and hybridisation of carbanions, carbenes and free radicals.

    (b) Write a note about ***Walden*** inversion. **(12 + 3 Marks)**

33. (a) Calculate the angle strain for various alicyclic compounds and predict their relative stability.

    (b) How we can determine the specific rotation of an enantiomer?

    (10 + 5 Marks)

34. Explain at least five methods that will help us to determine mechanism of reaction. **(15 Marks)**

35. (a) Explain the factors that will affect the course of S_N1 and S_N2 reactions.

    (b) Discuss two methods for cis-hydroxylation of alkene. **(10 + 5 Marks)**

(2 × 15 = 30 Marks)

St. Xavier's College

(Pages : 4) G – 4041

Reg. No. : .....

Name : .....

Fourth Semester B.Sc. Degree Examination, July 2019

First Degree Programme under CBCSS

Complementary Course for Chemistry/Polymer Chemistry

MM 1431.2 : MATHEMATICS IV (ABSTRACT ALGEBRA, LINEAR TRANSFORMATIONS, CO-ORDINATE SYSTEMS)

(2013 Admission)

St. Xavier's College

Time : 3 Hours Max. Marks : 80

Section – I

All the first **ten** questions are compulsory. They carry 1 mark each :

1. State whether True or False, with justification : $(Z^+, +)$ is a group.
2. Define unity in a ring.
3. State whether True or False: A vector space can have more than one basis.
4. Define a linear transformation from R^n into R^m.
5. Define a contraction on R^2.
6. Write the order of the matrix of transformation A, where $T : R^5 \to R^2$ is such that $T(x) = Ax$.
7. Write the standard matrix corresponding to rotation.

8. Define nullity of a linear transformation.

9. Write the Jacobian of the transformation from Cartesian system to spherical polar co-ordinate system.

10. Evaluate $\int_0^{\pi}\int_0^{1} r^4\, dr\, d\theta$.

Section – II

Answer **any eight** questions from among the questions 11 to 22. They carry 2 marks each.

11. Let $*$ be defined by $a * b = a - b$. Is $(Z, *)$ a group? Justify.

12. Compute the subgroup $\langle 5 \rangle$ in $(Z, +)$.

13. Define a division ring.

14. Define a Vector space.

15. Define $T: R^2 \to R^2$ by $T(x) = Ax$, where $A = \begin{bmatrix} 0 & -1 \\ 1 & 0 \end{bmatrix}$. Find $T(u), T(v)$ and $T(u+v)$ where $u = (4, 1)^T$ and $v = (2, 3)^T$.

16. Find the co-ordinate vector of $(3, 5, -2)$ relative to the basis $B = \{(1, 1, 1), (0, 2, 3), (0, 2, -1)\}$.

17. Examine whether the transformation $T: R^3 \to R^2$ given by $T(a_1, a_2, a_3) = (a_1 - a_2, a_1 - a_3)$ is linear.

18. Find the area of the region in first quadrant bounded by $r = 1$ and $r = \sin 2\theta$ with $\frac{\pi}{4} \le \theta \le \frac{\pi}{2}$.

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19. Express the integral $\int_0^{4a}\int_{\frac{x^2}{4a}}^{2}\sqrt{ax}\,dy\,dx$ as an equivalent integral in which x- integration is performed first and y-integration second.

20. Evaluate $\int_0^{2\pi}\int_0^{\frac{\pi}{2}}\int_0^{2}\rho^5\cos^2\varphi\sin^2\varphi\,d\rho d\varphi d\theta$.

21. Find the volume bounded by the cylinder $x^2+y^2=4$ and the planes $y+z=4$ and $z=0$.

22. Calculate the volume of the solid bounded by the planes

$x=0, y=0, x+y+z=a$ and $z=0$.

Section – III

Answer **any six** questions from among the questions 23 to 31. They carry 4 marks each.

23. Show that $(\mathbb{Q}^+,*)$ is a group with $a*b=\frac{ab}{2}$.

24. Describe Klein-4 group.

25. Find two bases of R^3 over R which do not have a common element.

26. Let $T:R^2\to R^2$ be a linear transformation such that

$T(x_1,x_2)=(x_1+x_2,4x_1+7x_2)$. Find x such that $T(x)=(-2,-5)$.

27. Let $B=\{b_1,b_2\}$ and $c=\{c_1,c_2\}$ be two bases to R^2 where

$b_1=(-9,1), b_2=(-5,-1), c_1=(1,-4), c_2=(3,-5)$. Find the change of co-ordinate matrix from B to C.

28. Find the matrix of linear transformation $T:R^3\to R^3$ defined as

$T(a_1,a_2,a_3)=(2a_2+a_3,a_1-4a_2,3a_1)$ with respect to the standard basis.

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29. Evaluate by changing the order of integration $\int_0^3 \int_1^{\sqrt{4-y}} (x+y)\,dx\,dy$.

30. Evaluate $\int_0^\infty \int_0^\infty e^{-(x^2+y^2)}\,dxdy$ by changing to polar co-ordinates and hence find $\int_0^\infty e^{-x^2}\,dx$.

31. Find the volume the solid G that bounded above by the hemisphere $z=\sqrt{25-x^2-y^2}$, below the xy-plane and laterally by the cylinder $x^2+y^2=9$.

Section – IV

Answer **any two** questions from among the questions 32 to 35. They carry 15 marks each.

32. (a) Show that $S=\{0,1,2,3,4\}$ is a ring with respect to addition modulo 5 and multiplication modulo 5 as composition.

(b) Prove that every subset of a linearly independent, set is linearly independent.

33. Define $T:R^2 \to R^2$ by $T(x)=Ax$ where $A=\begin{bmatrix} 7 & 2 \\ -4 & 1 \end{bmatrix}$. Find a basis B for R^2 with the property that $[T]_B$ is diagonal.

34. (a) Evaluate $\iint r^3\,dr\,d\theta$ over the area included between $r=2\sin\theta$ and $r=4\sin\theta$.

(b) Use polar co-ordinates to find $\int_0^2 \int_0^{\sqrt{2x-x^2}} \frac{xdxdy}{x^2+y^2}$.

35. (a) Find the mass of the tetrahedron bounded by the co-ordinate planes and the plane $\frac{x}{a}+\frac{y}{b}+\frac{z}{c}=1$ with density $\rho=\mu xyz$.

(b) Evaluate $\int_0^1 \int_0^{\sqrt{1-x^2}} \int_{\sqrt{x^2+y^2}}^1 \frac{dz\,dy\,dx}{\sqrt{x^2+y^2+z^2}}$ using spherical polar co-ordinates.

St Xavier's College

(Pages : 4) **G – 4073**

Reg. No. : .....

Name : .....

Fourth Semester B.Sc. Degree Examination, July 2019

First Degree Programme under CBCSS

Mathematics

Core Course – III

MM 1441 : ALGEBRA AND CALCULUS – II

(2014 Admission Onwards)

St. Xavier's College

Time : 3 Hours Max. Marks : 80

UNIT – I

Answer **all** questions from this unit. Each question carries **1** mark.

1. Find $(x+1)(x^2+x+1)$ in $\mathbb{F}_2[x]$.
2. Find the quotient when $x^3 - 7x - 1$ is divided by $x - 2$.
3. Does $x - 3$ divide $x^4 + x^3 + x + 4$ in $\mathbb{Z}[x]$.
4. In $\mathbb{F}_3[x]$, find a greatest common divisor of $x^2 - x + 4$ and $x^3 + 2x^2 + 3x + 2$.
5. The polynomial $ax^2 + bx + c$ is irreducible if and only if....
6. What is the natural domain of the function $f(x, y) = \ln(x^2 - y^2)$?
7. Describe the level curves of the function $f(x, y) = y^2 - x^2$.

P.T.O.

8. If $f(x, y, z) = x^3y^2z^4 + 2xy + z$, the find f_y.

9. Find $\lim_{(x,y)\to(0,0)} \frac{x^4 - 16y^4}{x^2 + 4y^2}$.

10. Evaluate $\int_1^3 \int_1^2 (1 + 8xy)\, dy\, dx$.

(10 × 1 = 10 Marks)

UNIT – II

Answer **any eight** questions from this unit. Each question carries **2** marks.

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11. Find another polynomial $q(x)$ with coefficients in $\mathbb{Z}/6\mathbb{Z}$ such that $q(x)$ is equal to $p(x) = [3]x + [4]x^3$ as functions on $\mathbb{Z}/6\mathbb{Z}$ but $p(x)$ and $q(x)$ are not equal as polynomials.

12. Let $R = \mathbb{Z}/4\mathbb{Z} = \{0, 1, 2, 3\}$. Show that $1 + 2x$ is a unit of $R(x)$.

13. Find all m so that the image of $x^3 + 3$ divides the image of $x^5 + x^3 + x^2 - 9$ in $\mathbb{Z}/m\mathbb{Z}\,[x]$.

14. State Bezout's identify.

15. Factorize $x^6 + x^4 + x$ is $\mathbb{Z}/2\mathbb{Z}\,[x]$.

16. Describe the level surfaces of $f(x, y, z) = x^2 + y^2 + z^2$.

17. Find $\lim_{(x,y)\to(0,0)} (x^2 + y^2)\ln(x^2 + y^2)$.

18. Let $f(x, y) = x^2 + 5y^3$. Find the slope of the surface $z = f(x, y)$ in the x-direction at the point $(1, -2)$.

19. Given that $x^3 + y^2x - 3 = 0$. Find $\frac{dy}{dx}$.

20. Evaluate $\iint_R xydA$ over the region R enclosed between $y = \frac{1}{2}x, y = \sqrt{x}, x = 2$ and $x = 4$.

21. Find parametric equations for the portion of the right circular cylinder $x^2 + y^2 = 9$ for which $0 \le y \le 5$.

22. Evaluate $\int_0^2 \int_{-1}^{y^2} \int_{-1}^{z} yzdx\,dz\,dy$.

(8 × 2 = 16 Marks)

UNIT – III

Answer **any six** questions from this unit. Each question carries **4** marks.

23. Solve the equation $x^3 + 3x = 14$ by Ferro's method.

24. Find the g.c.d. of $x^5 + 1$ and $x^3 + 1$ in $\mathbb{Z}/2\mathbb{Z}$.

25. Prove that a non zero polynomial $f(x)$ of degree n in $F[x]$, F a field, has at most n distinct roots in F.

26. For any $e > 1$ dividing $p - 1$, if $N(e) > o$, then $N(e) = \phi(e)$. That is, $\phi(e)$ is the number of elements of U_p of order e?

27. Write $(x^2 + 3x + 1)^4$ in base $x + 2$.

28. At what rate is the volume of a box changing if its length is 8 m and increasing at 3 m/s, its width is 6 m increasing at 1 m/s and its height is 4 m and increasing at 1 m/s?

29. Locate all relative extrema and saddle points of $f(x, y) = 4xy - x^4 - y^4$.

30. The sphere of radius a is centered at the origin. Find the volume of the sphere.

31. Use a double integral to find the volume of the tetrahedron bounded by the co-ordinate planes and the plane $z = 4 - 4x - 2y$.

(6 × 4 = 24 Marks)

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UNIT – IV

Answer **any two** questions from this unit. Each question carries **15** marks.

32. (a) Find a root of $y^4 + 2y^2 - y + 2$.

    (b) Factories $x^5 - x$ into irreducible polynomials in $\mathbb{Z}/5\mathbb{Z}$ $[x]$.

33. State and prove the Division Theorem of $\mathbb{F}$ $[x]$ where $\mathbb{F}$ is a field. Deduce the Remainder theorem.

34. (a) State and Constrained-Extremum Principle for two variables and one constraint.

    (b) Find the points on the sphere $x^2 + y^2 + z^2 = 36$ that are closest to and farthest from the point (1, 2, 2).

35. (a) Find an equation of the tangent plane to the parametric surface $x = uv$, $y = u, z = v^2$ at the point which corresponds to $(u, v) = (2, -1)$

    (b) Consider the sphere $x^2 + y^2 + z^2 = a^2$. Show that at each point on the sphere the tangent plane is perpendicular to the radius vector.

(2 × 15 = 30 Marks)

St. Xavier's College

(Pages : 4) G – 4074

Reg. No. : .....

Name : .....

Fourth Semester B.Sc. Degree Examination, July 2019

First Degree Programme under CBCSS

Complementary Course For Mathematics

ST 1431.1 : TESTING OF HYPOTHESIS AND ANALYSIS OF VARIANCE

(2014 Admission Onwards)

St. Xavier's College

Time : 3 Hours Max. Marks : 80

SECTION – A

Answer **all** questions. **Each** carries **1** mark.

1. What is the error degrees of freedom for two way ANOVA with r rows and c columns?
2. Define level of significance of the test.
3. The mean difference between 9 paired observations is 15 and the standard deviation of differences is 5. Find the value of the test statistic.
4. Give one example of a statistic.
5. How will you find the correction factor in the calculation of sum of squares?
6. Define *p* value.
7. What test statistic will you use to test of a normal population with known mean?
8. Give the formula of *F* statistic.
9. Define critical region.
10. Give an instance where test for proportions is suitable?

(10 × 1 = 10 Marks)

P.T.O.

SECTION – B

Answer any **eight** questions. **Each** carries **2** marks.

11. State Neyman Pearson lemma.

12. Define test statistic.

13. What are the assumptions of t — test?

14. A sample of 10 observations gives a mean equal to 38 and standard deviation 4. Can we conclude that the population mean is 40.

15. Define null and alternate hypothesis.

16. What are conditions for using Chi square for testing agreement between theoretical frequencies and observed frequencies?

17. The standard deviation of a sample of size 15 from a normal population was found to be 7. Examine whether the hypothesis that the S.D. is 7.6 is acceptable.

18. The daily consumption of diesel of a transporter is considered to be exponentially distributed. The hypothesis that the average consumption $H_0 : \theta = 1000$ litres/day is to be tested against $H_1 : \theta = 2000$. If the consumption on a randomly selected day is 1500 litres or more, H_0 is rejected. Find the size of the test.

19. Distinguish between large sample and small sample tests illustrating by suitable examples.

20. The following data was obtained in an investigation about the effect of vaccination for small pox.

	Vaccinated	Not vaccinated	Total
Attacked by small pox	3	12	15
Not attacked	8	5	13
Total	11	17	28

Examine whether vaccination is effective in preventing small pox.

21. From a population with unknown S.D, a sample of unknown size with mean and sample S.D. were found to be 195 and 50. A statistician has rejected the hypothesis at 5 % level significance that the mean of the population is 200. Find the sample size.

22. Explain the importance of normal distribution in large sample tests.

(8 × 2 = 16 Marks)

St Xavier's College

SECTION – C

Answer any **six** questions. **Each** carries **4** marks.

23. Given the frequency function :

$$f(x;\theta)=\begin{cases}\frac{1}{\theta}, 0 \le x \le \theta \\ 0, \text{ elsewhere}\end{cases}$$

and that we are testing the null hypothesis $H_0 : \theta = 1$ against the alternative $H_1 : \theta = 2$, by means of a single observed values of x. What would be the probabilities of type 1 and type 2 errors, if we choose $0.5 \le x$ as the critical region. Also find power.

24. Can the following two samples be regarded as coming from the same normal population?

Sample	Size	Sample mean	Sum of squares of deviation from the mean
1	10	12	120
2	12	15	314

25. State some applications of the analysis of variance.

26. When do you use paired t test and how to apply it?

27. Explain assignable causes and random causes with examples.

28. In a sample of 600 men from city A, 450 are found to be smokers. Out of 900 from city B, 450 are smokers. Do the data indicate that the cities are significantly different with respect to the prevalence of smoking?

29. Explain Chi square test of independence of attributes.

30. A die is thrown 60 times and number of times the following faces were obtained.

Faces :	1	2	3	4	5	6
No. of times :	14	7	5	8	10	16

Can the die be regarded as fair?

31. A sample of size 8 from a normal population is 6, 8, 11, 5, 9, 11, 10, 12. Can such a sample be regarded as drawn from a population with mean 7 at 2 % level of significance?

(6 × 4 = 24 Marks)

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SECTION – D

Answer any **two** questions. **Each** carries **15** marks.

32. (a) Distinguish between one — way and two way classification models and explain the procedure followed for carrying out analysis of variance.

(b) A plastic manufacturer tests the tensile strength of different types of polythene material. A sample of three measurements is taken for each material type and data in pounds per square inch are as follows :

Type I : 200 215 218

Type II : 260 255 277

Type III : 245 248 272

Determine if the mean tensile strength of the three different types of material differ significantly.

33. Fit a Poisson distribution to the following data and test the goodness of fit :

x :	0	1	2	3	4	5	6
f :	275	72	30	7	5	2	1

34. (a) Explain the test procedure for testing equality of variance.

(b) Two random samples drawn from two normal populations are

Sample I :	20	16	26	27	23	22	18	24	25	19		
Sample II :	27	33	42	35	32	34	38	28	41	43	30	37

Obtain estimates of the variances of the populations and test whether the two populations have the same variance.

35. The following data gives marks obtained by a sample of 10 students before and after a period of training. Assuming normality test whether the training was of any use.

Student No :	1	2	3	4	5	6	7	8	9	10
Before training :	91	95	81	83	76	88	89	97	88	92
After training :	79	101	85	88	81	92	90	99	97	87

(2 × 15 = 30 Marks)

St. Xavier's College

(Pages : 4) G – 4075

Reg. No. : .....

Name : .....

Fourth Semester B.Sc. Degree Examination, July 2019

(First Degree Programme Under CBCSS)

Physics

Core Course III

PY 1441 : ELECTRODYNAMICS

(2014 Admission onwards)

Time : 3 Hours Max. Marks : 80

SECTION – A

Answer **all** questions; **each** question carries **1** mark.

1. What is Coulomb's Law?
2. Write mathematical expression for Electric field.
3. Write the properties of Electric field lines.
4. Write Biot-Savart law.
5. What do you mean by Induced emf?
6. What is Lorentz force?
7. Give wave equation in terms of electric field.
8. Explain Inductive impedance in a circuit.

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9. What is time constant in L-R circuit?

10. Write about constant voltage source.

(10 × 1 = 10 Marks)

SECTION – B

Answer any **eight** questions; **each** question carries **2** marks.

11. Give notes about electric conductors and its basic properties.

12. Write Poisson's and Laplace's equations.

13. What do you mean by electric potential? Give its expression

14. What is Polarisation and explain polarisability tensor?

15. Explain Ampere's circuit law.

16. Describe briefly different types of magnetic materials.

17. Describe Maxwell's electromagnetic equations.

18. Write about equation of continuity.

19. Prove that magnetic field B is solenoid.

20. What is Q-factor? How is it related to the sharpness of resonance of circuit?

21. Explain Maxwell's ac bridge.

22. How to Theveninz a circuit?

(8 × 2 = 16 Marks)

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SECTION – C

Answer any **six** questions. **Each** question carries **4** marks.

23. A parallel plate capacitor of plate area $10^{-2} m^2$ and plate separation $10^{-2} m$ is charged to 100V. Calculate the free charge on the plates of the capacitor.

24. An electron accelerated by 300 V enters a magnetic field of 0.05 T at an angle of 30°. Find the radius of the helical path and the angular velocity of electron.

25. A long straight wire carries a current 3A. An electron travels at a speed of $5 \times 10^4 \, m/s$ parallel to the wire 0.10m from it and in a direction opposite to the current. Calculate the force experienced by the electron in the magnetic field of the current.

26. A parallel plate capacitor of capacitance $C_0 = 13.5 \, pF$ has a potential difference 12.5 V between the plates. Now charging battery is disconnected and a slab of dielectric constant K= 6.5 is inserted between the plates. Find the energy stored in the capacitor both before and after the slab is introduced and hence energy difference.

27. Find the density (charge/volume) of mobile charges in a piece of copper, assuming each atom contributes2 free electrons .Given molar mass of copper 64×10^{-3}, density of copper $9 \times 10^3 \, kg/m^3$ and Avogadro number is 6×10^{23}.

28. Find the electric potential on the surface of nucleus having mass number 64 and atomic number A = 30. The charge on the proton is $1.6 \times 10^{-19} \, C$ and the radius of nucleus is given by $R = R_0 A^{1/3}$, where $R_0 = 1.2 \times 10^{-15} \, m$.

29. A capacitor is charged by a dc supply through a resistance 2 mega ohm. If it takes 1 second for the charge to reach 1/2 of its final value, what is the capacitance of the capacitor?

30. Show that maximum power is transferred to the load when the load resistance is equal to the internal resistance

31. A lamp having filament of 15 ohm resistance is not allowed to pass more than 3A current. Find the value of inductance which must be used in series with the lamp which is supplied by an ac of maximum emf 210 V at 50 HZ.

(6 × 4 = 24 Marks)

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SECTION – D

Answer any **two** questions. **Each** question carries **15** marks.

32. State and explain Gauss's law in electro statics. Discuss the variation in electric field intensity due to a charged spherical shell. Represent it graphically.

33. Prove that the path of the motion of an electric charge under transverse electric and magnetic field is cycloid.

34. Discuss about the charging of a capacitor through an inductor and resistor.

35. Discuss the passage of ac through a series LCR circuit. And describe the resonance.

(2 × 15 = 30 Marks)

St. Xavier's College

(Pages : 4)

G – 4076

Reg. No. : .....

Name : .....

Fourth Semester B.Sc. Degree Examination, July 2019

First Degree Programme under CBCSS

Complementary Course for Physics

MM 1431.1 – MATHEMATICS IV (COMPLEX ANALYSIS, FOURIER SERIES AND FOURIER TRANSFORMS)

(2014 Admission onwards)

St. Xavier's College

Time : 3 Hours

Max. Marks : 80

SECTION – I

All the first ten questions are compulsory. They carry 1 mark each.

1. If $z_1 = 6 + 3i, z_2 = -2 + 3i$, what is the imaginary part of $\frac{z_1}{z_2}$?.
2. Using D'Moivre's Theorem, express $\sin 4\theta$ in terms of powers of $\cos\theta$ and $\sin\theta$.
3. Define analyticity of a complex function $f(z)$ in a domain D in the complex plane.
4. State Cauchy — Riemann equations.
5. State Morera's Theorem.
6. Obtain the singular points of $f(z) = Co\sec z$.
7. Find the residue of $f(z) = \frac{1}{(z^2+1)^3}$ at $z = -i$.
8. State Dirichlet conditions for the convergence of a Fourier series of a function $f(x)$ of period 2π.

P.T.O.

9. Write the standard form of Fourier Sine series and formulae for Fourier coefficients of the half range Sine series of a function $f(x)$ in $(0, \pi)$.

10. If $F(s)$ is the Fourier transform of $f(x)$ then what is the Fourier transform of $f(x-a)$ where a is any real number.

(10 × 1 = 10 Marks)

SECTION – II

Answer any eight questions from among the questions 11 to 22. These question carry two marks each.

11. Find all distinct fourth roots of -1.

12. Prove that the real and imaginary parts of an analytic function are harmonic.

13. Find the real and imaginary parts of $f(z) = 2z^3 - 3z$.

14. Evaluate $\int_C \text{Re}\, z^2 dz$ where C is the unit circle in the counter clockwise direction.

15. Develop the function $f(z) = \frac{1}{z+3i}$ in a Maclaurin's series and find the radius of convergence.

16. Determine the location and nature of singularities of $f(z) = z^2 - \frac{1}{z^2}$.

17. Find the residues of $f(z) = \frac{1}{1-e^z}$ at its singular points.

18. Expand $f(z) = \frac{1}{z^3 - z^4}$ as a Laurent's series that converges for $|z| > 1$.

19. State Cauchy's Integral formula and using it evaluate $\oint_C \frac{z+1}{z^2} dz$ where C is a unit circle.

20. Find the half range Cosiine series of $f(x) = x, 0 < x < \pi$.

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21. Expand $f(x)=(x-1)^2, 0<x<1$ in a Fourier series of Sine terms only.

22. Prove that Fourier transform is a linear operator.

(8 × 2 = 16 Marks)

SECTION – III

Answer any **six** questions from among the questions 23 to 31. These questions carry 4 marks each.

23. If $f(z)$ is analytic, prove that $\left(\frac{\partial^2}{\partial x^2}+\frac{\partial^2}{\partial y^2}\right)|f(z)|^2=4|f'(z)|^2$.

24. What are the values of $\int_C \frac{e^z}{z^2+1}dz$ if C is a unit circle with centre at

(a) $z=i$ and

(b) $z=-i$?

25. Find the Laurent's series for the function $f(z)=\frac{z}{(z-1)(z-3)}$ in $0<|z-1|<2$.

26. Obtain the residues of $f(z)=\frac{z^2-z+2}{(z+3i)(z-3i)(z+i)(z-i)}$ at its poles.

27. State Cauchy's Residue Theorem. Use Cauchy's Residue Theorem to evaluate the integral of the function $f(z)=\frac{1}{1+z^2}$ around the circle $|z|=2$, in the positive sense.

28. Show that $\int_0^\infty \frac{dx}{x^4+1}=\frac{\pi}{2\sqrt{2}}$.

29. Obtain the Fourier series of the periodic function defined by

$f(x)=\begin{cases}-\pi \text{ if } -\pi<x<0\\ x \text{ if } 0<x<\pi\end{cases}$. Deduce that $\frac{\pi^2}{8}=\frac{1}{1^2}+\frac{1}{3^2}+\frac{1}{5^2}+\ldots\infty$.

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30. Obtain the Fourier series of periodicity 2 for $f(x)=\begin{cases} x \text{ if } -1<x\le 0 \\ x+2 \text{ if } 0<x\le 1 \end{cases}$

31. Find the Fourier transform of $f(x)=\begin{cases} Cosx, |x|<\frac{\pi}{2} \\ 0, \ |x|>\frac{\pi}{2} \end{cases}$.

(6 × 4 = 24 Marks)

SECTION – IV

Answer any **Two** questions from among the questions 32 to 35. These questions carry 15 marks each.

32. (a) If a function $f(z)$ is analytic, show that is independent of $\bar{z}$.

(b) Show that the function $u(x,y)=x^4-6x^2y^2+y^4$ is harmonic and find the corresponding analytic function $f(z)$ in terms of z.

33. (a) Expand $\frac{1}{1+z^2}$ as a Laurent series about $z=i$.

(b) Evaluate $\int_C \frac{Sin\pi z^2+Cos\pi z^2}{(z-1)^2(z-2)}dz$ where C is $|z|=3$.

34. Expand $f(x)=x\sin x$ as a cosine series in $0<x<\pi$ and deduce $1+\frac{2}{1.3}+\frac{2}{3.5}+\frac{2}{5.7}+\ldots\infty$.

35. Find the Fourier transform of $f(x)=\begin{cases} 1-x^2, |x|\le 1 \\ 0, |x|>1 \end{cases}$. Hence evaluate $\int_0^\infty \frac{x\,Cosx-Sinx}{x^3}Cos\frac{x}{2}dx$.

(15 × 2 = 30 Marks)

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St. Xavier's College

(Pages : 4) G – 4092

Reg. No. : .....

Name : .....

Fourth Semester B.Sc. Degree Examination, July 2019

First Degree Programme under CBCSS

Chemistry

Core Course

CH 1441 : ORGANIC CHEMISTRY – I

(2017 Admn)

St. Xavier's College

Time : 3 Hours Max. Marks : 80

SECTION – A

One word. Answer **all** questions. **Each** question carries **1** mark.

1. Give IUPAC name of acetic acid.
2. Write the functional isomer of propanoic acid.
3. Draw the structure of prop-1-ene-1-amine
4. The thermodynamic product of the sulphonation of naphthalene is _____.
5. What is the value of n as per Huckel's rule for phenanthrene.
6. The major product in the Friedel- Crafts alkylation of benzene with n-propyl chloride is _____.
7. C-C bond length in acetylene is _____.
8. Hybridisation of carbocation is _____.

9. _____ is an example of an auxochrome.

10. Cyclohexene on reaction with meta chloroperbenzoic acid in CCl_4 followed by acid catalysed hydrolysis will yield _____.

(10 × 1 = 10 Marks)

SECTION – B

Short answer. Answer **any eight** questions. **Each** question carries **2** marks.

11. Draw D and L forms of Erythrose and Threose.

12. Explain cyclo addition reaction.

13. Draw the structure of Alizarin.

14. Make out the differences between singlet and triplet carbene.

15. Give the priority order of the following groups in R/S representation

    (a) $-CH_2Cl$, $-CN$, $-NO_2$, $-COOH$;

    (b) $-CHO$, $-CH_2OH$, $-CH_2SH$, $-CHCl_2$.

16. Draw the sawhorse representation for staggered and eclipsed forms of ethane.

17. Give the resonance structure of Nitro Benzene.

18. Compare the basicity of :

    (a) Pyridine

    (b) Pyrrol.

19. Compare the stability of Toluene and Ethyl benzene.

20. Distinguish between electromeric effect and mesomeric effect.

21. Recognize the product when but-I,3-diene is heated with maleic anhydride.

22. Give two examples for photosensitisers.

(8 X 2 = 16 Marks)

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SECTION – C

Short essay. Answer **any six** questions. **Each** question carries **4** marks.

23. Explain the use of isotopic labelling in the study of mechanism of ester hydrolysis.

24. With the help of Bayer's theory calculate the angle strain and predict the stability of alicyclic compounds.

25. Explain the term atropisomers with examples.

26. Discuss the stability of t-butyl, allyl, benzyl and cyclopentadienyl carbanions.

27. Write a short note on assymmetric synthesis.

28. Describe the evidences of benzyne intermediate mechanism.

29. Optical purity is important in medicinal chemistry. Justify with example.

30. Describe the effect of substituent on the acidity of phenol.

31. Elucidate mechanism of Friedel-Crafts alkylation of benzene.

(6 X 4 = 24 Marks)

St. Xavier's College

SECTION – D

Essay. Answer **any two** questions. Each question carries **15** marks.

32. (a) Discuss the theories behind colour of a dying compound.

    (b) Classify various dyes based on structure and method of application.

(7 + 8)

33. (a) Explain the mechanism of S_N1 and S_N2 reactions.

    (b) What are the factors that will affect the course of aliphatic nucleophilic substitution?

    (c) Describe a note on stereochemistry of these reactions. **(5 + 7 + 3)**

34. (a) Discuss the conformational isomerism in butane and explain their relative stabilities.

(b) How heat of hydrogenation is related to the stability of alkenes? (8 + 7)

35. (a) Explain the structure and stability of benzene with the help of resonance and molecular orbital concepts.

(b) Illustrate the methods for the resolution of racemic mixture. (8 + 7)

St. Xavier's College

(Pages : 4) G – 4118

Reg. No. : .....

Name : .....

Fourth Semester B.Com. Degree Examination, July 2019

First Degree Programme under CBCSS

Complementary Course : CO 1431/CX 1431/CC 1431

BUSINESS STATISTICS

(Common for Commerce/Commerce and Tax Procedure and Practice/Commerce with Computer Application)

(2014 Adm onwards)

St. Xavier's College

Time : 3 Hours Max. Marks : 80

SECTION – A

Answer **all** questions in one or two sentences each. **Each** question carries 1 mark.

1. What is mean by histogram?
2. Define average.
3. What is mean by dispersion?
4. Describe method of least square.
5. What is the relevance of mode as a measure of central tendency?
6. What is mean by cost of living index?
7. Describe time reversal test.
8. What is mean by Fishers ideal index?
9. How will you construct multiple bar diagram?
10. Describe interpolation.

(10 × 1 = 10 Marks)

P.T.O.

SECTION – B

Answer **any eight** questions. **Each** question carries **2** marks.

11. What is mean by regression?

12. What is mean by law of inertia of large numbers?

13. What are the different types of bar diagrams?

14. Why sensus method is more reliable than sampling?

15. What are the positional averages?.

16. Why arithmetic mean is considered as good measure of central tendency?

17. Distinguish between absolute measure of dispersion and relative measure of dispersion?

18. Explain the essential characteristics of an ideal measure of dispersion.

19. What are the limitations of index numbers?

20. How will you compute harmonic mean?

21. What is mean by seasonal variation?

22. What are the mathematical properties of median?

(8 × 2 = 16 Marks)

St Xaviers College

SECTION – C

Answer **any six** questions. **Each** carries **4** marks.

23. Explain quartile range and semi-inter quartile range.

24. Explain the procedure of mode.

25. When weighted average is useful?

26. Calculate range and co-efficient of range from the following distribution :

Grade :	below 10	10-30	30-60	60-100	above 100
Frequency :	7	8	20	5	10

27. Distinguish between mean and mode.

28. Blood serum cholesterols levels of 10 persons are given below.

220, 230, 240, 250, 260, 270, 280, *255*, 265, 290.

Find SD and CV.

29. Explain different components of time series.

30. Explain methods of measurement of trend.

31. Explain the utilities of time series analysis.

(6 × 4 = 24 Marks)

SECTION – D

Answer **any two** questions. **Each** carries **15** marks.

32. What are the measures of simple correlation?

33. Fit a straight line trend by the method of least square to the following data relating to the number of foreign tourists visited at Munnar Tourist Centre between 2012 and 2018.

Also obtain trend values.

Year :	2012	2013	2014	2015	2016	2017	2018
No.of tourists :	300	700	600	800	900	700	1000

Estimate the number of tourists expected to visit in 2019.

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34. From the following data calculate Fisher's Ideal index number and also test whether it satisfies both time reversal and factor reversal tests. Take 2000 as the base year.

Commodity	2000		2006	
	Price	Expenditure	Price	Expenditure
L	6	30	12	84
M	7	49	11	66
N	10	80	15	75
O	4	20	10	60

35. Calculate two regression equations by using Karl Pearson's co-efficient of correlation and standard deviations for sales and profits as given below. Estimate profits when sales Increase to Rs 42 lakhs and Rs 45 Lakhs.

Sales in Rs. Lakhs A	5	10	15	20	25	30	35
Profits in Rs. "000" B	6	8	12	14	16	18	20

(2 × 15 = 30 Marks)

St. Xavier's College

(Pages : 4

G – 4036

Reg. No. : .....

Name : .....

Fourth Semester B.Sc. Degree Examination, July 2019

First Degree Programme under CBCSS

Complementary Course for Physics

MM 1431.1 : MATHEMATICS – IV : (COMPLEX ANALYSIS, FOURIER SERIES AND FOURIER TRANSFORMS)

(2013 Admission)

St. Xavier's College

Time : 3 Hours

Max. Marks : 80

SECTION – I

All the first **ten** questions are compulsory. They carry **1** mark each.

1. Reduce $\frac{1+2i}{3-4i}+\frac{2-1}{5i}$ into a real number.

2. Find the value of (2, –3)(–2, 1).

3. Find the principal argument *Arg* z, where $z=\frac{i}{-2-2i}$.

4. Find the real and imaginary parts of the function $f(z)=z^2$.

5. Write the Maclaurin series expansion of $\frac{1}{1-z}$.

6. Find the singularities of the function $\frac{5z-2}{z^2-z}$.

7. Find the residue at z = 0 of the function $f(z)=\frac{1}{z+z^2}$.

8. Evaluate $\int_C \frac{z^2 dz}{z-3}$ where $C: |z| = 1$.

9. Write the standard form of Fourier series expansion of a function of period 2π.

10. Write the Euler formula for .Fourier co-efficients of a function of period $2L$.

(10 × 1 = 10 Marks)

SECTION – II

Answer **any eight** questions from among the questions 11 to 22. They carry **2** marks **each**.

11. Sketch the set of points determined by the condition $\text{Re}(\bar{z} - i) = 2$.

12. Show that an analytic function with constant real part is a constant.

13. Write the function $f(z) = z + \frac{1}{z}, z \neq 0$ in the form $f(z) = U(r,\theta) + iV(r,\theta)$.

14. Find the principal value of $(-i)^i$.

15. Write the real and imaginary parts of sin z.

16. Find the value of $\int_C \bar{z}\, dz$ where C is the right half of the circle $|z| = 1$ oriented positively.

17. Evaluate $\int_C \frac{z dz}{z+i}$ where $C: |z| = 2$.

18. Locate the singularity of $\exp\left(\frac{1}{2}\right)$ and determine its nature.

19. Find the residue of $\frac{\sinh z}{z^4}$ at z = 0.

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20. Find the Fourier Cosine Transform of the function $f(x) = 1$, *if* $0 < x < c$
$= 0$, *if* $x > c$

21. Find the Fourier Sine Transform of the function $f(x) = 3x, 0 < x < 6$.

22. Show that $F_s[f(ax)] = \frac{1}{a} F_s\left(\frac{w}{a}\right)$, $a \neq 0$.

(8 × 2 = 16 Marks)

SECTION – III

Answer **any six** questions from among the questions 23 to 31. They carry **4** marks **each**.

23. Show that the function $f(z) = z^3$ is analytic everywhere and find its derivative.

24. Prove that $f'(z)$ does not exist for $f(z) = z - |\bar{z}|^2$.

25. Show that $U(x,y) = \frac{2xy}{(x^2+y^2)^2}$ and $V(x,y) = \frac{x^2-y^2}{(x^2+y^2)^2}$ are harmonic conjugates.

26. Evaluate $\int_0^{1+i} (x - y - ix^2)\,dz$ along the straight line from z = 0 to $z = 1+i$.

27. Evaluate $\int_C \frac{\cos(\pi z^2)\,dz}{(z-1)(z-2)}$ where $C : |z| = 3$.

28. Determine the poles of the function $f(z) = \frac{z^2}{(z-1)^2(z+2)}$ and the residue at each pole.

29. Find the Fourier series expansion of the function $f(x) = x^2$, $-\pi < x < \pi$.

30. Find the half range sine series of the function $f(x) = \pi - x$, $0 < x < \pi$.

31. Find the Fourier transform of the function $f(x) = e^x$, *if* $|x| < a$
$= 0$, *otherwise.*

(6 × 4 = 24 Marks)

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SECTION – IV

Answer **any two** questions from among the questions 32 to 35. They carry **15** marks **each**.

32. (a) Obtain the harmonic conjugate of $U(x,y) = y^3 - 3x^2y$.

(b) Let $f(z) = U + iV$ be an analytic function. Find $f(z)$ if $U - V = e^x(\cos y - \sin y)$.

33. Expand $\frac{1}{z^2 - 3z + 2}$ in the regions

(a) $|z| < 1$

(b) $1 < |z| < 2$

(c) $|z| > 2$.

34. Find a Fourier Series to represent $x - x^2$ from $x = -\pi$ to π and hence deduce $\frac{1}{1^2} - \frac{1}{2^2} + \frac{1}{3^2} - \frac{1}{4^2} = \frac{\pi^2}{12}$.

35. Find the Fourier transform of $f(x) = 1 - x^2$, *if* $|x| \le 1$ $= 0$, *otherwise*. Hence prove that $f(x) = \frac{4}{\pi}\int_0^\infty \frac{(\sin\omega - \omega\cos\omega)\cos\omega x\, d\omega}{\omega^3}$. Also deduce that

$$\int_0^\infty \frac{(\sin\omega - \omega\cos\omega)\cos\frac{\omega}{2}\, d\omega}{\omega^3} = \frac{3\pi}{16}.$$

(2 × 15 = 30 Marks)

St. Xavier's College

(Pages : 6) G – 4077

Reg. No. : .....

Name : .....

Fourth Semester B.Sc. Degree Examination, July 2019

First Degree Programme Under CBCSS

Complementary Course for Chemistry / Polymer Chemistry

MM 1431.2 : MATHEMATICS IV (ABSTRACT ALGEBRA AND LINEAR TRANSFORMATIONS)

(2014 admission onwards)

St. Xavier's College

Time : 3 Hours Max. Marks : 80

PART – I

Answer **all** questions. **Each** questions carries **1** mark.

1. State whether true or false. The set $\mathbb{Z}$ of all integers form a group under multiplication.

2. Write the generators of Z_6.

3. Give as example of a group that is not cyclic.

4. Define a field.

5. Give an example of a ring.

P.T.O.

6. Check whether the vectors $\begin{bmatrix}1\\1\end{bmatrix}, \begin{bmatrix}1\\-1\end{bmatrix}$ are linearly independent.

7. Find $T(o)$ if T is a linear transformation.

8. If $T:\mathbb{R}^2 \to \mathbb{R}^2$ is defined by $T(x) = Ax$ where, $A = \begin{bmatrix}-1 & 0\\0 & -1\end{bmatrix}$. Find the image of $\begin{bmatrix}2\\3\end{bmatrix}$.

9. Find the standard matrix A for the transformation $Tx = 5x$ for $x \in \mathbb{R}^3$.

10. Define an onto mapping.

(10 × 1 = 10 Marks)

PART – II

Answer any **eight** questions. **Each** questions carries **2** marks.

11. Determine whether the binary operators $*$ defined on Q by $a*b = ab+1$ is commutative and associative.

12. For any group G, show that $(a*b)' = b'*a'$ for all $a, b \in G$, whether a' denotes the inverse of a in G.

13. Find the subgroup of Z_6 generated by 2.

14. Show that every cyclic group is commutative.

15. If R is a ring, show that $a(-b) = (-a)b = -ab$ for all $a, b \in R$.

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16. Define a zero divisor of a ring and give an example.

17. Check whether the vectors $V_1 = \begin{bmatrix} 2 \\ 3 \\ 5 \end{bmatrix}$, $V_2 = \begin{bmatrix} 0 \\ 0 \\ 0 \end{bmatrix}$, $V_3 = \begin{bmatrix} 1 \\ 1 \\ 8 \end{bmatrix}$ are linearly independent.

18. If $T : R^3 \to R^3$ is defined by $T(x) = Ax$ where $A = \begin{bmatrix} 1 & -2 & 3 \\ 0 & 1 & -3 \\ 2 & -5 & 6 \end{bmatrix}$, find $T(6)$ where $b = \begin{bmatrix} -6 \\ -4 \\ 5 \end{bmatrix}$.

19. Does the transformation T: $\mathbb{R}^2 \to \mathbb{R}^3$ is defined by $T(x_1, x_2) = (2x_1 - 3x_2, x_1 + 4, 5x_2)$ linear?

20. Find the matrix of the transformation $T = R^2 \to R^2$ that rotates points through $\pi / 2$ radians counter clockwise.

21. Describe geometrically what T does to each vector x in R^2, where $T(x) = \begin{bmatrix} 2 & 0 \\ 0 & 2 \end{bmatrix} \begin{bmatrix} x_1 \\ x_2 \end{bmatrix}$.

22. Find the value of h such that $\begin{bmatrix} 3 \\ -6 \\ 1 \end{bmatrix}, \begin{bmatrix} -6 \\ 4 \\ -3 \end{bmatrix}, \begin{bmatrix} 9 \\ h \\ 3 \end{bmatrix}$ are linearly dependent.

(8 × 2 = 16 Marks)

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PART – III

Answer any **six** questions. **Each** questions carries **4** marks.

23. Let n be a positive integer and let $nZ = \{nm / m \in Z\}$ show that $< nZ, + >$ is a group.

24. Draw a subgroup diagram for Z_6.

25. Show that the Klein 4 groups V is not cyclic.

26. Show that Z_5 is a field with respect to the operations additions modulo 5 and multiplication modulo 5.

27. Describe all units is the ring $Z \times Z$.

28. Determine whether the columns of the matrix $A = \begin{bmatrix} -4 & -3 & 0 \\ 0 & -1 & 5 \\ 1 & 1 & -5 \\ 2 & 1 & -10 \end{bmatrix}$ form a linearly independent set.

29. Find all x in R^4 that are mapped into the zero vector by the transformation $x \to Ax$ for the matrix $A = \begin{bmatrix} 3 & 2 & 10 & -6 \\ 1 & 0 & 2 & -4 \\ 0 & 1 & 2 & 3 \\ 1 & 4 & 10 & 8 \end{bmatrix}$.

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30. Let $T(x_1, x_2) = (3x_1 + x_2, 5x_1 + 7x_2, x_1 + 3x_2)$ show that T is a one-to-one linear transformation. Does T map R^2 onto R^3?

31. Let $T : R^2 \to R^3$ be a linear transformation with $T(x_1, x_2) = (2x_1 - x_2 - 3x_1 + x_2, 2x_1 - 3x_2)$. Find x such that $T(x) = (0, -1, -4)$.

(6 × 4 = 24 Marks)

PART – IV

Answer any **two** questions. **Each** questions carries **15** marks.

32. Describe the groups D_3 of symmetries of an equilaterals triangle.

33. (a) Define a ring. Give an example of a ring with unity.

(b) Show that 2Z, the set of all even integers is a ring under usual addition and multiplication. Is the ring commutative?

34. (a) Define a linear transformation $T : R^2 \to R^2$ by $T(x) = \begin{bmatrix} 0 & -1 \\ 1 & 0 \end{bmatrix} \begin{bmatrix} x_1 \\ x_2 \end{bmatrix} = \begin{bmatrix} -x_2 \\ x_1 \end{bmatrix}$.

Find the image under T of $u = \begin{bmatrix} 4 \\ 1 \end{bmatrix}$, $v = \begin{bmatrix} 2 \\ 3 \end{bmatrix}$ and $u + v = \begin{bmatrix} 6 \\ 4 \end{bmatrix}$. Use he fact that T is linear to find the image of $2u + 3v$.

(b) Let T be a linear transformation whose standard matrix is $A = \begin{bmatrix} 1 & -4 & 8 & 1 \\ 0 & 2 & -1 & 3 \\ 0 & 0 & 0 & 5 \end{bmatrix}$. Does T map R^4 onto R^3? Is T a 1–1 mapping?

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35. (a) Show that as indexed set $S = \{V_1, ..., V_p\}$ of two or more vectors is linearly independent if and only if atleast one of the vector in S is a linear combinations of the others.

(b) Find the value of a such that $\left\{\begin{bmatrix}1\\a\end{bmatrix}, \begin{bmatrix}a\\a+2\end{bmatrix}\right\}$ is linearly dependent.

(2 × 15 = 30 Marks)

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(Pages : 8)

G – 4117

Reg. No. : .....

Name : .....

Fourth Semester B.Com. Degree Examination, July 2019

First Degree Programme under CBCSS

Core Course : CO 1443/CC 1444 : CORPORATE ACCOUNTING

(Common for Commerce/Commerce with Computer Application)

(2014 Admission onwards)

Time : 3 Hours

Max. Marks : 80

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SECTION – A

Answer **all** questions :

1. Define absorption.
2. What is Capital Reserve?
3. What is Interim dividend?
4. What is purchase consideration?
5. What is Reduction of capital?
6. What is conversion of shares?
7. Define contingent liability.
8. What is Net Payment Method?
9. What is intrinsic value of shares?
10. What is IFRS?

(10 × 1 = 10 Marks)

P.T.O.

SECTION – B

Answer any **eight** questions :

11. What are the classification of Reserves?

12. Explain the types of Amalgamation.

13. What are the steps involved in the ascertainment of profit or loss prior to incorporation?

14. What are the difference between Amalgamation and absorption?

15. When internal reconstruction is required?

16. What are the objectives of Accounting Standards?

17. Explain the treatment of provision for taxation.

18. What are the difference between Amalgamation in the nature of purchase and in the nature of merger?

19. What are the items come under Inventories?

20. What is deferred tax?

21. Define Depreciation.

22. What is AS-20?

(8 × 2 = 16 Marks)

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SECTION – C

Answer any **six** questions. Each question carries **4** marks.

23. What are the accounting entries in the books of transferee company?

24. *X* Ltd. resolved to convert. Its 30,000 equity shares of ₹ 10% each fully called up, to same number of equity shares of ₹ 7 each and to utilize the amount to write off P & L a/c (Dr) ₹ 60,000 and goodwill ₹ 30,000. Give journal entries.

25. Following is the capital structure of A Ltd.

	₹
Equity share capital on 31.3.16 (7,00,000 shares of 10% each)	7,00,000
8% non-cumulative preference shares (1,00,000 shares of 10%)	10,00,000
10% cumulative preference shares 3,00,000 shares of 10%	30,00,000

The profits of the company for the year ended 31.3.16 before providing for preference dividend is ₹ 12,00,000. Calculate Basic EPS.

26. Following Balance Sheet of Trinity Ltd. as on 31.3.13.

	₹		₹
Equity capital	3,00,000	Land and Buildings	3,00,000
General Reserve	1,60,000	Plant and Machinery	1,60,000
P & L A/c	40,000	Stock	40,000
Investment allowance :		Debtors	1,30,000
Reserve	1,40,000	Bank	70,000
Creditors	60,000		
	7,00,000		7,00,000

Famous Ltd. requires the business for ₹ 7,20,000, ₹ 1,20,000 to be paid in cash and the balance in equity shares of 10% each at a premium of ₹ 5 per share. For the purpose, land and building revalued at ₹ 3,60,000 and stock at ₹ 30,000. It was decided that the investment allowance reserve is to continue in the books. Give journal entries in the books of famous Ltd.

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27. The following is the Balance Sheet of B Ltd. as on 31st March 2015

Liabilities	₹	Assets	₹
Share capital		Fixed Assets	83,00,000
50,000 shares of 100% each	50,00,000	Current assets	69,00,000
Capital reserve	10,00,000	Investments	17,00,000
General reserve	36,00,000	Goodwill	2,00,000
Unsecured Loans	22,00,000		
Sundry creditors	42,00,000		
Provision for taxation	11,00,000		
	1,71,00,000		1,71,00,000

B. Co. Ltd is amalgamated with Beesons Ltd. as on 31.3.15 on which date the balance sheet on Beesons Ltd. as follows :

Beesons Ltd.

Liabilities	₹	Assets	₹
Share capital		Fixed assets	1,60,00,000
8,00,000 shares of 10	80,00,000	Current assets	1,68,00,000
General reserve	1,00,00,000		
Secured loans	40,00,000		
Sundry creditors	46,00,000		
Provision for tax	52,00,000		
Provision for dividend	10,00,000		
	3,28,00,000		3,28,00,000

For the purpose of the amalgamation the goodwill of B Ltd. is considered valueless. There are also arrears of depreciation in B Co. Ltd. amounting to 24,00,000. The shareholders in B Co. Ltd. are allotted, in full satisfaction of their claims. Shares in Beeson Ltd. in the same proportion as respective intrinsic value of shares of 2 companies bear to one another.

Pass journal entries in the books of Both companies.

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28. From the following Trial Balance and adjustments show the treatment of income tax and provision accounts.

	Debit	Credit
Provision for taxation		40,000
Advance tax	25,000	
Tax deducted of source	3,000	

Adjustments :

Income tax of the previous year has been settled at ₹ 44,000 against which the advance tax and tax deducted at source are to be adjusted.

Make a provision of income ₹ 50,000.

29. Deepika Ltd. purchased a running business on 1st Jan. 2015 from Narayan. Deepika was incorporated on 1st May 2015. The combined P & L of the Co. prior and after incorporation is as under :

P & L A/c for the year ended 31.12.15

	₹		₹
To Rent, rates, salaries	12,000	By G/P	1,56,000
To Directors fee	3,600		
To Discount received	6,000		
To Preliminary exp.	4,900		
To Carriage outward and Selling exp.	5,500		
To Interest paid to vendors	10,000		
To N/P	1,14,000		
	1,56,000		1,56,000

Following further information :

(a) Sales upto 30.4.15 were 3,00,000 out of total sales ₹ 15,00,000 of the year

(b) Purchase upto 30.4.15 were ₹ 3,00,000 out of total purchase of ₹ 9,00,000 of the year

(c) Int. paid to vendors 1.11.05 @ 12% p.a. on ₹ 1,00,000 being purchase consideration

Ascertain profit prior incorporate.

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30. From the following information prepare a profit and loss appropriation account of Jai Ltd. for the year ended 31st March 2015.

	₹
P & L a/c balance (Cr) as 1.4.2014	1,28,000
Net profit of the year ended on 31.3.2015	3,25,000
Transfer to General Reserve	30,000
Transfer to Dividend Equalisation reserve	1,00,000
Dividend proposal @ 10% on preference shares capital of	5,00,000
Dividend proposal @ 12% on equity share capital of	10,00,000

31. Write about External Reconstruction.

(6 × 4 = 24 Marks)

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SECTION – D

Answer any **two** questions not exceeding **4** pages. Each question carries **15** marks.

32. Ajantha Ltd. has an authorised capital of ₹ 13,00,000 consisting of 1,30,000 equity shares of ₹ 10 each. Trial Balance of the company on 31st March 2015 was as follows :

Debit Balance	₹	Credit Balance	₹
Opening stock	16,000	Sales	3,60,000
Purchase	1,26,000	Commission	10,000
Calls in arrear	20,000	Creditors	1,76,000
Salary	63,000	Bank overdraft	10,000
Office expenses	12,000	P & L a/c	44,000
Selling expenses	56,000	Share capital	8,00,000
Cash	12,000		
Bank	86,700		
Sundry debtors	12,300		
Buildings	3,00,000		
Plant	2,00,000		
Goodwill	4,96,000		
	14,00,000		14,00,000

(a) Stock at the end ₹ 36,000

(b) Provide depreciation on plant @ 15%

(c) Provide for taxation ₹ 20,000

(d) Directors recommend a dividend @ 8% on paid up capital

(e) Transfer to General Reserve ₹ 26,000

(f) Assume a corporate dividend tax of 17%

Prepare final accounts of the company.

33. Following is the Balance Sheet of Unfortunate Ltd.

	₹		₹
Equity share capital (40,000 shares ₹ 10)	4,00,000	Goodwill	3,00,000
		Land and Building	1,00,000
Creditors	2,00,000	B/R	20,000
B/P	1,00,000	Bank	30,000
		P & L a/c	2,50,000
	7,00,000		7,00,000

Lucky Ltd is incorporated with a nominal capital of ₹ 8,00,000 to acquire unfortunate Ltd. for ₹ 2,00,000 to be satisfied by the issue of equity shares of ₹ 10 each. Lucky ltd. issued ₹ 3,00,000 12% debentures to raise the necessary funds for its working.

Prepare Balance Sheet.

34. The following scheme is prepared and sanctioned :

(a) Each share should be dividend into shares of ₹ 5 each

(b) After sub-division, each shareholder shall surrender 95% of their holding for the purpose of re-issue to debenture holders and creditors so far as required

(c) Of the surrendered shares of 46,000 shares of ₹ 5 each shall be converted into 14% redeemable of preference shares of ₹ 5 each fully paid

(d) The debenture holders total claims should be reduced to ₹ 2,30,000. This will be satisfied by the issue of 46,000 redeemable preference shares to them

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(e) The liability to income tax should be paid in full

(f) The claims of trade payable should be reduced by 80% and the balance should be satisfied by allotting them equity shares of ₹ 5 each. Out of shares surrendered

(g) Shares surrendered and not re-issued shall be cancelled

(h) Land and buildings is heavily re-valued. Give journal entries and reconstructed balance sheet

35. What is Accounting Standard? Explain about Indian and International Accounting Standard.

(2 × 15 = 30 Marks)

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