No. of Pages: 2

GACR
+3, 5th SEMESTER END EXAMINATION-2018
(ARTS)
Sub.- ECONOMICS
PAPER : Core- XI

Time: 3 Hours Full Marks: 80

The figure in the right hand margin indicate marks.

Question No.1 is compulsory, answer any FOUR from the rest.

1. Answer any EIGHT of the following. [2 x 8

a) Explain two methods of colonial exploitation in British India.

b) What is demographic dividend?

c) What is India's position in H.D.I.?

d) What is meant by density of population?

e) What are the salient features of National Population Policy (2000) ?

f) What is trickle down effect?

g) What are the objectives of Indian planning?

h) What is the share of primary sector in India?

i) Define poverty line in India.

j) How is inequality measured?

Answer any FOUR questions. [16 x4

2. Explain the basic features of Indian economy. What are the causes of its backwardness?

P.T.O.

3. What are the indices of health and education? How these indicators reflect India's achievement in this regard.
4. Examine the trends in National Income in India during the plan periods.
5. Explain the achievements of planning in India.
6. Define poverty in India. How is it estimated?
7. "In India growth has been accompanied by rising inequality." Examine this statement.
8. What are the various schemes adopted by the Government to reduce unemployment in India?

No. of Pages: 2

GACR

+3, 5th SEMESTER END EXAMINATION-2018

(ARTS)

Sub.- EDUCATION

(PAPER : Core - XI)

Time: 3 Hours Full Marks: 60

The figure in the right hand margin indicate marks.

Question No.1 is compulsory, answer any FOUR from the rest.

Section 'A'

1. Answer any SIX. questions. [6 x 2

i) State two aims of education during the Vedic Period.

ii) State two similarities between vedic and Buddhist system of education.

iii) What is "Pabbajja"?

iv) What is "Madrasha"?

v) What is Downward Filtration Theory?

vi) State two important contribution of Wood's Despatch to Indian education.

vii) Mention two important recommendations of Calcutta University commission on University education.

viii) State two essential recommendations of NKC on school education.

P.T.O.

Section 'B'

Answer any 4 questions.

2. Explain the aims of education, curriculum and method of teaching in Upanishadic period. [4+4+4

3. Discuss the salient features of Islamic education in Medieval India. [12

4. Why is Wood's Despatch 1854 declared as "Magna Carta" in the history of Indian education? [12

5. Explain Curzon's education Policy. [12

6. Discuss the recommendations made by the Indian education commission (1964-66). [12

7. Discuss the main features of National policy of education 1986. [12

8. Compare ancient period Hindu education system and Medieval period education in relation to aims, structure, curriculum and methods of teaching. [3+3+3+3

No. of Pages: 2

GACR

+3, 5th SEMESTER END EXAMINATION-2018

(ARTS)

Sub.- ENGLISH

(PAPER : Core-XI)

Time: 3 Hours Full Marks: 80

The figure in the right hand margin indicate marks.

Question No.1 is compulsory, answer any FOUR from the rest.

1. Answer any EIGHT questions. Wrte short notes of the following. [2 x 8

i) Political and social change in stage

ii) Text and performance

iii) European Drama

iv) Tragedy in European drama

v) Theatre of Absurd

vi) Heroism in European drama.

vii) Absurd concept 'nothing happens twice'.

viii) What is the main idea of "waiting for Godot"?

ix) What is the main idea of "Miss Julie"?

x) What is the meaning of 'Chairs' according to Lonesco?

Answer any 4 questions [4x16]

2. Discuss the theme and climax of Henrik Ibsen's "Ghosts".

P.T.O.

3. Why is August Strindberg's play "Miss Julie" considered naturalistic.
4. Who are the protagonist and antagonist in the story "Six Characters in search of an Author" by Pirandello? Discuss.
5. Justify the Title of the play "Hamlet Machine" by Heiner Muller.
6. What do plays like 'Chairs' by Lonesco say about society at the time it was written? Is the play still relevant.
7. Discuss aseroticism in "The Maids" depicted by Jean Genet. What usually arouses the different character?
8. Explain the siginficance of the Title "Waiting for Godot".
9. What is the historical materialism and how is it relevant in the play "The good women of szechwan."

No. of Pages: 2

GACR

+3, 5th SEMESTER END EXAMINATION-2018

(ARTS)

Sub.-HINDI

(PAPER :Core-XI)

Time: 3 Hours | Full Marks : 80

The figure in the right hand margin indicate marks.

(Answer any FIVE including Q.1)

SECTION - A

1. निम्नलिखित प्रश्नों मे से किन्ही **आठ** प्रश्नों के संक्षिप्त उत्तर दीजिए। [2x8]

a) किस पर्वत में रामगुप्त ने शिविर डाला था?

b) नाटक में कितने तत्त्व हैं?

c) मोहन राकेश के तिन नाटकों के नाम लिखिए।

d) पाश्चात्य रंगमंच का प्रारम्भ कहाँ से माना जाता है?

e) एकांकी का स्वरूप लिखिए।

f) 'भोर का तारा' एकांकी का कथानक किस वंश से सम्वन्धित है?

g) 'जुलुस' एकांकी का एकांकीकार कौन है?

h) राजनीति के बारे में आचार्य मिहिरदेव क्या कहते हैं?

i) 'औरंगजेव की आखिरी रात' एकांकि की समस्या क्या है?

j) रंगमंच कहने से आप क्या समझते हैं?

[P.T.O.]

SECTION - B

2. निम्नलिखित प्रश्नों मे से किन्ही **चार** प्रश्नों के संक्षिप्त उत्तर दीजिए। [16 x4]

a) "चन्द्रगुप्त एक सच्चे प्रेमी हृदय के अधिकारी है"- स्पष्ट कीजिए।

b) रंगमंच का तात्पर्य बतलाते हुए भारतीय रंगमंच पर प्रकाश डालिए।

c) नाटक-तत्व के आधार पर "लहरो के राजहंस" नाटक की समीक्षा कीजिए।

d) बहुत बड़ा सवाल एकांकी मे एकांकीकार का उद्देश्य स्पष्ट कीजिए।

e) आदर्श भारतीय नारी के रूप मे ध्रुबस्वामीजी का चरित्र-चित्रण कीजिए।

f) "नींद क्यों रात भर नही आती" एकांकी मे किस समस्या को उभारा गया है- बिस्तार से लिखिए।

■■■

No. of Pages: 2

GACR

+3, 5th SEMESTER END EXAMINATION-2018

(ARTS)

Sub.- Political Science

PAPER : Core- XI

Time: 3 Hours | Full Marks: 80

The figure in the right hand margin indicate marks.

Question No.1 is compulsory, answer any FOUR from the rest.

Section 'A' [2 x 8

1. Answer any EIGHT (08) questions from the following.

a) Define Hermeneutics.

b) What is Text interpretation ?

c) What do you know about 'The Republic'?

d) What is platonic concept of 'Rule of wisdom'?

e) What is the "Theory of cycle of change'?

f) Discuss Aristotle's views on "Revolution"?

g) Define Machiavelli's view on "Human Nature"?

h) What is Individualism?

i) What is Hobbesian Sovereignty?

j) Define Locke's 'State of Nature"

[16 x 4

Section 'B'

Answer any FOUR (4) questions from the following

2. Discuss the significance of "Text" and its interpretation to understand classical political philosophy.
3. "Justice is the hinge of his thought, and the text of his discourses"- Barker. Critically Analyse.
4. Explain the platonic theory of communism.
5. Comprehensively discuss about the "The best sate" of Aristotle.
6. Analyse Machivelli's attitude towards religion.
7. "Man is essentially selfish, contentious, quarrelsome, mean, wicked, non-altruistic, non-rational, impulsive and self-centred"- Hobbes, Justify the statement.
8. Discuss the significance of 'Natural Right' in Locke's political philosophy.

No. of Pages: 2

GACR
+3, 5th SEMESTER EXAMINATION - 2018
(ARTS)
Sub-ODIA
Paper- (C - XI)

Time : 3 Hours | Full Marks : 80

ପ୍ରଥମ ପ୍ରଶ୍ନ ସହିତ ଅନ୍ୟ ଯେକୌଣସି ଚାରିଗୋଟି ପ୍ରଶ୍ନର ଉତ୍ତର ଦିଅ

The figure in the right hand margin indicate marks.

'କ' ବିଭାଗ (୨×୧୦

୧. (ଯେ କୌଣସି ୧୦ଟି ପ୍ରଶ୍ନର ଉତ୍ତର ଗୋଟିଏ ବା ଦୁଇଟି ବାକ୍ୟକରେ ଦିଅ)

(କ) ଚତୁର୍ଦ୍ଦଶପାଦୀ କବିତା ବା ସନେଟ୍ କହିଲେ କ'ଣ ବୁଝ ?

(ଖ) ଆଧୁନିକ ଓଡ଼ିଆ ଗୀତିକବିତାର ଅଗ୍ରଦୂତ ସ୍ରଷ୍ଟା କିଏ ?

(ଗ) 'ବିଜୁଳି' ପତ୍ରିକା କାହିଁକି ପ୍ରସିଦ୍ଧି ଅର୍ଜନ କରିଥିଲା ?

(ଘ) 'ଚିଲିକା' ଖଣ୍ଡକାବ୍ୟ କେଉଁ ପତ୍ରିକାରେ ପ୍ରଥମେ ପ୍ରକାଶ ପାଇଥିଲା ?

(ଙ) 'ଚିଲିକା' କାବ୍ୟର ନାୟିକା କିଏ ?

(ଚ) କବିଙ୍କ ବିଷାଦବୋଧ ଦର୍ଶାଇଥିବା କୌଣସି ଏକ ପଦ 'ଚିଲିକା' କାବ୍ୟରୁ ଉଦ୍ଧାର କର ।

(ଛ) ମହାଭାରତର କେଉଁ ପର୍ବ ଆଧାରରେ 'କୀଚକ ବଧ' କାବ୍ୟ ପରିକଳ୍ପିତ ହୋଇଛି ?

(ଜ) ସୈରିନ୍ଧ୍ରୀଙ୍କ ପ୍ରକୃତ ନାମ କ'ଣ ?

(ଝ) 'ପୃଥ୍ୱୀ ବିଦାରି ବାରମାଟି ମଡ଼ା ଉଠ ଉଠ ଚଞ୍ଚଳ' ଏହାର ଭାବାର୍ଥ କ'ଣ ?

(ଞ) 'ଝଡ଼' କବିତା କବିଙ୍କର କେଉଁ କବିତା ସଂକଳନରୁ ଗୃହୀତ ?

ପୃଷ୍ଠା ଓଲଟାଅ.

(ଟ) 'ଧଉଳି ପାହାଡ଼' କବିତାର ମୁଖ୍ୟ ସ୍ୱର କ'ଣ ?

(ଠ) ଗୁରୁପ୍ରସାଦ ମହାନ୍ତିଙ୍କ ଦୁଇଟି କବିତା ସଂକଳନର ନାମ ଉଲ୍ଲେଖ କର ।

'ଖ' ବିଭାଗ

(ଦୀର୍ଘ ଉତ୍ତରମୂଳକ ପ୍ରଶ୍ନ) (୫ × ୧୨

୨. ଆଧୁନିକ ଓଡ଼ିଆ କାବ୍ୟ କବିତାର ବୈଶିଷ୍ଟ୍ୟ ନିରୂପଣ କର ।

ଅଥବା

ପ୍ରାଚ୍ୟ ଓ ପାଶ୍ଚାତ୍ୟ ଭାବବସ୍ତୁର ସମନ୍ୱୟରେ ଆଧୁନିକ କାବ୍ୟ କୋଣାର୍କ ଗଠିତ - ଏହାର ସତ୍ୟତା ପ୍ରମାଣ କର ।

୩. 'ଚିଲିକା' କାବ୍ୟରେ ପ୍ରତିଫଳିତ କବିଙ୍କ ପ୍ରକୃତି ପ୍ରୀତିର ପରିଚୟ ଦିଅ ।

ଅଥବା

'ଚିଲିକା' କାବ୍ୟର ମହତ୍ୱ ବର୍ଣ୍ଣନା କର

୪. ଆଦର୍ଶବାଦ ହିଁ ଗଙ୍ଗାଧର ସାହିତ୍ୟର ପ୍ରାଣ-ପଠିତ କାବ୍ୟ 'କୀଚକ ବଧ' ଅବଲମ୍ବନରେ ଏହା ପ୍ରମାଣ କର ।

ଅଥବା

'କୀଚକ ବଧ' କାବ୍ୟରୁ କୀଚକର ଚରିତ୍ର ଚିତ୍ରଣ କର ।

୫. 'ଅକ୍ରୂର ଉବାଚ' ଏକ ସାର୍ଥକ ମିଥ୍ କବିତା- ଏହାର ସତ୍ୟତା ଉଲ୍ଲେଖ କର ।

ଅଥବା

'ଉଠ କଙ୍କାଳ' କବିତାରୁ କବିଙ୍କ ଉଗ୍ର ଦେଶପ୍ରେମର ପରିଚୟ ଦିଅ ।

୬. ନାରୀ ଜୀବନର ନୈରାଶ୍ୟ ଓ କାରୁଣ୍ୟ ପ୍ରକାଶରେ 'ଅଳକା ସାନ୍ୟାଳ' କବିତାର ବିଶେଷତ୍ୱ ବର୍ଣ୍ଣନା କର ।

ଅଥବା

'ଅୟି ପୃଥୀ' କବିତାର ସାରମର୍ମ ପ୍ରଦାନ କର ।

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No. of Pages: 2

GACR

+3, 5th SEMESTER END EXAMINATION-2018

(ARTS)

Sub.- PSYCHOLOGY

PAPER : Core-XI

Time: 3 Hours | Full Marks: 60

The figure in the right hand margin indicate marks.

Question No.1 is compulsory, answer any FOUR from the rest.

1. Answer any SIX of the following. [2 x 6

a) Concept of organizational Behaviour.

b) Organizational challenges in Indian context.

c) What kind of skills are required for organizational system ?

d) Explain group decission making process.

e) Explain types of leadership

f) Role of a step manager.

g) Define power in organization.

h) Explain the nature of organizational polities.

Answer any FOUR questions. [12 x 4

2. Citing Taylor's study, discuss the role of scientific management in enhancing production.

3. Define power in organization and describe nature of organizational polities.

4. Describe the common organizational designs and function.

P.T.O.

5. Describe Leadership qualities which are appropriate in an organizational set up.
6. State the subject matter of human resource management and explain its model.
7. What do you mean by organizational behaviour? Discuss various challenges for organizational Behaviour.
8. Discuss different types of leadership in organisation.

No. of Pages: 2

GACR

+3, 5th SEMESTER END EXAMINATION-2018

(ARTS)

Sub.- PHILOSOPHY

PAPER : XI

Time: 3 Hours Full Marks: 80

The figure in the right hand margin indicate marks.

Question No.1 is compulsory, answer any FOUR from the rest.

1. Answer any EIGHT out of ten. [8 x 2

a) What is the ultimate destiny of human beings according to R.N. Tagore?

b) What is the fininte aspect of man according to Tagore ?

c) What does Tagore mean by *"Jivana Devata"*?

d) Who is called a practical vedentitst ?

e) Name the three phases of Reality in Sri Aurobindo.

f) What is integral Yoga?

g) What is *Sarvodaya*?

h) Why does Gandhi say 'Truth is God' ?

i) What is *Satyagraha*?

j) State the relation between intellect and intuition according to Radhakrishnan?

Answer any FOUR out of seven . [16 x 4

2. Discuss the infinite aspect of Man's nature after R.N. Tagore.

3. Explain Tagore's concept of Reality and God.

4. Discuss Vivekananda's concept of man and his destiny.

5. Explain the concept of practical vedanta according to Vivekananda.

6. Give an estimate of Aurobindo's view on Reality as Sachidananda.

7. Give a brief note on intellect and intuition of Radhakrishnan.

8. Write any two of the following after Mahatma Gandhi :

   a) What is non-violence ?

   b) What is Satyagrah?

   c) Concept of God.

❖❖❖

No. of Pages: 2

GACR

+3, 5th SEMESTER END EXAMINATION-2018

(ARTS)

Sub.- SOCIOLOGY

PAPER : Core-XI

Time: 3 Hours Full Marks: 80

The figure in the right hand margin indicate marks.

Question No.1 is compulsory, answer any FOUR from the rest.

1. Answer any EIGHT of the following. [2 x 8

a) What is ecology ?

b) What is eco-feminism

c) When and where was the concept of sustainable developement introduced for the first time?

d) What are the causes of the environmental degradation ?

e) What was the role of women in Chipko movement?

f) Write any **two** salient features of the Scheduled Tribes and other Traditional Forest Right) Act, 2006.

g) Write any **two** effects of deforestation.

h) Write any **two** impacts of global warning in the current scenario.

i) What is Stockholm summit?

j) Mention any two constitutional provisions mode by India, as a participatory measure to save the enviroment. [16

P.T.O.

2. Discuss the relationship between environment and society.

3. Explain how industrialisatioin alongwith urbanisation leads to development on one hand and enviroment degradation on the other. [12

4. Wrtie short notes on :

   a) Narmada Bachao Andolan. [16

   b) The Silent Valley movement

5. Discuss the various landmarks in framing of forest rights act in India. [16

6. Examine the causes of deforestation and how deforestation leads to climate change. [16

7. Discuss about the role of India and its participation to combat climate change . [2x 8

8. Write short notes on :

   a) Kyoto protocol

   b) The Earth summit

No. of Pages: 2

GACR

+3, 5th SEMESTER END EXAMINATION-2018

(SCIENCE)

Sub.- BOTANY

PAPER : Core-XI

Time: 3 Hours Full Marks:60

The figure in the right hand margin indicate marks.

Question No.1 is compulsory, answer any FOUR from the rest.

Section - 'A'

[2 x 6

1. Answer any SIX .

a) Contributions of G.B. Amici.

b) What is male germ unit?

c) What is pollinia? Write name of two families where it is found.

d) Describe caruncle & its significance.

e) Draw the diagram of amphitropous ovule & name the families where it occurs.

f) Define cheiropteriphilly with examples.

g) What is diplospory?

h) What is autochory?

Section - 'B'

Answer any FOUR. [12

2. Describe contributions of W.Hofmeister, E.Strasburger & S.G. Nawaschin towards Embryology.

P.T.O.

3. Discuss developement of male gametophyte in angiosperms. [12

4. Enumerate types of embryo sac found in angiosperms. [12

5. Describe the mechanism of double fertilization & its significance. [12

6. What is self incompatibility & describe the methods to overcome it. [12

7. Write a note on structure of seed and describe various dispersal mechanisms. [12

8. Write short notes on: [6x2

a) Polyembryony

b) Bilostic transformation

No. of Pages: 2

GACR

+3, 5th SEMESTER END EXAMINATION-2018

(SCIENCE)

Sub.- CHEMISTRY

PAPER : Core- XI

Time: 3 Hours Full Marks: 60

The figure in the right hand margin indicate marks.

Question No.1 is compulsory, answer any FOUR from the rest.

1. Answer any SIX of the following. [2 x 6

a) Give the synthesis of Adenine.

b) What are the polynucleotides?

c) Distinguish between nucleosides and nucleotides?

d) What are co-factors?

e) What do you mean ny isoelectric point of Amino acids?

f) Explain Acid value of oils and fats.

g) Give the Medicinal values curcumin.

h) What do you mean by calorific value of food.

Long Answer questions. Answer any FOUR.

2. Give the synthesis of Guanine, Cytosine and Uracil with their structure and IUPAC name ? [12

3. a) Give the synthesis of Glycine by any two methods [6

b) Expalin Zwitterion str. of Amino acids with their properties? [6

P.T.O.

4. a) Explain how cells obtain energy by the oxidation of food stuffs. [6

   b) Explain Hydrogenation of Fats and Oils. [6

5. What are Enzymes? Give its classification and characteristics? Give the salient features of active site of enzymes? [12

6. What do you mean by "Enzyme Inhibitors". Explain the phenomenon of "Inhibition" and its types? [12

7. a) Explain the followings.
   i) Reversion and Rancidity of Oils and Fats? [6
   ii) Iodine numbers

   b) Explain end-group analysis method to determine primary structure of peptides. [6

8. Give the synthesis of paracetamol, chloroquine and Ibuprofen with uses. [12

No. of Pages: 2

GACR

+3, 5th SEMESTER END EXAMINATION-2018

(SCIENCE)

Sub.- ZOOLOGY

PAPER : Core- XI

Time: 3 Hours | Full Marks: 60

The figure in the right hand margin indicate marks.

Question No.1 is compulsory, answer any FOUR from the rest.

1. Answer any SIX of the following. [2 x 6

a) What is induction ?

b) How many meiotic blocks are there during oogenesis and in which stage?

c) What is epiboly?

d) Mention four functions of chorion.

e) What is ageing?

f) What is the impact of thalidomide during early pregnancy?

g) What is totipotent stem cells? Give example.

h) What is amniocentesis?

Answer any FOUR. [4x12

Give diagram where ever necessary

2. a) Spemann's theory of organizers.

b) Gradient theory

3. What is fertilization? Describe the mechanism of fertilization and its importance.

P.T.O.

4. a) Spermatogenessus
   b) What is fate map? Describe different methods of fate map construction.
5. What is placenta? Describe various kinds of placenta and its function.
6. What is metamorphosis ? Describe different changes and hermonal regulation in amphibian metamorphosis.
7. What is teratogenesis? Write an essay on teratogenesis.
8. Write short notes on:
   a) Epimorphic regeneration
   b) In vitro fertilization.

No. of Pages: 2

GACR

+3, 5th SEMESTER END EXAMINATION-2018

(SCIENCE)

Sub.- CSC

PAPER : Core-XI

Time: 3 Hours Full Marks:60

The figure in the right hand margin indicate marks.

Question No.1 is compulsory, answer any FOUR from the rest.

1. Answer any SIX . [2 x 6

a) Write the difference between div and span tag.

b) What is cascading style sheet.

c) Write an example in HTML to link a document.

d) What is DHTML.

e) What is cookies.

f) What is the difference between static web page and dynamic web page.

g) Differentiate between GET and Post method.

h) What is the role of EJB.

Answer any FOUR.

2. a) Discuss about ordered list and definition list. [6

b) Write a HTML code to draw the following table. [6

Order Details			
Order No.	Date	Product No.	Qty.
01	2/2/2018	P1	2.
02	3/2/2018	P2	5.

P.T.O.

3. a) Write an HTML programme using Java script to calculate area of a circle. The user has to enter the value of radius through an input box. [6

   b) Explain how to use array in java script. [6

4. Write HTML code for creating student Registration form which have Regd. No., name, gender, mobile no. and email Id. Validate each field using java script. [12

5. a) Explain life cycle of a servlet. [6

   b) Discuss all the dialog boxes available in java script with proper syntax and example. [6

6. a) Explain MVC architecture. [6

   b) What is CSS? Explain in brief the external, internal style sheets. [6

7. a) Explain JSP life cycle. [6

   b) Write the difference between JSP & servlet. [6

8. a) Explain the role of EJB and its life cycle. [6

   b) Write a JSP program for accessing databox. [6

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No. of Pages: 3

GACR

+3, 5th SEMESTER END EXAMINATION-2018

(SCIENCE)

Sub.- MATHEMATICS

PAPER : C-XI

Time: 3 Hours | Full Marks:80

The figure in the right hand margin indicate marks.

Question No.1 is compulsory, answer any FOUR from the rest.

1. Answer any EIGHT. [2 x 8

a) Does the limit exist ? $\lim_{(x,y)\to(0,0)} \frac{2xy}{x^2+y^2}$

b) If $f(x, y, z) = e^{xyz}$ then find grad f.

c) Prove that div $(curl\ \vec{v}) = 0$.

d) Find the normal to the surface $f(x,y,z) = xyz$ at $(1,1,1,)$.

e) Find the directional derivative of the function $f(x,y) = x^2+y^2$ at $P(1,2)$ in the direction $\vec{a} = \hat{i} - 2\hat{j}$

f) If $f(x,y) = e^{2x} \sin 2y$, find $\nabla^2 f$.

g) Evaluatee $\int_0^1\int_0^1 (x^2+y^2).dx\,dy$

h) State Stoke's Theorem.

i) Define work done in terms of line integration.

j) If $f(x.y,z,) = \frac{xy}{z}$ then find div (grad f)= ?

P.T.O.

Answer any FOUR.

2. a) Test the continuity of [8

$$f(x,y)=\begin{cases}\dfrac{xy}{\sqrt{x^2-y^2}}, & (x,y)\neq(0,0)\\ 0 & ,otherwise\end{cases}$$

at (0, 0).

b) If $f(x,y)=x^2y+e^{xy^2}$ then find $\dfrac{\partial f}{\partial x}$ & $\dfrac{\partial f}{\partial y}$ [8

3. a) If $z=e^{xy^2}$, $x=t\cos t$, $y=t\sin t$, then find out [8

$\dfrac{\partial z}{dt}$ at $t=\pi/2$.

b) Find the directional derivative of

$f(x, y, z)=1/\sqrt{x^2+y^2+z^2}$ at P(3, 0, 4) along [8

$\vec{a}=\hat{i}+2\hat{j}+2\hat{k}$.

4. a) Find the maximum and minimum value of the function $f(x, y)=x^3+y^3-3x-12y+20$. [8

b) Find the shortest distance from the origin to the hyperbola $x^2+8xy+7y^2=225$, $z=0$ using Lagrange's multiplier method. [8

5. a) Evaluate $\iint_R(x+2y)dx\,dy$, where R is the rectangle formed by $x=1$, $x=2$, $y=3$, $y=5$. [8

b) Evaluate $\iint x^3y^3dx\,dy$, over the circle $x^2+y^2\le a^2$. [8

6. a) Find the area of the region bounded by $y=x$, $y=5x$, $x=1$. [8

b) Evaluate $\iint_S(z+2x+4y)ds$, over the plane $\dfrac{x}{2}+\dfrac{y}{3}+\dfrac{z}{4}=1$, lying in 1st octant. [8

7. a) Prove that the following integral is independent of path and hence evaluate [8

$$\int_{(0,0,0)}^{(4,1,2)}(3ydx+3xdy+2zdz)$$ [8

b) State and prove Green's theorem.

8. a) Find the mass of the density $f(x,y)=1$ in a region R by the formula $M=\iint_R f(x,y)\,dx\,dy$ where [8

R: $x^2+y^2\le a^2$.

b) Find the parametric representation of the curve $9x^2+4y^2=36$. Hence obtain the unit normal. [8

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No. of Pages: 3

GACR

+3, 5th SEMESTER END EXAMINATION-2018

(SCIENCE)

Sub.- MTC

PAPER : Core-XI

Time: 3 Hours Full Marks:80

The figure in the right hand margin indicate marks.

Question No.1 is compulsory, answer any FOUR from the rest.

1. Answer any EIGHT. [2 x 8

a) Define differentiability of $f(x)$ at $x=a$

b) Find $\frac{\partial^2 f}{\partial x^2}$ for $(x,y) = Sm\ xy + ye^{x}$

c) Define normal property of gradient.

d) Find the normal to the surface
$f(x,y,z) = xy + yz + zx$ at $(1,1,1)$

e) Evaluate $\int_0^1 \int_0^2 (x^2 + xy)dx\ dy$

f) Prove that curl (grad f) =0

g) Define path independence with suitable example.

h) State Green's theorem.

i) Test the incompressibility of the velocity of fluid
$\vec{v} = yz\hat{i} + zx\hat{j} + xy\hat{k}$.

j) State Gauss - divergence theorem.

Answer any FOUR.

2. a) If $f(x,y) = ax^2 + 2hxy + by^2$ then find [10

$$\frac{\partial f}{\partial x}, \frac{\partial f}{\partial y}, \frac{\partial^2 f}{\partial x^2}, \frac{\partial^2 f}{\partial y^2} \text{ and } \frac{\partial^2 f}{\partial x \partial y}$$

b) If $z(x,y) = \sqrt{x^2 + y^2}$ then find $\frac{dz}{d\gamma}$ & $\frac{dz}{d\theta}$ [6

using ploar co-ordinate.

3. a) Find the directional derivative of the function $f(x,y,z) = xz + e^{yz}$ at $(1,0,1)$ along the vector $2\hat{i} - \hat{j} + 2\hat{k}$. [8

b) Determine the critical points and find the maximum and minimum of $f(x,y) = x^2 + 2xy + 2y^2 - 8y$ [8

4. a) Evaluate $\iint_R xy \, dxdy$, where R is the region in first quadrant bounded by the lines $x-y = 0$, $y=0$, $x=4$. [8

b) Prove that $\nabla^2(fg) = f\nabla^2 g + 2\nabla f \nabla g + g\nabla^2 f$ [8

5. a) Evaluate $\int_0^1 \int_1^2 \int_2^3 (x^2 + y^2 + z^2) dx\, dy\, dz$ [8

b) If $\vec{u} = y\hat{i} + z\hat{j} + x\hat{k}$ and $\vec{v} = yz\hat{i} + zx\hat{j} + xy\hat{k}$ then find the value of $\vec{v}$ curl $\vec{u}$ and $\vec{u}$ curl $\vec{v}$. [8

6. a) Evaluate $\int_c (3x^2dx + 2yzdy + 4zdz)$ by showing it is independent of path where c: from A(0,1,2) to B(1,-1,7) the straight line. [8

b) Evaluate $\int_0^{\pi/4} \int_0^y \frac{\sin y}{y} dx\, dy$ [8

7. a) Using Green's theorem evaluate the line integral $\int_c \vec{F}.d\vec{r}$ counter clockwise around the boundary C of the region R. Where $\vec{F} = [x^2e^y, y^2e^x]$ and C: the rectangle with vertices (0,0) (2,0), (2,3) & (0,3) [8

b) Find a unit normal vector of the surface represented by $y^2+z^2=a^2$ [8

8. a) Evaluate the surface integral $\int\int_s G(\vec{r}) d4$ for G= Cos x +Sin y and S: the portion of the x+y+z =1 in 1st octant. [8

b) State and prove stokes theorem. [8

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No. of Pages: 3

GACR

+3, 5th SEMESTER END EXAMINATION-2018

(SCIENCE)

Sub.- STATISTICS

PAPER : Core-XI

Time: 3 Hours | Full Marks:60

The figure in the right hand margin indicate marks.

Question No.1 is compulsory, answer any FOUR from the rest.

1. Answer any SIX . [2 x 6

a) What do you mean by quality?

b) What do you mean by 3-sigma limit?

c) What do you mean by Consumer's risk?

d) What do you mean by Producer's risk?

e) Briefly explain cost of quality?

f) What is AQL and ASN?

g) How do you set the control limits for R-charts in SQC?

h) What is meant by natural tolerance of the process?

Answer any FOUR. [8+4

2. a) What do you mean by statistical quantity control? Explain its benefits.

b) If $n=12$, $\bar{\bar{x}}= 138.6$, $\bar{R}= 7.4$ and $d_2 =3.258$ calculate CL, UL and LCL. [6+6

3. a) Distinguish between process control and product control. Does process central also ensure product control necessarily.

P.T.O.

b) For mean and range chart, the Sub grup size id 4. The value of $\bar{x}$ and range are computed for each group. After 20 sub groups $\sum \bar{x}$ 412.83, and $\sum R$ = 3.39. Calculate 3 sigma limit for mean chart and range chart and find value of σ. [d_2= 2.059, D_4=2.28, D_3 = 0]

4. a) Distinguish between attribute charts and variable charts. [6+6

b) Discuss the construction of P-chart when all smaples are of same size. How is the procedures modified for variable sample size.

5. Write short notes on: [12

a) Operating characteristics curve

b) Single sampling plan

c) Double sampling plan

6. a) A single sampling plan uses a sample size of 15 and acceptances number is 1. Compute the Probability of acceptance of lots of 50 articles 2% defectives.

b) In double sampling plan, N=5000, n_1=100, C_1=0, n_2= 100, and C_2 = 1, Use poisson's table to calculate the probability of acceptance of a 10% defective lot.

7. What are the methods involved in collection of official statistics? Explain its reliability and limitations.

8. Write short notes on: (any two)

a) Central statistical organisation

b) Population statistics

c) Agricultural statistics.

No. of Pages: 3

GACR

+3, 5th SEMESTER END EXAMINATION-2018

(SCIENCE)

Sub.- ETC

PAPER : C-XI

Time: 3 Hours Full Marks:60

The figure in the right hand margin indicate marks.

Question No.1 is compulsory, answer any FOUR from the rest.

1. Answer any SIX. [2x6

a) How frequency can be determined?

b) What is static analysis?

c) What is the use of ohm meter?

d) What is relative accuracy?

e) What are the different types of sources of error?

f) Differentiate voltage probe and current probe.

g) What is transducer? Give example of some transducer that measure stress and strain.

h) What do you mean by CRT graticules?

Answer any FOUR.

2. a) Explain in detail the working of digital multimeter with neat block diagram. [6

b) The expected values of the voltage across a resister is 80 v. However the measurement gives a value of 79V. Calculate. [6

P.T.O.

i) Absolute error.
ii) % error
iii) % of accuracy [6
iv) Relative accuracy.

3. a) Describe in detail the working of a function generator. [6
b) Describe in brief low capacitance probes. [6

4. a) What is difference between CRT & CRO? Draw a neat functional diagram of general purpose CRO and explain function of each block. [6
b) What is CRO probe compensation? How is this adjusted. [6

5. a) For a Maxwell's bridge, the constants are C_1=0.9 μF, R_1 = 1000 ohm., R_2=500ohm and R_3=300 Ω find the resistance and inductance of the coil. [6
b) Derive the bridge balance equation for Kelvin's bridge. [6

6. a) Explain the construction, principle and operation of LVDT(Linear variable differential transformer). [6
b) Explain in brief , the working of photovoltaic transducer. [6

7. a) Derive the bridge balanced equation for Schering's bridge. [6
b) Derive balancing condition for AC bridges [6

8. Write short notes on any TWO. [6x2
a) Thermocouples
b) Ammeter
c) Electrostatic focussing and deflection
d) Digital LCR-Q meter.

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No. of Pages: 3

GACR

+3, 5th SEMESTER END EXAMINATION-2018

(SCIENCE)

Sub.- PHYSICS

PAPER : C- XI

Time: 3 Hours Full Marks:60

The figure in the right hand margin indicate marks.

Question No.1 is compulsory, answer any FOUR from the rest.

1. Choose the correct answer . (any SIX) [2 x6

i) The wave function related with a material particles is :

(a) only finite (b) only continuous

(c) only single valued (d) finite, continuous and single valued

ii) Two eigen functions of an Hermitian operator are mutually orthogonal if the corresponding eigen values are :

(a) equal (b) unequal (c) imaginary (d) Zero

iii) Each expectation value is :

(a) an estimated value (b) a real value

(c) an observable quantity (d) none is fully correct

iv) For a particle encountering a potential barrier, the sum of the reflection and transmission coefficient is always :

(a) Zero (b) Infinite (c) **1** (d) 0.5

P.T.O.

v) The zero point energy for a linear harmonic oscillator is equal to :

(a) $50h\gamma$ (b) $5.0\,h\gamma$ (c) $0.5\,h\gamma$ (d) $0.05\,h\gamma$

vi) Spin angular momentum of electron is :

(a) $\frac{h}{2\pi}$ (b) $\frac{h}{4\pi}$ (c) $\frac{\sqrt{2}h}{4\pi}$ (d) $\frac{\sqrt{3}h}{4\pi}$

vii) Formula for Bohr Magneton is :

(a) $\mu B\frac{eh}{4\pi m}$ (b) $\mu B\frac{e}{4\pi m}$

(c) $\mu B\frac{h}{4\pi m}$ (d) $\mu B\frac{e}{4m}$

viii) Formula for Larmor frequency is :

(a) $\frac{I}{4\pi}\frac{eB}{m}$ (b) $\frac{1}{4\pi}\frac{mB}{e}$

(c) $\frac{1}{4\pi}\frac{ehB}{m}$ (d) $\frac{1}{4\pi}\frac{mh}{eB}$

Answer any FOUR questions.

2. a) Establish Schrodinger's time dependant equation for matter waves. [6

b) Explain the concept of probability current density. [6

3. a) Give the formulation of time independent Schrodinger' wave equation. [6

b) Discuss the interpretation of position probability density and normalization of wave function. [6

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4. a) Discuss the scattering of a particle with energy $E > O$ from a one - dimensional attractive squarewell potential. [12

5. Write down Schrodinger wave equation for a particle in a box. Solve it to obtain eigen functions and show that the eigen values are discrete. [6+6

6. Discuss the motion of an electron across a potential step of finite height. Calculate the reflection and transmission coefficients. [6+6

7. Discuss Stern-Gerlach experiment. Discuss how it verifies the concept of space quantisation and electron spin. [6+6

8. Write notes on: [6+6

i) Normal Zeeman Effect.

ii) Larmor's Theorem.

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No. of Pages: 3

GACR

+3, 5th SEMESTER END EXAMINATION-2018

(ARTS)

Sub.- HISTORY

(PAPER : Core-XI)

Time: 3 Hours Full Marks: 80

The figure in the right hand margin indicate marks.

Question No.1 is compulsory, answer any FOUR from the rest.

1. Answer any EIGHT of the following. [8 x 2

a) Ancient Regime

b) Voltair

c) Lous XIV

d) Battle of Nile

e) Metternich

f) Das Kapital

g) The Proletariat

h) Demongraphic Charges in English

i) Factory Laws and Women's Rights.

j) Zolleverin

Answer any FOUR from the rest of seven.

2. Write short notes on : [8x2

a) Montesquieu's Theory of separation of powers.

b) Rousseau's special contract.

OR [16

What features led to the crisis of the Ancient Regime?

P.T.O.

3. Write short notes on : [8x 2
   a) The National constituent assembly
   b) Reign of Terror

   OR [16

   Examine Napoleon's reforms as first consul.

4. What is the Metternich system? How far was it successful in restoring old monarchies in Europe? [8x 2

   OR

   Enumerate the causes and results of the July Revolution of 1830. [16

5. Write short notes on: [8x 2
   a) Intellectual currents during 1815-1848.
   b) Concert of Europe

   OR

   What factors led to the February Revolution of 1848. [16

6. Write short notes on: [8x 2
   a) The emerging Bourgeoisie
   b) The condition of peasants

   OR

   Assess the process of industrialisation in Europe during the period of your study. [16

7. Write short notes on: [8x 2
   a) Cavours contribution to the making of Italy.
   b) Garibaldi and the red shirts

   OR [16

   Trace the stages of unification of Germany in the 19th century.

8. Write short notes on : [8x 2
   a) Irish Nationalism
   b) Balkan wars

   OR [16

   What factors led to the rise of fascism in Italy?

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The company went to voluntary liquidation and the following transaction took place.

a) All assets except cash were realised for 9,80,000 by liquidator including 2,80,000 for sale of building on 01.11.2016.

b) Liquidation exps. 20,400/-

c) Dividend on pref. share are in arrears for 4 years & payable on liquidation as per AOA of the company.

d) 2% as assets realised excepts cash

2% as amt. paid to creditors

2% as amt. collected by making calls on shares to the required extent only.

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No. of Pages: 4

GACR

+3, 5th SEMESTER END EXAMINATION-2018
(COMMERCE)

Sub.- CORPORATE ACCOUNTING (5.1)

PAPER : Core - 11

Time: 3 Hours Full Marks:80

The figure in the right hand margin indicate marks.

Question No.1 is compulsory, answer any FOUR from the rest.

1. Answer any EIGHT. [2 x 8

a) What is debenture ?

b) What is bonus share?

c) What is meant by reserve & provisionary?

d) Give two examples of contingent liability.

e) What are the circumstances under which goodwill is valued?

f) What are super profits?

g) What do you mean by intrinsic value?

h) Mention any four examples of statutory Reserve.

i) Who are the preferential creditors under company law?

j) Who is a contributary?

Answer any FOUR questions

2. The summerised B/S of A company ltd. as on 31.3.2016 is as follows.

Liability	Amount Rs	Assets	Amount Rs
Share capital (40,000 equity shares of 10/- each fully paid	4,00,000	Sundry Assets	5,00,000
1000 redemable Pref. shares of Rs.100/- each Rs. 75 *calledup*)	75,000	Cash at Bank	2,00,000
Profit / Loss act	1,30,000		
creditor	95,000		
	7,00,000		7,00,000

On 01.04.2016 pref. shares were redeemed out of divisible profits. Your are required to pass journal entries & prepare B/s. after redemption of pref. shares.

The final call on pref. shares was made on 01.04.2016 & the entire amout was received by 15.04.2016.

3. Explain the eligibility norms for making a public issue of shares as specified by SEBI.

4. Explain the following terms & how do you treat the items in the companies B/S. [4x4]

a) Provisions for Taxation

b) Unclaimed Dividend.

c) Preliminary expenses

d) Arrears of commulative divided

5. State & explain any five circumstances necessating valuable of shares.

6. Calculate purchase consideration.

a) Total assets of 600K value 125,000/- Assets taken over at 10% less than book value.

Total liabilities 50,000/-

Liabilities not taken over 12,500/-

Liquidation exps. 2500/- to be born by the transferee co.

(b) i) Cash payment Rs. 50,000

ii) Issues 80,000 equity shares of Rs. each full paid at Rs.15 per shares.

iii) Issue 50000 pref. share of Rs. 10 each at Rs. 6 pershare paid up

iv) Issue 3000 debenture of Rs. 10 each at a discount of 10%.

7. How do you treat the following items in liquidation statement of account? [8 x2

a) Interest on debenture

b) Arrears of preference dividend.

8. The B/S. of K Ltd. for the year ended as on 31.03.2016.

Liability	Amount Rs	Assets	Amount Rs
5000 equity sh. (Rs 100 each 80 per sh.paid up)	4,00,000	Building (Mortagaged debenture)	2,00,000
8% pref. sh. capital (2000 sh. of 100/- each)	2,00,000	Other Fixed Assets	6,20,000
8% mortagaged debenture	2,00,000	Current Assets	2,00,000
Outstd. Int. as debenture	1,6,000	Cash	60,000
creditor	5,50,000	P/L Acct	2,86,000
	13,66,000		13,66,000