No. of Pages: 2

GACR

+3, 3rd SEMESTER EXAMINATION-2019

(SCIENCE)

Sub: PHYSICS Full Marks: 60

Paper: CORE-VI Time: 3 Hours

Answer the questions as per instruction.
The figure in the right hand margin indicate marks.
Question No. 1 is mandatory.

GROUP - A [2x6]

1. Answer any SIX questions.

(a) Explain conversion of work into heat.

(b) Find the efficiency of a heat engine working between boiling point and freezing point of water.

(c) Explain the principle of increase of entropy.

(d) Define Enthalpy. Write its S.I. Unit.

(e) Write Maxwell's Thermodynamical relations.

(f) What is adiabatic demagnetisation.

(g) State law of equipartition of energy.

(h) What is transport phenomenon?

(i) Distinguish between vapour and gas.

(j) Explain temperature of inversion.

SECTION - B

Answer any FOUR questions.

2. (a) Explain thermodynamical scale of temperature and show that it is identical to the perfect gas scale. Also explain why negative tempeerature on this scale is not possible. [12]

(P.T.O...)

3. (a) Prove the clausius inequility using Carnot's theorem. [4]

   (b) Define and explain four themodynamical potentials. [8]

4. Derive Maxwell's four thermodynamical relations connecting pressure, volume, temperature and entropy. [12]

5. Derive an expression for Maxwell-Boltzmann law of distribution of velocities in an ideal gas and give its experimental verification. [12]

6. Define mean free path, frequency of collision and mean free time of a gas molecule. Explaining the assumptions prove that the mean freepath is equal to $\frac{KT}{\sqrt{2}\pi pd^2}$ where 'K' is Boltzamnn's constant 'p' is pressure and 'd' is diameter of each gas molecule. [12]

7. Explain the reasons for modification of gas equation. Then derive an expression for Vaan-der Waal's gas equation $\left(P+\frac{a}{v^2}\right)(v-b)=RT$. Also discuss its limitations and defects. [12]

8. Using Maxwell's thermodynamical relation derive clausius-clapeyron equation and give its physical significance. [12]

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No. of Pages: 2

GACR
+3, 3rd SEMESTER EXAMINATION-2019
(SCIENCE)

Sub: BOTANY Full Marks: 60

Paper: CORE-VI Time: 3 Hours

Answer the questions as per instruction.
The figure in the right hand margin indicate marks.
Question No. 1 is mandatory.

GROUP - A [2x6]

1. Write short notes on any SIX of the following. Each in 3to 5 sentences.

(a) Cinchona

(b) Crop domestication

(c) Millets

(d) Starchy Crops

(e) Uses of clove

(f) Teak

(g) Linseed

(h) Digitalis

SECTION - B
Answer any FOUR questions.

2. Discuss the concept of centre of origin and importance of Vavilov's work on centre of origin. [12]

3. Given an account of origin, morphology, processing and uses of wheat. [12]

4. Discuss about some drug yielding plants with their botanical name, family and uses. [12]

(P.T.O...)

5. Give an account of botany, extraction method and uses of ground nut and coconut. [12]

6. Write an essaay an origin, botany, extraction method and uses of jute. [12]

7. Write notes on: [6x2]

   (a) Essential oils

   (b) Beverages.

- x - x - x -

No. of Pages: 2

GACR
+3, 3rd SEMESTER EXAMINATION-2019
(ARTS)

Sub.- PHILOSOPHY Time: 3 Hours
PAPER : Core-VI Full Marks: 80

The figure in the right hand margin indicate marks.
Question No.1 is compulsory, answer any FOUR from the rest.

Group - A

[8 x 2

1. Answer any EIGHT of the following in two or three sentences each.

a) Write two features of Greek philosophy
b) How God is defined in ancient Greek philosophy?
c) What is world according to Thales?
d) How Heraclitus defined the soul?
e) What is the view of Socretis on politics?
f) "Ethics is virtue"- Explain.
g) Name the two books written by Plato.
h) Explain four levels of knowledge by Plato.
i) How Aristotle explain the nature of world?
j) How Aristotle explain the nature of virtue.

P.T.O.

Group - B

Answer any FOUR questions. [16 x 4

2. Explain the salient features of Greek philosophy.
3. Explain the cosmological principles of Heraclitus.
4. How Democritus explain the atomic theory?
5. Define the teachings of Socretes.
6. Explain the Dialectic method of Socretes.
7. How Plato explained the nature of knowledge?
8. How Plato explained the relation between ideas and object?
9. What was the nature of ideal state think by Plato?

No. of Pages: 2

GACR
+3, 3rd SEMESTER EXAMINATION-2019
(ARTS)

Sub.- ENGLISH Time: 3 Hours
PAPER : Core-VI 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 [2x8

1. Answer any EIGHT of the following.

i) Write a short note on the growth of prose in 19th century British literature.

ii) State the themes of 'On Going a Journey'.

iii) Why does the writer say 'one of the pleasantest things in the world is going a journey, but I like to go by myself'?

iv) Why does the writer say "a walking tour should be gone upon alone"?

v) What does the writer say about uneven walking?

vi) Why is *Frankestein* called the Modern Prometheus?

vii) What features of science fiction are found in *Frankenstein*?

viii) Name some of the novels by Jane Austen.

ix) Write a short note on Elizabeth Bennet.

x) How does Arnold define culture.

P.T.O.

SECTION - B

[16x4

Answer any FOUR questions.

2. Write a note on Victorian literature.
3. Summarize Lamb's essay 'Old China'.
4. Discuss the thoughts of the writer in 'A Few Thoughts on Sleep'.
5. Discuss the theme of *Frankenstein.*
6. Sketch the character of Frankenstein.
7. Study the significance of the title *Pride and Prejudice.*
8. Highlight Arnold's thoughts in *Culture and Anarchy* (Chapter-1).

No. of Pages: 2

GACR
+3, 3rd SEMESTER EXAMINATION-2019
(ARTS)

Sub.- PSYCHOLOGY Time: 3 Hours
PAPER : Core-VI Full Marks: 60

The figure in the right hand margin indicate marks.
Question No.1 is compulsory, answer any FOUR from the rest.

Group - A

[2 x 6

1. Answer any SIX of the following in two or three sentences each.

a) Explain the goals of social psychology.
b) What is questionnaire method?
c) What is self esteem?
d) How self-concept can be boosted?
e) What is stereotype?
f) Explain social modeling.
g) What is charismatic leadership?
h) Define aggression.

Group - B

[12x4

Answer any FOUR questions.

2. Define social psychology. Discuss the experimental method and mention its advantages and limitations.

P.T.O.

3. What is self-presentation? Describe the techniques.
4. What is attitude? How can attitude be measured?
5. Define prejudice. Discuss the measures of prejudice reduction.
6. What is group? Explain social facilitation and social loafing.
7. Briefly discuss the approaches to leadership.
8. What is pro-social behaviour? Describe the determinants of pro-social behaviour.
9. Write short notes on:
   a) Prevention and control of aggression
   b) Self-esteem.

No. of Pages: 2

GACR
+3, 3rd SEMESTER EXAMINATION-2019
(ARTS)

Sub.- ODIA Time: 3 Hours
PAPER : Core - VI Full Marks: 80

ଯେ କୌଣସି ୫ଟି ପ୍ରଶ୍ନର ଉତ୍ତର ଦିଅ । ପ୍ରଥମ ପ୍ରଶ୍ନର ଉତ୍ତର ଅନିବାର୍ଯ୍ୟ ।

The figure in the right hand margin indicate marks.

'କ' ବିଭାଗ

ଯେକୌଣସି **୧୦ଟି** ପ୍ରଶ୍ନର ଉତ୍ତର ଗୋଟିଏ ବା ଦୁଇଟି ବାକ୍ୟରେ ଦିଅ । (୨×୧୦

୧. କ) ଓଡ଼ିଆ ଭାଷାରେ ପ୍ରଚଳିତ ୪ଟି ଦ୍ରାବିଡ଼ ଶବ୍ଦର ଦୃଷ୍ଟାନ୍ତ ଦିଅ ।

ଖ) ସଂସ୍କୃତ ଓ ଓଡ଼ିଆ ଭାଷାରେ ପ୍ରଚଳିତ କେଉଁ ଧ୍ୱନି ଗୁଡ଼ିକ ଦ୍ରାବିଡ଼ ଭାଷାରୁ ଗୃହୀତ ହୋଇଛି ?

ଗ) ଯାବନିକ ଭାଷା କହିଲେ କ'ଣ ବୁଝ ?

ଘ) ଓଡ଼ିଆ ପ୍ରତ୍ୟୟ ସଂଯୋଗରେ ପ୍ରଚଳିତ ଦୁଇଟି ଇଂରାଜୀ ଶବ୍ଦର ଦୃଷ୍ଟାନ୍ତ ଦିଅ ।

ଙ) ଓଡ଼ିଶା କେବେ ଇଂରେଜ ଶାସନାଧୀନ ହେଲା ?

ଚ) 'ଇସ୍ତ୍ରି' ଓ 'କଫି' ଶବ୍ଦ ଦ୍ୱୟ କେଉଁ ପର୍ତ୍ତୁଗୀଜ ମୂଳ ଶବ୍ଦ ଦ୍ୱୟରୁ ଉତ୍ପନ୍ନ ହୋଇଛି ?

ଛ) ଓଡ଼ିଆ ଭାଷାରେ 'ବୈଦେଶିକ ଶବ୍ଦାବଳୀ' କହିଲେ କ'ଣ ବୁଝ ?

ଜ) 'ତେଲ' ଶବ୍ଦ କେଉଁ ଶବ୍ଦରୁ ନିଷ୍ପନ୍ନ ?

ଝ) 'ଅଷ୍ଟ୍ରିକ ଶବ୍ଦାବଳୀ' କହିଲେ କ'ଣ ବୁଝ ?

ଞ) ଦ୍ୱିତୀୟା ଓ ଚତୁର୍ଥୀ ବିଭକ୍ତି ଭିତରେ କି ସାମଞ୍ଜସ୍ୟ ଅଛି ?

ଟ) <u>ସକାଳେ</u> ମୋବାଇଲ୍ ଦର୍ଶନରୁ ନିର୍ମଳର ଦିନଚର୍ଯ୍ୟା ଆରମ୍ଭ ହୁଏ । ରେଖାଙ୍କିତ ପଦର ବିଭକ୍ତି ନିର୍ଣ୍ଣୟ କର ।

ଠ) କାରକ କେତେ ପ୍ରକାର ଓ କ'ଣ କ'ଣ ? ?

ପୃଷ୍ଠା ଓଲଟାନ୍ତୁ /

ଡ) 'ବିଗ୍ରହ ବାକ୍ୟ' କହିଲେ କ'ଣ ବୁଝ ? ଦୃଷ୍ଟାନ୍ତ ଦିଅ ।

ଢ) 'ପିତାମ୍ବର' ଶବ୍ଦର ସମାସ ନିରୂପଣ କର ।

ଣ) ପୂର୍ବସର୍ଗ ଓ ପରସର୍ଗ କ'ଣ ? ସଦୃଷ୍ଟାନ୍ତ ବୁଝାଅ ।

'ଖ' ବିଭାଗ

(ଦୀର୍ଘ ଉତ୍ତରମୂଳକ ପ୍ରଶ୍ନ) (୧୨×୫

୨. ଓଡ଼ିଆ ଭାଷାରେ ପ୍ରଚଳିତ ଦ୍ରାବିଡ଼ ଶବ୍ଦାବଳୀର ଏକ ସ୍ଥୂଳ ପରିଚୟ ଦିଅ ।

ଅଥବା

ଓଡ଼ିଆରେ ପ୍ରଚଳିତ ଯାବନିକ ଶବ୍ଦ ସମୂହର ସ୍ୱରୂପ ନିର୍ଣ୍ଣୟ କର ।

୩. ଓଡ଼ିଆରେ ପ୍ରଚଳିତ ପର୍ତ୍ତୁଗୀଜ ଶବ୍ଦାବଳୀର ପରିଚୟ ପ୍ରଦାନ କର ।

ଅଥବା

'ଓଡ଼ିଆ ଭାଷାରେ ଇଂରାଜୀ ଭାଷାର ଗଭୀର ପ୍ରଭାବ ଅନୁଭୂତି ହୁଏ ।' – ଏହାର ଯଥାର୍ଥତା ପ୍ରତିପାଦନ କର ।

୪. ଓଡ଼ିଆ ଶବ୍ଦଭଣ୍ଡାରରେ ସଂସ୍କୃତ ଭାଷାର ପ୍ରଭାବ ଦର୍ଶାଅ ।

ଅଥବା

ଓଡ଼ିଆ ଶବ୍ଦ ଭଣ୍ଡାରରେ ଦେଶୀୟ ଶବ୍ଦାବଳୀର ପ୍ରୟୋଗ ସମ୍ପର୍କରେ ଆଲୋକପାତ କର ।

୫. କାରକ ଓ ବିଭକ୍ତିର ସମ୍ପର୍କ ବର୍ଣ୍ଣନା କର ।

ଅଥବା

ଓଡ଼ିଆ ବିଭକ୍ତି ଚିହ୍ନଗୁଡ଼ିକର ଉତ୍ପତ୍ତିକ୍ରମ ବର୍ଣ୍ଣନା କର ।

୬. ସମାସର ସଂଜ୍ଞା ଓ ସ୍ୱରୂପ ସମ୍ପର୍କରେ ଏକ ନାତିଦୀର୍ଘ ପ୍ରବନ୍ଧ ଲେଖ ।

ଅଥବା

ଓଡ଼ିଆ ପ୍ରତ୍ୟୟ ପ୍ରୟୋଗର ବିବିଧତା ଆଲୋଚନା କର ।

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No. of Pages: 2

GACR
+3, 3rd SEMESTER EXAMINATION-2019
(SCIENCE)

Sub: STATISTICS Full Marks: 60

Paper: CORE-VI Time: 3 Hours

Answer the questions as per instruction.
The figure in the right hand margin indicate marks.
Question No. 1 is mandatory.

1. Answer any SIX questions. [2x6]

(a) In what situations sampling is invitable?

(b) Which factors are responsible for the determination of sample size?

(c) What is finite population correction and sampling fraction.

(d) Define type-I and type-II error.

(e) Level of significance lies between _____ to _____.

(f) Differentiate between Internal and External memory.

(g) GUI stands for

(h) Paired 't' test is applicable only when the observations are _____.

GROUP-B [12x4]

Answer any FOUR questions.

2. (a) Five numbers 3,4,5,6,7 constitute a universe. Select all the sample of size three. Compare the means of sample means with the mean of the universe.

(b) Define sampling distribution and standard error. Obtain standard error of mean when population is large.

(P.T.O...)

3. (a) In two large populations, there are 30% and 25% respectively of blue eyed people. Is this difference likely to be hidden in sample of 1200 and 900 respectively from the two populations.

   (b) Big Bazar excepts 80% of the population are their customers. To check this, a researcher took sample of 500 people of which 320 persons responded that they are buying their requirment from Big Bazar. Test the validity of statement of the Big Bazar. (Use 1% Los).

4. If X_1^2 and X_2^2 are independent X^2, variates with n_1 and n_2 d.f. respectively, show that

   (i) $X^2 = X_1^2 + X_2^2$ is a X^2 variate with $(n^1 + n^2)$ degrees of freedom.

   (ii) $U = \dfrac{X_1^2}{X_2^2}$ is a $\beta_2\left(\dfrac{n_1}{2}, \dfrac{n_2}{2}\right)$ variate.

5. (a) Derive student 't' distribution.

   (b) If the random variables X_1 and X_2 are independent and follows Chi-square distribution with n d.f., show that $\sqrt{n}(X_1 - X_2)/2\sqrt{X_1.X_2}$ is distributed as a student's t with n d.f, independent of $(X_1 + X_2)$

6. (a) Establish relationship between F and Chi-square distribution

   (b) Explain uses of *t* and *f* distribution.

7. Write short notes on (any three)

   (a) Use of word processor
   (b) Use of MS word
   (c) Concept of word processing
   (d) Magnetic and optical disks

- x - x - x -

No. of Pages: 2

GACR
+3, 3rd SEMESTER EXAMINATION-2019
(SCIENCE)

Sub: CSC Full Marks: 60

Paper: CORE-VI Time: 3 Hours

Answer the questions as per instruction.
The figure in the right hand margin indicate marks.
Question No. 1 is mandatory.

1. Answer any SIX questions. [2x6]

(a) What is data abstraction?

(b) What do you mean by total and partial participation?

(c) What is foreign key? Why do we have foreign key in database?

(d) A relation R (A, B, C) has the FDs AB $\rightarrow$ C and C $\rightarrow$ A. Is R is in 3NF or in BCNF?

(e) Why Armstrong's axioms are sound and complete?

(f) What are different join operations of relational algebra?

(g) What is uncommitted dependency problem?

(h) What is the difference between Shared and exclusive lock?

GROUP-B
Answer any FOUR questions.

2. (a) Describe the three-tier ANSI-SPARC architecture. [6]

(b) Construct an ER diagram for a hospital with a set of patients and a set of medical doctors. A patient may be admitted to the hospital after a check up in OPD. Various tests may be conducted on patients. Rooms/ [6]

(P.T.O...)

Beds may be allotted to the patients on availability by the office. The patient may be released only after clearing all bills.

3. (a) Discuss the role of following personnel in the database environment. [6]

(i) Database administrator (ii) Application developer and (iii) End users.

(b) Discuss the different types of keys that are used in relational model. [6]

4. Compare and contrast the features of hierarchical, network and relational data models. [12]

5. What is normalization? Why it is needed? What are the properties of a normalized relation? Explain 1NF, 2NF, 3NF, BCNF and 4NF with example. [12]

6. (a) What are Date definition language (DDL) and Data manipulation language (DML) commands? [6]

(b) Explain different aggregate functions with example. [6]

7. Compare and contrast different concurrency control protocols stating the advantaages and disadvantages of each. [12]

8. Write short notes on: (any Three) [4x3]

(a) Indexing
(b) Hashing
(c) B-Tree
(d) Sequential File organization

- x - x - x -

No. of Pages: 2

GACR
+3, 3rd SEMESTER EXAMINATION-2019
(ARTS)

Sub.- SOCIOLOGY Time: 3 Hours
PAPER : Core - VI Full Marks: 80

The figure in the right hand margin indicate marks.
Question No.1 is compulsory, answer any FOUR from the rest.

GROUP - A

[2 x 8

1. Write brief notes on any EIGHT of the followings.

a) Gender
b) Sex
c) Masculinity
d) Transgender
e) Patriarchy
f) Matriliny
g) Gender budgeting
h) Wage differences
i) Female Domestic Workers
j) WID
k) WAD
l) GAD

P.T.O.

GROUP- B

[16x4

Answer any FOUR questions.

2. Discuss the basic tenets of Feminism with illustrations from any Feminist of your choice.

OR

Write an essay on Eco-feminism and give an illustration from India.

3. Discuss the evolution and development of Gender Studies in India.

OR

Briefly identify the major emphasis of different World Conference of Women.

4. Evaluate the status of women in pre-Independent India.

OR

Discuss , with illustration, the role of women in Freedom movement.

5. Discuss the role or Centre and State Government for the upliftment of women in Education sector.

OR

Discuss the role of Center and State Government for the upliftment of women in Health sector.

❖❖❖

No. of Pages:2

GACR

+3, 3rd SEMESTER EXAMINATION-2019

(SCIENCE)

Sub.- ZOOLOGY Time: 3 Hours

PAPER : Core-VI Full Marks: 60

The figure in the right hand margin indicate marks.
Question No.1 is compulsory, answer any FOUR from the rest.

GROUP -A

[2 x 6

1. Answer any SIX questions of the following

i) Structure of a typical neuron.

ii) Types of cartilage and their location.

iii) What is puberty? Write the changes that appear in a female on attaining puberty.

iv) Write the endocrine role of Pancreas.

v) Chemical basis of muscle contration . (in brief)

vi) Name the hormones of pars anterior.

vii) What is ossification? How it takes place?

viii) Which is best contraceptive and why?

P.T.O.

GROUP-B

Answer any Four questions. [12x4

2. What is simple epithelium and explain their types, location with examples.

3. What is action potential and mention its origin and propagation across a myelinated and non-myelinated nerve fibre.

4. Digramatically explain structure of a skeletal muscle fibre and add a note on characteristics of muscle twich.

5. Describe histological details of mammalian gonads and mention the part played by the different structures seen in it.

6. Describe structure and function of the pituitary gland. Mention the regulation at secretory function of pituitary by the hypothalamus.

7. Give an account of different types of multicellular glands found and add a note on mode of secretion in various glands.

8. Write short notes on TWO of the following:

   a) Physiology of hearing

   b) Acetylcholine neurotransmitter system

   c) Structure of a mature grafian follicle.

❖❖❖

No. of Pages: 2

GACR
+3, 3rd SEMESTER EXAMINATION-2019
(ARTS)

Sub.- ECONOMICS Time: 3 Hours
PAPER : Core - VI Full Marks: 80

The figure in the right hand margin indicate marks.
Question No.1 is compulsory, answer any FOUR from the rest.

GROUP - A

[2 x 8

1. Answer any **EIGHT** of the following.

a) Define marginal propensity to consume.

b) What is Transitory Income?

c) Define Autonomous Investment.

d) What is meant by Marginal Efficiency of capital?

e) What is speculative Demand for money?

f) What is High Powered money?

g) What do you mean by Aggregate Demand?

h) What is LM curve?

i) What is Phillips Curve?

j) What are Trade Cycles?

P.T.O.

GROUP- B

[16x4

Answer any FOUR questions.

2. Explain the income consumption relationship with the help of MPC and APC. Discuss the measures to raise MPC and APC.

3. Critically examine the Relative Income Hypothesis of consumption function.

4. Discuss the Accelerator theory of investment.

5. What is investment according to Kynes? Explain the factors determining investment decission.

6. Explain the concept of Liquidity Trap. Discuss its implications.

7. Derive IS curve of goods market. Explain its shape and nature.

8. Explain Howtrey's monetary theory of Trade cycle.

No. of Pages: 2

GACR
+3, 3rd SEMESTER EXAMINATION-2019
(ARTS)

Sub.- HISTORY Time: 3 Hours
PAPER : Core-VI 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

[8 x 2

1. Answer any EIGHT of the following.

a) What is market economy?

b) What do you mean by enclosure movement in England?

c) What is Free market?

d) Who was Henry the navigator?

e) What is Chattel slavery?

f) What were the works of Leonardo-da-vinci?

g) Who was Erasmus?

h) What is sale of indulgence?

i) What is putting out system?

j) What do you mean by Commercial Revolution?

P.T.O.

SECTION - B

[16x4

Answer any FOUR questions.

2. Write an essay on what caused the transition from feudalism to capitalism.
3. Examine different theories associated with capitalism.
4. What is plantation? What are the factors responsible for the growth for plantation in American colonies?
5. Write a note on the geographical discoveries by Columbus.
6. Give an account of the art of renaissance.
7. Define Reformation. Examine its causes.
8. Discuss Price Revolution? What were its causes and effects.

No. of Pages: 2

GACR
+3, 3rd SEMESTER EXAMINATION-2019
(ARTS)

Sub.- EDUCATION Time: 3 Hours
PAPER : Core- VI Full Marks: 60

The figure in the right hand margin indicate marks.
Question No.1 is compulsory, answer any FOUR from the rest.

GROUP - A [2x6

1. Answer any **SIX** of the following.
   i) Concept of history
   ii) How history is related with other school subjects
   iii) Different types of teaching learning materials in history.
   iv) Use of Time Line.
   v) What is the Herbartian Approach in history .
   vi) Story telling method
   vii) Education values of teaching history.
   viii) Archaeological sources of history.

GROUP- B [12x4

Answer any FOUR questions.

2. Why history is important in school subjects? What are the aims and objectives of teaching history at lower secondary level?

OR

P.T.O.

What are different approaches to organizations of contents in school curriculum?

3. What are the principles for selection of history? Define it in local, national and Global perspective.

OR

Select one topic in history from elementary level and prepare a short lesson plan on 5E model.

4. Why ICON design model is important in history method? What are the merits and demerits in it?

OR

What are the difference in lecture method and story telling method?

5. Give examples in ICT enabled Teaching aids in history. How and when the same may be used in classroom Teaching?

OR

What are the different types of teaching learning materials in history and explain their importances?

6. Define the history curriculum at school level in lower secondary and secondary level in Odisha.

OR

Explain different values of Teaching history with suitable examples.

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No. of Pages: 2

GACR
+3, 3rd SEMESTER EXAMINATION-2019
(ARTS)

Sub.- HINDI Time: 3 Hours
PAPER : Core- VI Full Marks: 80

The figure in the right hand margin indicate marks.
Question No.1 is compulsory, answer any FOUR from the rest.

GROUP- A

[2x8]

1. निम्नलिखित किन्हीं **आठ** प्रश्नों के संक्षिप्त उत्तर दीजिए।

क) हिन्दी साहित्य के प्रथम उपन्यास और उपन्यासकार का नाम लिखिए।

ख) प्रेमचंद पूर्व दो उपन्यासकारों के नाम लिखिए।

ग) प्रसाद के दो उपन्यासों के नाम लिखिए।

घ) 'कर्मभूमि' उपन्यास का प्रकाशन किस वर्ष हुआ था ?

ङ) अमरकांत की बहन का क्या नाम है ?

च) समरकांट किसकी सहायता किया करते थे ?

छ) सलीम का विवाह किसके साथ होता है ?

ज) 'चित्रलेखा' उपन्यास के किस राजा के शासनकाल का वर्णन किया गया है ?

झ) चित्रलेखा शास्त्रार्थ में किसे परास्त करती है ?

ञ) श्वेतांग के गुरु भाई का क्या नाम है ? ?

P.T.O.

GROUP - B

(निम्नलिखित किन्हीं चार प्रश्नों के उत्तर दीजिए) [16x4]

2. प्रेमचंद के उपन्यास के चित्रित समाज का चित्रण संक्षेप में लिखिए।

अथवा

क) प्रेमचंद के उपन्यास साहित्य का परिचय दीजिए।

ख) प्रेमचंद की उपन्यास-कला पर अपने विचार लिखिए।

3. 'कर्मभूमि' में स्वतन्त्रता आन्दोलन के स्वरूप पर प्रकाश डालिए।

अथवा

क) 'कर्मभूमि' उपन्यास का संक्षिप्त कथानक लिखिए।

ख) 'कर्मभूमि' उपन्यास में वर्णित नारी समस्या का चित्रण कीजिए।

4. भगबती चरण वर्मा के उपन्यास साहित्य की विशषताएँ लिखिए।

अथवा

क) पाप सम्बन्धी चित्रलेखा के विचार अपने शब्दों में लिखिए।

ख) 'चित्रलेखा' उपन्यास की प्रमुख समस्याओं का उल्लेख कीजिए।

5. भाषा-शैली की दृष्टि से 'कर्मभूमि' उपन्यास की समीक्षा कीजिए।

अथवा

क) अमर कांत की चारित्रिकि विशेषताएँ लिखिए।

ख) श्वेतांग का चरित्र चित्रण कीजिए।

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No. of Pages: 2

GACR
+3, 3rd SEMESTER EXAMINATION-2019
(ARTS)

Sub.- Political Science Time: 3 Hours
PAPER : Core-VI 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 x8

1. Answer any EIGHT of the following.

a) Integral view of Public Administration
b) POSDCORB
c) Public administrtion is an instrument for implementing policies.
d) Unity of Command
e) What is hierarchy?
f) Fused model of Riggs.
g) Conflict policy
h) The Minnow Brook Conference-1, 1968
i) The Capam conference.
j) Post-Modernism

P.T.O.

SECTION - B

Answer any FOUR questions. [16x4

2. What is public administration and private administration? Discuss the similarities and dissimilarities between them.
3. Discuss the different phases of development in the study of public administration as a separate and distinct discipline.
4. Critically examine the bureaucratic approach to the study of public administration.
5. Describe the Ecological approach of Fred Riggs.
6. What is evolution of public policy?
7. Define New Public Administration. Explain the salient features of it.
8. Describe the example of initiative promoting good Governance.
9. Explain the feminine perspectives of public administration.

No. of Pages: 2

GACR
+3, 3rd SEMESTER EXAMINATION-2019
(SCIENCE)

Sub: MTC Full Marks: 80

Paper: CORE-VI Time: 3 Hours

Answer the questions as per instruction.
The figure in the right hand margin indicate marks.
Question No. 1 is mandatory.

1. Answer any Eight questions. [2x8]

(a) Set of all 2×2 Matrices is a group with respect to multiplication under what condition.

(b) Define subgroup with example.

(c) Find the order of each element of the group "cube roots of unity" with respect to multiplication.

(d) Define centre of group with example.

(e) Define even premutation with example.

(f) Write down any two permutations of

$$\begin{pmatrix} 1 & 2 & 3 & 4 \\ 2 & 4 & 1 & 3 \end{pmatrix}$$

(g) State Fermats Little theorem.

(h) Define group homomorphism with example.

(i) Prove that set of all integer with respect to substraction is not abelian.

(j) State 2nd isomorphism theorem.

Answer any FOUR questions.

2. (a) Prove that if every element of the group is its own inverse then G is an abelian group. [8]

(P.T.O...)

(b) Prove that there is a one-to-one correspondence between any two right cosets of H in G. [8]

3. (a) State and prove left and right cancellation laws for elements of group. [8]

(b) State and prove Lagrange's theorem. [8]

4. (a) If n is a positive integer and a is relatively prime to n, then prove that $a^{\phi(n)} \equiv 1 \bmod n$. [8]

(b) Prove that any subgroup of a cyclic group is itself a cyclic group. [8]

5. (a) Prove that N is a normal subgroup of G if and only if $gNg^{-1}=N$ for every $g \in G$. [8]

(b) If N and M are normal subgroup of G then prove that NM is also a normal subgroup of G. [8]

6. (a) If $\phi : G \to \overline{G}$ is a homorphism, then prove that [8]

(i) $\phi(e) = e$, the unit element of $\overline{G}$.

(ii) $\phi(x^{-1}) = (\phi(x))^{-1}$ for all $x \in G$.

(b) Prove that centre of a group is always a normall subgroup. [8]

7. (a) State and prove Cauchy's theorem for finite abelian group. [8]

(b) Prove that every permutation is the product of its cycles. [8]

8. (a) State and prove Cayley's theorem. [8]

(b) Compute $a^{-1}ba$ for [4+4]

(i) a=(1,3,5) (1,2), b= (1,5,7,9)

(ii) a=(5,7,9), b=(1,2,3)

- x - x - x -

No. of Pages: 3

GACR

+3, 3rd SEMESTER EXAMINATION-2019
(SCIENCE)

Sub: CHEMISTRY Full Marks: 60

Paper: CORE-VI Time: 3 Hours

Answer the questions as per instruction.
The figure in the right hand margin indicate marks.
Question No. 1 is mandatory.

GROUP - A [2x6]

1. Answer any SIX questions.

(i) How will you distinguish between n-hexychloride and chlorobenzene?

(ii) How will you synthesized P-bromonitrobenzene from benzene?

(iii) What happens when phenol is treated with bromine water?

(iv) How would you distinguish between methyl and ethyl alcohol?

(v) What happens when a mixture of formaldehyde and acetaldehyde is treated with dilute NaOH?

(vi) How will you dinsinguish between diethyl sulphide and diethyl ether?

(vii) What happens when methyl magnesium iodide is treated with ethyl acetate and the product in hydrolysed?

(viii) Write the structure and IUPAC name of ehylene oxide?

(ix) How will you synthesize 4-methyluracil from ethyl acetoacetate? [4]

(P.T.O...)

GROUP - B

Answer any FOUR questions.

2. (a) Write mechanism of SN^1, SN^2 and SN| reaction. [9]

   (b) How propyne can be prepared from methyl bromide. [3]

3. (a) How Fluorobenzene, chlorobenzene and iodo benzene are prepared from benzene diazonium chloride. [6]

   (b) Write the mechanism of bromo benzene with (i) chlorine in presence of $FeCl_3$ and (ii) KNH_2 in presence of liquid ammonia at -33^0C. [6]

4. (a) How primary secondary and tertiary alcohols are distinguished by Lucas test? [4]

   (b) What is pinacol pinacolone rearrangement? Explain with mechanism. [4]

   (c) Write a mechanism for the acid catalysed dehydration of ethyl alcohol to give diethyl ether. [4]

5. (a) Give the mechanism of acid catalysed ring opening reaction of epoxides. [3]

   (b) Write a note on (i) Kolbe reaction (ii) Reimer Tiemann reaction (iii) fries rearrangement [9]

6. (a) How will you distinguish between the following compounds? [8]

   (i) Acetaldehyde and acetone (ii) Formaldehyde and benzaldehyde (iii) Acetone and acetophenone (iv) Formaldehyde and acetal dehyde

   (b) What is acnnizzaro's reaction? Write its mechanism [4]

7. (a) Write mechanism of acid catalysed hydrolysis and base catalysed hydrolysis of nitries [8]

   (b) Convert acetic acid to (i) Formic acid (ii) Propanoic acid [4]

8. (a) Discuss the mechanism of saponification reaction [4]

   (b) What is the relative reactive order of carboxylic acid derivatives? Explain. [4]

   (c) Discuss the sructure of thio ethers? [4]

9. (a) How primary, secondary and tertiary alcohols are prepared by Grignards reagent, explain with mechanism. [8]

   (b) How succinic acid and propanoic acid can be prepared from acetoacetic ester? [4]

- x - x - x -

No. of Pages:2

GACR

+3, 3rd SEMESTER EXAMINATION-2019
(SCIENCE)

Sub.- ETC Time: 3 Hours

PAPER : Core - VI 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 questions of the following [2 x 6

a) State Kirchoffs laws.

b) What is Node and Mesh?

c) What is the value of power in star and delta connection of a 3-phase circuit?

d) State Milman's theorem.

e) Write the advantages of three phase system.

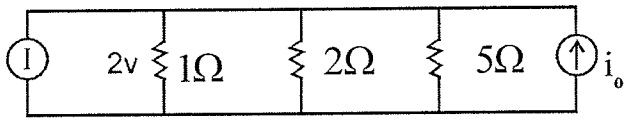
f) What is the time constant of a series R.L. circuit?

g) Define active and passive element with examples.

h) What is the difference between independence and admittance?

Answer Any FOUR questions.

2. a) What is the power absorbed in the resisters of the figure below. Assume $i_o = 1A$. Also find the current from 2V source. [6x2



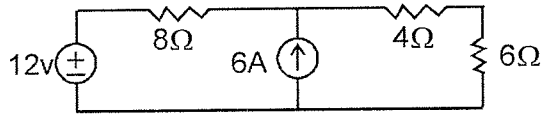
P.T.O.

b) Describe the transformation of star-delta & delta-star.

3. a) What is a R-L circuit? Describe the relationship between current and voltage in a R-L circuit with example. [6x2

b) A series R-L circuit experiences an exponential voltage $V = 10e^{-100t}$ after closing a switch at $t = 0$ Assume R=1 Ω, L= 0.1 H. [6x2

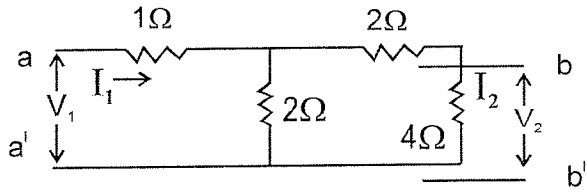
4. a) State superposition theorem and explain its applications. Calculate the current flowing in the 8 Ω resister in the circuit given below.



[6x2

b) State and explain Maximum Power transfer theorem with its applications.

5. Find the h-parameters of the network shown [12



[6x2

Explain the advantages & disadvantages of h parameters.

6. The z- parameters of a two port network are $Z_{11} = 10\Omega,\ Z_{22} = 15\Omega,\ Z_{12} = Z_{21} = 5\Omega$ Find the equivalent T network and ABCD parameter.

7. a) Explain the measurement of power three phase circuits using two watt meter method with an example.

b) Describe the relation between phase and line values of voltage and current.

8. Write short notes on any TWO.

a) Passive filter

b) Integrates

c) Therenin theorem

d) T-network

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No. of Pages: 3

GACR
+3, 3rd SEMESTER EXAMINATION-2019
(SCIENCE)

Sub: MATHEMATICS Full Marks: 80

Paper: CORE-VI Time: 3 Hours

Answer the questions as per instruction.
The figure in the right hand margin indicate marks.
Question No. 1 is mandatory.

1. Answer any Eight questions. [2x8]

(a) Distinguish between semi group and subgroup.

(b) Define permutation group with example.

(c) Prove that inverse element of group is unique.

(d) Define centre of a group with example.

(e) Prove that $\{1,-1\}$ is a normal subgroup of

$\{-1, 1, i, -i\}$

(f) Verify set of integer with binary operation substraction is a group or not.

(g) If H and K are subgroup of G then prove that $H \cap K$ is also a subgroup of G.

(h) Write down any two permutations of

$$\begin{pmatrix} 1 & 2 & 3 & 4 \\ 2 & 4 & 1 & 3 \end{pmatrix}$$

(i) Define group homomorphism with example.

(j) State 1st isomorphism theorem.

Answer any FOUR questions.

2. (a) State and prove Lagrange's theorem. [8]

(P.T.O...)

(b) If H and K are finite subgroup of G of order O(H) and O(K) respectively then prove that [8]

$$O(HK) = \frac{O(H)o(K)}{O(H \cap K)}.$$

3. (a) Prove that the centre z of a group G is defined by [8]

$Z=\{z \in G | zx=xz$, for all $x \in G\}$ is a subgroup of G. Can Z be a centre of another subgroup T of G. Justify.

(b) Prove that a subgroup N of G is a normal subgroup of G if and only if product of two right cosets of N in G is again a right coset of N is G. [8]

4. (a) If $\phi : G \to \overline{G}$ is a homomorphism with Kernel K then prove that K is normal subgroup of G. [8]

(b) State and prove Cauchy's theorem for abelian group. [8]

5. (a) Prove that every permutation is the product of its cycle. [8]

(b) Write the permutation $\begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 \\ 6 & 5 & 4 & 3 & 1 & 2 \end{pmatrix}$. [8]

as product of disjoint cycles. Also find the orbit.

6. (a) If G is abelian of order O(G) and $P^K | O(G)$, $P^{K+1} | O(G)$, then prove that there is a unique subgroup of G of order P^K. [8]

(b) If 'G' be any group and g a fixed element in G. Define $\phi : G \to G$ by $\phi(x) = gxg^{-1}$. Prove that ϕ is an isomorphism of G onto G. [8]

7. (a) If G is a finite group and N is a normal subgroup of G. [8]

then prove that $O(G/N) = \frac{O(G)}{O(N)}$.

(b) State and prove Vayley's theorem. [8]

8. Write short notes on (any two). [8+8]

(a) Quaternion group

(b) Classification of subgroups

(c) Even and odd permutations

(d) Properties of isomorphisms.

- x - x - x -

No. of Pages: 3

GACR

+3 3rd SEMESTER EXAMINATION-2019
(COMMERCE)

Sub.- INCOME TAX
PAPER : Core- VI

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 FIVE of the following. [2 x 8

a) Assessee
b) Gross total income
c) Profit in lieu of salary
d) Fair Rental value.
e) What are deemed profit under section 41.
f) What is a long term capital gain?
g) What is benami transaction?
h) What is inter-head adjustment of losses?
i) Give four deductions which are eligible for 100% deduction.
j) Not ordinary resident.

P.T.O.

Answer Any FOUR questions. [16 x 4

2. Income tax gives absolute exemption in respect of certain income. Discuss.

3. Distinguish between

   a) Allowances and perks

   b) Recognised and unrecognised provident fund.

4. Mr. Vipul owns self-occupied houses in Karnal. From the following information find out which house he should choose as self-occupied?

Particulars	House - A	House - B
Standard Rent	46000	68000
Fair Rent	52000	72000
Municipal Valuation	40,000	52000
Municipal Taxes	2000	2600
Ground Rent	1200	1500

Date of completion of these house was 31/07/2013. Mr. Vipul had taken a loan of Rs. 2,00,000 @ 12% p.a for construction of House A on 01/12/2010 and he repaid 1,00,000 on 01/08/2016.

5. What is agricultural income and how is it treated our income tax purpose.

6. What do you mean by tax deducted at source.

7. Sh. Vinod is warning in a company at Kolkota as Finance manager. From the information given below, find out his taxable salary for the Ay 2017-18. Basic salary Rs. 45,000 P.M., Dearness allowance Rs. 8000 P.M. (60% considered for

retirement benefit, commission Rs. 4000 P.M. Medical allowances Rs. 2000 P.M., tiffin allowance 3000 PM and entertainment allowance Rs. 3000 PM. He resides in a rented accomodation paying a monthly rent of Rs. 8000 with effect from 1/1/2017, he was provided a rent free unfurnished house by the company. HRA was discontinued on the same day. He and his company each contribute 15% of salary to RPF. Interest credited during the year to RPF@ 9.5% is Rs. 60,000. He paid LIC premium of Rs. 5000 each on the life of his son and married daughter.

8) The gross total income of Mr. Sahil is Rs. 6,00,000 for the assessment year 2018-2019. He has made the following payments/investments during the financial year 2017-18.

	Particular	**Rs.**
a)	Deposit in PPF	50,000
b)	Repayment of housing loan (Principal amount)	30,000
c)	Payment of School tuition fees of two children	48,000
d)	Payment of insurance premium on oun life	25,000
e)	Contribution to LIC pension Fund	25,000
f)	Payment of health insurance premium for wife	8,000

Compute the eligible deduction under section section 08c to ..... for the assessment year 2018-19

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