GACR

+3, 5th SEMESTER EXAMINATION-2019 (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

[6 x 2

1. Answer any SIX of the following.

    i) What are the aims of education during Upanishadic period?

    ii) State two differences between vedic and Upanishadic system of education?

    iii) Write any two important recommendation of Macaulay Minute in Indian Education.

    iv) Mention any two suggestion of Hunter commission in the field of Higher Education.

    v) Narrate any two aims of Basic Education.

    vi) What were the main reasons for the failure of Basic Education?

    vii) Write any two suggestions made by Radhakrishnan commission to reform university examination.

    viii) What aims of education were formulated by Mudaliar commission for secondary education?

P.T.O.

Section - B

Answer any FOUR questions.

2. Explain the aims of education, curriculum and method of teaching in Vedic period. [12

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

4. Evaluate Hunter commission and discuss its contribution for the development of Indian Education. [12

5. Discuss the main features of Education commission 1966. [12

6. Discuss the achievement of Ancient India in different fields of knowledge and enlightenment. [12

7. Write the major recommendation of secondary Education commission. [12

8. Explain the recommendation of NKC with regard to school and Higher Education. [12

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GACR

+3, 5ᵗʰ SEMESTER EXAMINATION-2019 (SCIENCE)

Sub: ZOOLOGY　　　　　　　　　　　Full Marks: 60

Paper: CORE-XI　　　　　　　　　　Time: 3 Hours

Answer the questions as per instruction.
The figure in the right hand margin indicate marks.
Question No. 1 is mandatory. Answer any 4 question from Q.2-7.

1. **Answer any SIX bit questions given below within**　　[2x6]
   2-3 sentences for each.

   (a) Define embryonic induction.

   (b) What type of egg is found in human being depending upon the amount of yolk?

   (c) Write the different names of extra embryonic membranes in birds?

   (d) What type of placenta is found in Pigs?

   (e) Iodination of which aminoacid forms thyroxine hormone.

   (f) Define epimorphosis.

   (g) What are teratogenic agents? Give an example of teratogenic agent.

   (h) What is stem cell? Give an example of stem cell.

Answer any FOUR questions with suitable diagram wherever necessary.

2. Describe Cell-Cell interaction during embryonic　　[12] development.

OR

Write notes on the following.　　　　　　　　　　[6x2]

   (a) Cytoplasmic determinants
   (b) Differential gene expression　　　　　　(P.T.O...)

3. Describe Ogenesis and add a note on the structure of the egg. [12]

OR

Write notes on the following. [6x2]

(a) Clevage

(b) Fat Nap

4. Describe the structure and functions of extra embryonic membranes in birds. [12]

OR

Write notes on the following. [6x2]

(a) Fate of germ layers

(b) Implantation of embryo in humans.

5. What is Regeneration? Describe different modes of regeneration. [12]

OR

Write notes on the following. [6x2]

(a) Ageing

(b) Role of hormone in amphibian metamorphosis.

6. Give an account of in-vitro fertilization. [12]

OR

Write notes on the following. [6x2]

(a) Stem Cell

(b) Amniocentesis

7. Describe early development of frog upto gastrulation. [12]

OR

Write notes on the following. [6x2]

(a) Organizers

(b) Amphimixis

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GACR

+3, 5ᵗʰ SEMESTER EXAMINATION-2019 (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.**   [2x 6

   a) What is open system approach?

   b) Mention two important challenges of O.B.

   c) What is chain of command?

   d) Define motivation.

   e) What is defensive behaviour in organizational behaviour?

   f) State two important qualities of characteristic leadership.

   g) Explain the purpose of evaluation in organization.

   h) What do you understand by HRD?

   Answer any FOUR questions.

2. Discuss the contribution of Fayol's administrative management principle to organization.   [12

P.T.O.

3. Critrically analyze the human relation perspectives of organizational behaviour. [12

4. Explain ERG theory an Mc Clellan theory of motivation. [12

5. What is group decision making? Describe various techniques of group decision making in an organization.

6. Define leadership. Discuss different types of power used by leader in organization. [12

7. Discuss MBO as a technique of performance evaluation. [12

8. Define power. Discuss different types of power used by leader in organization. [12

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GACR

+3, 5th SEMESTER EXAMINATION-2019 (SCIENCE)

Sub: STATISTICS   Full Marks: 60

Paper: CORE-XI   Time: 3 Hours

Answer the questions as per instruction.
The figure in the right hand margin indicate marks.
Question No. 1 is mandatory. Answer any 4 question from Q.2-7.

1. Answer any SIX questions.

[2x6]

(a) Producer's risk is refers to _____ error and consumer's risk is akin to _____ error.

(b) What are the limitations of SQC?

(c) What do you mean by internal failure cost?

(d) What do you mean by quality of conformance?

(e) Explain the purpose of P-Chart.

(f) The UCL and LCL for a P-chart are 0.25 aand 0.10. What should be the sample size?

(g) What do you mean by six sigma?

(h) Write only two functions of NSSO.

Answer any FOUR questions.

2. What do you mean by SQC? Explain its need and utility in Industry. Discuss the causes of variation in quaIaity.   [12]

3. What is control chart? Explain the basic principles underlying the econtrol charts. Discuss the role of control charts in manufacturing process.   [12]

4. Write short notes on (any TWO).   [6x2]

(a) Yield and Area statistics

(b) NSSO

(c) State statistical organisation

(P.T.O...)

5. (a) What is single sampling plan and double sampling plan? Discuss relative merits and demerits of single and double sampling plan. [6]

   (b) Explain and bring out the distinction between AQL and AOQL. [6]

6. (a) Determine the control limits for mean and range chart if $\sum x = 357.50$, $\sum R = 9.90$, Number of subgroups $= 20$. It is given that $A_2 = 0.18$, $D_3 = 0.41$, $D_4 = 1.59$ and $d_2 = 3.735$. Also find process capability. [6]

   (b) How do you compare P chart with mean chart and range chart. [6]

7. (a) State and explain the advantages and limitations of acceptanace sampling over 100% inspections. [6]

   (b) What is ATI? How will you compute the ATI for single samping and double sampling plan? [6]

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GACR
+3, 5ᵗʰ SEMESTER EXAMINATION-2019
(ARTS)

Sub.- ECONOMICS   Time: 3 Hours
PAPER : Core-XI   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.**   [2x 8

a)   What is Colonialism?

b)   Give two examples of social infrastructure.

c)   Define Human development.

d)   What is Population explosion?

e)   Name the activities that are included in Tertiary sector.

f)   What is national income?

g)   State the functions of NITI Aayog.

h)   What do you mean by Economic planning?

i)   Point out any two causes of water pollution in India.

j)   What is disguised unemployment?

P.T.O.

Answer any FOUR questions.   [16 x 4

2.   Explain the economic impact of British rule on Indian economy.

3.   Analyse the sectoral composition of national income of India since 1951.

4.   "Population explosion is an obstacle to economic development and economic development is the only solution to the problem of population explosion"- Examine it in the context of India.

5.   Discuss the causes of high malnutrition rate in India and the steps taken by Govt. of India to reduce it.

6.   Explain the objectives and strategies of planning in India.

7.   State and explain the environmental challenges of the country. Suggest measures to face these challenges.

8.   What are the causes of regional inequality in India? How can such inequality be moderated?

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GACR

+3, 5th SEMESTER EXAMINATION-2019 (ARTS)

Sub.- ODIA

PAPER : Core - XI

Time: 3 Hours

Full Marks: 80

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

The figure in the right hand margin indicate marks.

'କ' ବିଭାଗ

(୨×୧୦

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

୧. କ) 'ଏଲିଜ୍' ବା ଶୋକ ଗୀତିକା କହିଲେ କ'ଣ ବୁଝ ?

ଖ) 'ଗାଥା କବିତା'ର ବୈଶିଷ୍ଟ୍ୟ କ'ଣ ?

ଗ) 'ଦେବୀ ବୀଣାପାଣି କେଉଁ ପାପଫଳେ / କରୁଣା ତୋହର ଉଣା ଏ ଉକ୍ଲେ'– କାହିଁକି କୁହାଯାଇଛି ?

ଘ) ରାଧାନାଥ ରାୟଙ୍କ ଦୁଇଟି କାବ୍ୟର ନାମ ଲେଖ ।

ଙ) 'କୀଚକବଧ' କାବ୍ୟରେ ଦ୍ରୌପଦୀଙ୍କ ନାମ କ'ଣ ?

ଚ) 'ଉଠ କଙ୍କାଳ'ରେ କିଏ କାହାକୁ ଆହ୍ୱାନ ଦେଉଛନ୍ତି ?

ଛ) ମୌସୁମୀ ଉଗ୍ର ଓ ବ୍ୟଗ୍ର ହେବାର କାରଣ କ'ଣ ?

ଜ) ମହାଭାରତରେ କେଉଁ ପର୍ବ ଆଧାରରେ 'କୀଚକ ବଧ' ରଚିତ ।

ଝ) 'ଅଙ୍କୁର ଉବାଚ' କେଉଁ ପ୍ରକାରର କବିତା ?

ଞ) ଗ୍ରାମପଥକୁ କବି କାହିଁକି ପ୍ରଣାମ କରିଛନ୍ତି ?

ଟ) 'ଅଳକା ସାନ୍ୟାଲ' କୁ କବି କାହାର ପ୍ରତୀକ ଭାବେ ଗ୍ରହଣ କରିଛନ୍ତି ?

ଠ) ଧଉଳି ପାହାଡ଼କୁ କବି କାହିଁକି ମନେ ପକାଉଛନ୍ତି ?

'ଖ' ବିଭାଗ   (୧୨×୫

୨   ଓଡ଼ିଆ ପ୍ରୟୋଗବାଦୀ କବିତାର ବୈଶିଷ୍ଟ୍ୟ ନିରୂପଣ କର ।

ଅଥବା

ଆଧୁନିକ ଓଡ଼ିଆ କବିତାରେ ପ୍ରତିଫଳିତ ସାମ୍ପ୍ରତିକ ସମୟର ଚିତ୍ର ଦର୍ଶାଅ ।

୩.   'ଚିଲିକା କାବ୍ୟ' ଅନୁସରଣରେ କବିଙ୍କ ସୌନ୍ଦର୍ଯ୍ୟ ପ୍ରୀତିର ପରିଚୟ ଦିଅ ।

ଅଥବା

'ଇତିହାସ ରଙ୍ଗସ୍ଥଳୀ ତୁ ଚିଲିକା' କହିବାର ଯଥାର୍ଥତା ନିରୂପଣ କର ।

୪.   'କୀଚକ ବଧ' କାବ୍ୟରୁ କବିଙ୍କର କବିତ୍ୱ ନିରୂପଣ କର ।

ଅଥବା

'କୀଚକ ବଧ' କାବ୍ୟରୁ ସୈରିନ୍ଧ୍ରୀର ଚରିତ୍ର ଚିତ୍ରଣ କର ।

୫.   'ପ୍ରକୃତି ଓ ମଣିଷ ଅଭିନ୍ନ' ମୌସୁମୀ କବିତା ଅନୁସରଣରେ ବିଶ୍ଳେଷଣ କର ।

ଅଥବା

'ଝଡ଼' କବିତାରୁ କବିଙ୍କର ସୃଜନ ଆଭିମୁଖ୍ୟ ଉଲ୍ଲେଖ କର ।

୬.   'ଗ୍ରାମପଥ ପଲ୍ଲୀ ଜୀବନର ଆନନ୍ଦ ଓ ବିଷାଦର ସାକ୍ଷୀ' – ଉକ୍ତିର ଯଥାର୍ଥତା ଦର୍ଶାଅ ।

ଅଥବା

'ଧଉଳି ପାହାଡ଼' କବିତାର ସାରମର୍ମ ଉଲ୍ଲେଖ କର ।

GACR
+3, 5ᵗʰ SEMESTER EXAMINATION-2019
(ARTS)

Sub.- ODIA   Time: 3 Hours

PAPER : Core - XI   Full Marks: 80

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

The figure in the right hand margin indicate marks.

'କ' ବିଭାଗ

(୨×୧୦

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

୧. କ) 'ଏଲିଜ' ବା ଶୋକ ଗୀତିକା କହିଲେ କ'ଣ ବୁଝ ?

ଖ) 'ଗାଥା କବିତା'ର ବୈଶିଷ୍ଟ୍ୟ କ'ଣ ?

ଗ) 'ଦେବୀ ବୀଣାପାଣି କେଉଁ ପାପଫଳେ / କରୁଣା ତୋହର ଉଣା ଏ ଉକ୍ଲେ'– କାହିଁକି କୁହାଯାଇଛି ?

ଘ) ରାଧାନାଥ ରାୟଙ୍କ ଦୁଇଟି କାବ୍ୟର ନାମ ଲେଖ ।

ଙ) 'କୀଚକବଧ' କାବ୍ୟରେ ଦ୍ରୌପଦୀଙ୍କ ନାମ କ'ଣ ?

ଚ) 'ଉଠ କଙ୍କାଳ'ରେ କିଏ କାହାକୁ ଆହ୍ୱାନ ଦେଉଛନ୍ତି ?

ଛ) ମୌସୁମୀ ଉଗ୍ର ଓ ବ୍ୟଗ୍ର ହେବାର କାରଣ କ'ଣ ?

ଜ) ମହାଭାରତରେ କେଉଁ ପର୍ବ ଆଧାରରେ 'କୀଚକ ବଧ' ରଚିତ ।

ଝ) 'ଅକ୍ଷର ଉବାଚ' କେଉଁ ପ୍ରକାରର କବିତା ?

ଞ) ଗ୍ରାମପଥକୁ କବି କାହିଁକି ପ୍ରଣାମ କରିଛନ୍ତି ?

ଟ) 'ଅଲକା ସାନ୍ୟାଲ' କୁ କବି କାହାର ପ୍ରତୀକ ଭାବେ ଗ୍ରହଣ କରିଛନ୍ତି ?

ଠ) ଧଉଳି ପାହାଡ଼କୁ କବି କାହିଁକି ମନେ ପକାଉଛନ୍ତି ?

'ଖ' ବିଭାଗ (୧୨×୫

୨ ଓଡ଼ିଆ ପ୍ରୟୋଗବାଦୀ କବିତାର ବୈଶିଷ୍ଟ୍ୟ ନିରୂପଣ କର ।

ଅଥବା

ଆଧୁନିକ ଓଡ଼ିଆ କବିତାରେ ପ୍ରତିଫଳିତ ସାଂପ୍ରତିକ ସମୟର ଚିତ୍ର
ଦର୍ଶାଅ ।

୩. 'ଚିଲିକା କାବ୍ୟ' ଅନୁସରଣରେ କବିଙ୍କ ସୌନ୍ଦର୍ଯ୍ୟ ପ୍ରୀତିର ପରିଚୟ
ଦିଅ ।

ଅଥବା

'ଇତିହାସ ରଙ୍ଗସ୍ଥଳୀ ତୁ ଚିଲିକା' କହିବାର ଯଥାର୍ଥତା ନିରୂପଣ
କର ।

୪. 'କୀଚକ ବଧ' କାବ୍ୟରୁ କବିଙ୍କର କବିତ୍ୱ ନିରୂପଣ କର ।

ଅଥବା

'କୀଚକ ବଧ' କାବ୍ୟରୁ ସୈରିନ୍ଧ୍ରୀର ଚରିତ୍ର ଚିତ୍ରଣ କର ।

୫. 'ପ୍ରକୃତି ଓ ମଣିଷ ଅଭିନ୍ନ' ମୌସୁମୀ କବିତା ଅନୁସରଣରେ
ବିଶ୍ଳେଷଣ କର ।

ଅଥବା

'ଝଡ଼' କବିତାରୁ କବିଙ୍କର ସୃଜନ ଆଭିମୁଖ୍ୟ ଉଲ୍ଲେଖ କର ।

୬. 'ଗ୍ରାମପଥ ପଲ୍ଲୀ ଜୀବନର ଆନନ୍ଦ ଓ ବିଷାଦର ସାକ୍ଷୀ' – ଉକ୍ତିର
ଯଥାର୍ଥତା ଦର୍ଶାଅ ।

ଅଥବା

'ଧଉଳି ପାହାଡ଼' କବିତାର ସାରମର୍ମ ଉଲ୍ଲେଖ କର ।

GACR

+3, 5ᵗʰ SEMESTER EXAMINATION-2019 (SCIENCE)

Sub: CHEMISTRY Full Marks: 60

Paper: CORE-XI Time: 3 Hours

Answer the questions as per instruction.
The figure in the right hand margin indicate marks.
Question No. 1 is mandatory. Answer any 4 question from Q.2-7.

1. Answer any SIX questions.

[2x6]

(a) What are nucleic acids?

(b) Explain the classification of enzymes.

(c) What is the effect of pH on the structure of amino acids?

(d) Explain saponification value of oils and fats.

(e) Discuss calorific value of food.

(f) What are coenzymes?

(g) What are antipyretics? Give two examples.

(h) What are medicinal value of antacid?

Answer any FOUR questions.

2. Discuss the structure, synthasis and reactions of Thymine. [12]

3. (a) Discuss the mechanism of enzyme action. [6]

(b) Explain factors affecting enzyme action. [6]

4. (a) Describe two methods of preparation of α-amino acids. [6]

(b) What is a polypeptide linkage? In polypeptide, what do the terms N-terminal and C-terminal refer to. [6]

(P.T.O...)

5. (a) Define oils and fats. How will you distinguish these two? [6]

   (b) Explain the catabolic pathways of fats and protein. [6]

6. (a) Discuss medicinal values of Neem and vitamin-C. [6]

   (b) Write notes on Antibiotics. [6]

7. (a) discuss different types of nucleic acids along with their functions. [6]

   (b) Write the Chemical names of Guanine. Provide its properties. [6]

8. Write notes on: [4x3]

   (a) Anabolism

   (b) standard calorific content of food types.

   (c) electrophoresis of amino acids.

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GACR

+3, 5ᵗʰ SEMESTER EXAMINATION-2019 (SCIENCE)

Sub: BOTANY   Full Marks: 60

Paper: CORE-XI   Time: 3 Hours

Answer the questions as per instruction.
The figure in the right hand margin indicate marks.
Question No. 1 is mandatory. Answer any 4 question from Q.2-7.

SECTION - A   [2x6]

1. Answer any SIX questions.

   (a) Contribution of J.Heslop-Harrison.

   (b) What is Pollen viability?

   (c) What is obturator?

   (d) Write two functions of Endosperm.

   (e) What is parasexuality?

   (f) What is apomixes?

   (g) Describe stub pollination.

   (h) Role of suspensor.

SECTION - B
Answer any FOUR questions.

2.   Discuss the contribution of P.Maheswari, B.M. Johri   [12]
    and W.A. Jensen in Embrylogy.

3.   Discuss the microsporogenesis and its significance in   [12]
    plants.

4.   What is embryogeny? Describe the general pattern of   [12]
    development of dicot and monocot embryo.

5.   What is pollination? Describe different types of
    pollination path of pollentube in pistil and its   [12]
    significance.

(P.T.O...)

6. What is endosperm? Describe the types, development, structure and functions of endosperm. [12]

7. What is polyembryony? Describe classification, causes and applications of polyembryony in plants. [12]

8. Discuss the germline transformation through pollenm tube pathway method, Agnobactenium method and electrofusion method. [12]

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GACR
+3, 5th SEMESTER EXAMINATION-2019 (SCIENCE)

Sub: Comp. Science   **Full Marks: 60**
Paper: CORE-XI   **Time: 3 Hours**

Answer the questions as per instruction.
The figure in the right hand margin indicate marks.
Question No. 1 is mandatory. Answer any 4 question from Q.2-7.

1. Answer any SIX questions.   [2x6]

(a) How do you insert a comment in HTML?

(b) What is an image map?

(c) What are style sheets?

(d) State bullet-tag and it's use

(e) Differenciate between state Web page and Dynamic web page.

(f) What is cell padding?

(g) How do you make a picture into a background image of a webpage using HTML?

(h) What are the common lists that can be used when designing a web page?

Answer any FOUR questions.

2. (a) What is URL? Explain with example.   [6]

   (b) Explain NVC architecture.   [6]

3. (a) What is HTTP? How does it work? Give appropriate example.   [6]

   (b) Explain JSP life cycle.   [6]

4. (a) Distinguish between External Style Sheet and Internal Style Sheet with example.   [6]

(P.T.O...)

(b) Explain various controll of these following tags with their attribute. [6]

(i) Textbox   (ii) Dropdown list

(iii) Password field   (iv) Checkbox

(iv) Radio button

5. (a) What are undeclared and undefined variables? [6]

(b) What are Global variables? How these variable declared in Java Script? [6]

6. (a) What is operator? Define different types of operator. [6]

(b) Explain and write the syntax to read and write a role using Java Script. [6]

7. (a) What is Array? How it can be declared in Java Script? [6]

(b) Explain what is POP ( ) method in Java Script? [6]

8. (a) What is break and continue statements? Explain with example. [6]

(b) Which key word is used to handle exceptions? Write the syntax of handle exceptions. [6]

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GACR
+3, 5ᵗʰ SEMESTER EXAMINATION-2019
(ARTS)

Sub.- HINDI
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.

Section - A

1. निम्नलिखित वस्तुनिष्ठ प्रश्नों मे से किन्हीं **आठ** प्रश्नों के उत्तर $[2 \times 8]$ दीजिए।

    i) हिन्दी मे सर्वप्रथम नाटक का नाटककार कौन है और इस नाटक की रचना कब हुई ?

    ii) हिन्दी नाटकों मे सबसे पहले किसने भारतीय एवं पाश्चात्य नाट्यकला का सामंजस्य प्रस्तुत किजिए।

    iii) 'ध्रुवस्वामिनी' नाटक का नायक कौन है और क्यों ?

    iv) 'लहरों के राजहंस' नाटक का कौनसा पात्र आपको अधिक आकर्षित करता है और क्यों

    v) 'लहरों के राजहंस' को छोड़कर मोहन राकेश के अन्य दो नाटकों के नाम लिखिए।

    vi) 'औरंगजेब की आखिरी रात' एकांकी मे औरंगजेब के चरित्र की किस बिशेषता को उजागर किया गया है ?

P.T.O.

vii) कौनसी एकांकि मे मध्यवर्ग की जिन्दगी का बर्णन क्लिया गया है और इस नाटक का नाटककार कैान है।

viii) 'जुलुस' एकांकी के चमनलाल की कौनसी समस्याएँ थी ?

ix) 'निंद क्यों रात भर नहीं आती' एकांकी का कैान सा उद्देश्य है।

x) भारतीय और पाश्चात्य रंगमंच मे क्या अंतर है ?

[16x4]

Section - B

(निम्नलिखित किन्हीं चार प्रश्नों के सविस्तार उत्तर दीजिए)

2. क)हिन्दी नाटक और रंगमंच के बिकाश पर प्रकाश डालते हुए उनकी विशेषताओं पर प्रकाश डालिए।

ख) 'धुवस्वामिनी' नाटक के आधार पर जयशंकर प्रसाद के नारी संबधी विचारों का विवेचना कीजिए।

ग) हिन्दी नाटकों की परंपरा मे मोहन राकेश के 'लहरों के राजहंस' नाटक की विशेषताओं का उल्लेख कीजिए।

घ) 'भोर का तारा' एकांकी की कथावस्तु का मुख्य आधार कौनसा चरित्र है ? उस चरित्र के किस जीवन की और प्रेरित किया गया है और कैसे ?

ङ) 'जुलुस' एकांकी मे किस प्रकार समाज के राजनीतिक जीवन में फैले हुए भ्रष्ट आचरण का पर्दाफाश कियागया है ? आलोचना कीजिए।

च) भारतीय और पाश्चात्य रंगमंच की विशेषताओं का उल्लेख करते हुए उनका तुलनात्मप विवेचन कीजिए।

GACR

+3, 5th SEMESTER EXAMINATION-2019 (ARTS)

Sub.- SOCIOLOGY

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 of the following.**

a) Mention two objectives of Narmada Bachao Andolan.   [2x 8

b) What is urbanization?

c) What is Eco-Feminism?

d) What do you understand by sustainable development?

e) Why we need to protect Environment?

f) Write some current Environmental problems.

g) What is a slum?

h) What do you mean by Ecology?

i) What is Global warming?

j) Write any two acts passed by Indian Parliament to protect our Environment.

P.T.O.

Answer any FOUR questions.

2. Describe Eco-system and explain its importance.

3. Highlight the sources of Environmental Degradation.

4. Examine the problems of slums and slum dwellers.

5. "Global warming is a major threat to human society." Justify.

6. What are the steps taken by the Government of India to save our Environment.

7. Give your constructive suggestions to solve the problems of urban waste.

8. Should the tribals be given forest rights? Justify.

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GACR

+3, 5ᵗʰ SEMESTER EXAMINATION-2019 (ARTS)

Sub.- POLITICAL SCIENCE

Time: 3 Hours

PAPER : Core-XI

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

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

    a)   Meaning of political thought

    b)   Plato's concept of justice.

    c)   Aristotle's theory of classification of Government.

    d)   Machiavelli's views on human nature.

    e)   Hobbe's individualism.

    f)   Hobbe's views on state of nature.

    g)   Locke's theory of Natural rights.

    h)   Locke's idea of right to resistance.

    i)   Aristotle's theory of justice.

    j)   Machiavelli's views on virtue.

P.T.O.

SECTION - B

Answer any FOUR questions.

2. What is classics in political theory? Why is the classical tradition important? Discuss.

3. Discuss Plato's theory of ideal state.

4. Critically examine Aristotle's views on citizenship.

5. "The state comes into existence for the sake of life, but it continues to exist for the sake of good life"- Aristotle. Analyse.

6. "Machivelli is the first modern political thinker". Explain.

7. Make a critical estimate of Hobbe's theory of social contract.

8. Examine Locke's theory of property.

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GACR

+3, 5ᵗʰ SEMESTER EXAMINATION-2019 (SCIENCE)

Sub: ETC   Full Marks: 60

Paper: CORE-XI   Time: 3 Hours

Answer the questions as per instruction.
The figure in the right hand margin indicate marks.
Question No. 1 is mandatory. Answer any 4 question from Q.2-7.

1. Answer any SIX questions.   [2x6]

(a) What are the different types of errors in measurement?

(b) What is the use of audio oscillator?

(c) Why is fluorescent screen used in CRT?

(d) Why Wheatstone bridge is called bridge?

(e) What is a thermo couple? Write its principle.

(f) What is thermistor? Write its use.

(g) What is the difference between ammeter and multimeter?

(h) Differentiate between voltage probe and current probe.

Answer any FOUR questions.

2. (a) What is a digital type voltmeter? Explain its working   [6]
   principle with a diagram.

   (b) Define the following terms.   [6]

   (i) Accuracy and precision

   (ii) Gross error and systematic error

3. (a) With circuit diagram, explain digital LCR-Q meter.   [6]
   Mention its application.

(P.T.O...)

(b) Draw the circuit diagram and obtain the balance condition [6] for Maxwell's bridge. if bridge contents are $C_1=0.5\,\mu f$, $R_1=1200\,\Omega$, $R_2=700\,\Omega$ and $R_3=300\,\Omega$, Find resistance and inductance of the coil.

4. (a) Describe the operation of Digital storage oscilloscope [6] with the help of a block diagram.

(b) Draw the circuit of a Wheatstone's bridge, and explain [6] how it can be used to measure an unknown resistance?

5. (a) Explain the Wein bridge circuit with a diagram, write about [6] its uses.

(b) Derive balancing conditions for AC bridges. [6]

6. (a) With circuit diagram, explain the operation of a LVDT [6] (Linear variable differential transformer) by the method of measuring displacement.

(b) State the difference between CRO & CRT [6]

7. (a) Differentiate between stress and strain. [6]

(b) What is transducer? Classify them. What are the selection [6] criteria of transducer.

8. Write short notes on any TWO. [6x2]

(a) Digital multimeter

(b) RF generators

(c) DC and AC bridge

(d) Electrostatic focusing and deflection

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GACR

+3, 5ᵗʰ SEMESTER EXAMINATION-2019
(ARTS)

Sub.- PHILOSOPHY   Time: 3 Hours

PAPER : Core - XI   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.**   [2x 8

a)   Who said- "My religion is a poet's religion" and why?

b)   What is the infinite personality according to Tagore?

c)   How is the Absolute described by Vivekananda?

d)   What is inner respect and external aspect of religion according to Vivekananda?

e)   Distinguish between True religion and institutional religion according to Vivekananda.

f)   What is the conception of Reality according to Aurobindo?

g)   What is "Lila" according to Aurovindo?

h)   What is non-violence according to Gandhiji?

i)   What is the essence of religion according to Radhakrishnan?

P.T.O.

Answer any FOUR questions.   [16 x 4

2. State and explain the proofs for God's existence according to Tagore.

3. State and explain the nature of religion according to Tagore.

4. Critically evaluate Swami Vivekananda's Idea of universal religion.

5. Critically explain Sri Aurobindo concepts of Evolution.

6. What is the concept of Truth according to Gandhiji? Discuss .

7. State and explain characteristics of Non-violence according to Gandhiji.

8. What is Region and religious experience? Discuss according to Gandhiji.

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GACR
+3, 5ᵗʰ SEMESTER EXAMINATION-2019
(ARTS)

Sub.- ENGLISH (Hons.)   Time: 3 Hours
PAPER : Core- XI   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.**   [2x 8

   i)   Dramatic realism

   ii) Role of theatre in society

   iii) Elements of drama

   iv) Problem play

   v)   Impressionism

   vi) Expressionism

   vii) Elements of theatre of absurd.

   viii) Ionesco & definition of theatre of absurd.

   ix) Poetic drama

   x)   Where is the 'ghosts' play set?

   xi) Why 'Miss Julie' is a naturalistic play?

   xii) Where is 'Miss Julie' set?

Answer any FOUR questions. [16 x 4

2. What were the main features of theatre of realism? Discuss.

3. How does IBSEN portray the female characters in 'ghost'?

4. How far is the main character of 'Miss Julie' responsible for her own downfall?

5. 'Six characters in search of an author' is a play of reality versus illusion. Discuss.

6. The play begins in the same context as 'Hamlet' but builds to be more absurd. Find out the aburdity and state them in detail.

7. 'Chairs' play focuses on repetitive present and inaccessible past. Discuss.

8. Discuss the murder game in the play 'the maids' and prove its relevances.

9. 'Waiting for Godot' is a play about waiting. Discuss.

10. What is the position of woman in the society in the play 'The good woman of Szechuan.'

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GACR

+3, 5ᵗʰ SEMESTER EXAMINATION-2019

(SCIENCE)

Sub: MTC   Full Marks: 80

Paper: CORE-XI   Time: 3 Hours

Answer the questions as per instruction.
The figure in the right hand margin indicate marks.
Question No. 1 is mandatory. Answer any 4 question from Q.2-7.

GROUP-A   [2x8]

1. Answer any EIGHT questions.

(a) Examine the existance of $\lim\limits_{(x,y)\to(0,0)} \dfrac{2y^2}{\sqrt{x^2+xy}}$

(b) $U = x^2 \ln y^2$ find $\dfrac{\partial^2 u}{\partial x^2}$

(c) Prove that if grad $\phi = 0$ then ϕ is constant.

(d) Find the vector normal to the surface $\phi = x^2 - y^2 + z$ at $(1,-1,2)$

(e) $f = x^2 y + 2xyz + z^2$, fine the Curl grad f.

(f) Find the constant a,b,c, so that the function
$f = (x - 2y + az)\,\hat{i} + (bx - y - z)j + (4x + 1y + 2z)\,\hat{k}$
is irroational.

(g) Evaluate $\int_0^1 \int_x^{2x} 5x^2 y\,dx\,dy$.

(h) Change the order of the integration $\int_a^b dx \int_a^x f(x,y)dy$

(i) State green's theorem in vector form

(j) Write Stoke's theorem.

(P.T.O...)

GROUP -B
Answer any FOUR questions. [16x4]

2. (a) Show that the limit and the repeated limit exist for the

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

(b) If $x = r \cos \theta$, $y = r \sin \theta$, prove that

$$\frac{\partial r}{\partial x} = \frac{dx}{dr} \text{ and } \frac{1}{r}\frac{\partial x}{\partial \theta} = r\frac{\partial \theta}{\partial x}$$

3. (a) Let $f(x,y) = \begin{cases} \dfrac{2xy(x^2 - y^2)}{x^2 + y^2}, & (x^2 + y^2) \neq 0 \\ 0, & (x,y) = (0,0) \end{cases}$

show that $fxy \neq fyx$

(b) If $u = \sin^{-1}\dfrac{\sqrt{x} - \sqrt{y}}{\sqrt{x} + \sqrt{y}}$ show that $\dfrac{\partial u}{\partial x} = -\dfrac{y}{x}\dfrac{\partial u}{\partial y}$.

4. (a) Find the equation of normal line to the surface $x^2yz + 4xz^2 = 6$ at $(1, -2, -1)$.

(b) Find the cosine of the Angle between the surface $x^2y + z = 3$ and $x \log x - y^2 = -4$ at the point of intersetion $P(-1,2,1)$.

5. (a) Test the function $f(x,y) = x^2 + 2xy + 2y^2 + 4x$ for relative maxima, relative minima and seddle points.

(b) Prove that div $(f \times g) = g.$ curl f $-$f. curl g.

6. (a) Find the extreme of $U = y^2 + x^2 + z^2$. Subject to the condition $ax^2 + by^2 + cz^2 = 1$.

(b) Find div F and curl F where
$F = \text{grad}\,(x^3 + y^3 + z^3 - 3xyz)$

7. (a) Evaluate $\int_0^\Pi \int_0^{a\sin\theta} r\,d\theta dr$

(b) Evaluate $\int_0^a\int_0^x\int_0^{x+y} e^{x+y+z}\,dx\,dy\,dz$.

8. (a) Show that $F = (2xy + z^3)\hat{i} + x^2\hat{j} + 3xz^2\hat{k}$ is a conservative vector field and find a function ϕ such that $F = \nabla \phi$. Also find the work done in moving an object in this field from $(1,-2,1)$ to $(3, 1, 4)$.

(b) Using stoke's theorem. Evaluate $\oint(e^x dx + 2ydy - dz)$ where Γ is the Γ curve $x^2 + y^2 = 4$, $z = 2$.

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GACR

+3, 5th SEMESTER EXAMINATION-2019
(SCIENCE)

Sub: MATHEMATICS   Full Marks: 80

Paper: CORE-XI   Time: 3 Hours

Answer the questions as per instruction.
The figure in the right hand margin indicate marks.
Question No. 1 is mandatory. Answer any 4 question from Q.2-8.

1. **Answer any EIGHT questions.**   [2x8]

   (a) Find the two repeated limits of the function

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

   (b) If $f(x,y) = (x^2 - xy + y^2)^{1/2}$ find $f_x(2,0)$

   (c) Find the equation of tengent plane to the surface $x + y - z = 1$ at $(2,1,1)$

   (d) If $\phi(x,y,z) = x^2 y + y^2 x + z^2$ find grad ϕ at $(1,1,1)$.

   (e) Evaluate $\int_1^2 \int_0^{3y} y \; dy \; dx$

   (f) Find Curl $\vec{r}$ *where* $\vec{r} = x\hat{i} + y\hat{j} + z\hat{k}$

   (g) Change the double integral $\iint\limits_R f(x,y) dx \, dy$

   (h) Find a unit vector normal to the surface $\phi = xy + yz + zx$ at $(1,2,0)$

   (i) State Green's theorem

(j) Evaluate $\int_{\Gamma} F.dr$ where $F = x^2\hat{i} + y^3\hat{j}$ and the curve Γ be the parabola $y=x^2$ and limit of integration is (0,0) to (1,1).

Answer any FOUR questions.

2. (a) Prove that the function [8]

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

Poses partial derivatives at (0,0) but not differentiable at (0,0)

(b) If $U = f(y+ax) + \phi(y-ax)$ prove that $\dfrac{\partial^2 u}{\partial x^2} = a^2 \dfrac{\partial^2 u}{\partial y^2}$ [8]

3. (a) $f(x,y) = \begin{cases} 2xy\dfrac{x^2-y^2}{x^2+y^2}, & x^2+y^2 \neq 0 \\ 0, & (x,y) = (0,0) \end{cases}$ [8]

show that at origin $f_{xy} \neq f_{yx}$.

(b) Verify $\dfrac{\partial^2 u}{\partial x \partial y} = \dfrac{\partial^2 u}{\partial y \partial x}$ when $u = x^y$. [8]

4. (a) Evaluate $\int_0^{\Pi} \int_0^{a(1+\cos\theta)} r\,d\theta\,dr$. [8]

(b) Test the function $f(x,y) = x^2-xy+y^4$ for relative maximum, relative minimum and saddle points. [8]

5. (a) Evaluate $\iiint_v (x+y+z)dx\,dy\,dz$ where v is bomded by [8]
$x+y+z=a$ $(a>0)$, $x=0$, $y=0$, $z=0$

(b) Find the minimum value of $x^2+y^2+z^2$ given that $ax+by+cz=p$. [8]

6. (a) Find the diirectional derivative of $\phi = x^2-2y^2+4z^2$ at [8]
(1,1,-1) in the directiton $2\hat{i} + \hat{j} - \hat{k}$. In what direction is the directional derivative from the point (1,1,-1) is maximum and what is its value.

(b) Find the equation of the normal line to the surface [8]
$x^2yz+4xz^2=6$ at (1,-2,-1)

7. (a) Find the mass of a plate in the form of an ellipse [8]
$\dfrac{x^2}{a^2} + \dfrac{y^2}{b^2} = 1$ whose density per unit Area is given by $p=kxy$.

(b) Find the area of the surface of the sphere [8]
$x^2+y^2+z^2=a^2$.

8. (a) Evaluate the surface integral $\int_s (yz\hat{i} + zx\hat{j} + xy\hat{k}).n\,ds$ [8]

(b) Use green's theorem to show that the area bounded by [8]
a simple closed curve is given by $\dfrac{1}{2}\int_c (xdy - ydx)$ and hence find the area of the ellipse.

$- x - x - x -$

(iv) Investment reserve is to be maintained for 4more years. (Reserve & P/L balance)

Prepare the balance sheet of CLtd as on 1st April 2016 after the Amalgamation has been carried out on the basis of Amalgamation in the nature of purchase.

6. What do you mean by liqudation? Discuss various modes of liquidation of company.   [16]

7. X Co Ltd. went into voluntary liqudation on 1st April 2018. The following balances are extracted from its books on that date.   [16]

BALANCE SHEET

Liabilities	Amount	Assets	Amount
24000 Equity shares of Rs 10 each	24000	Mechanery	90000
Debertures (secured by floating charge)	150000	lease hold properties	120000
Bank overdraft	54000	Stock	3000
Creditors	60000	Debtors	150000
		Investments	18000
		Cash in Hand	3000
		P/L A/C	
	504000		**504000**

The Bank ovedraft is secured by deposit of title deeds of leasehold proporties. There were preferenual creditors of Rs 3000 which were not included in creditors Rs 60000.

Prepare statement of affairs to be submitted to the meeting of members/creditors.

8. What is preference share? Discuss various types of preference shares?   [16]

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GACR
+3, 5th SEMESTER EXAMINATION-2019
(COMMERCE)

Sub: Corporate Accounting   Full Marks: 80
Paper: CORE-XI   Time: 3 Hours

Answer the questions as per instruction.
The figure in the right hand margin indicate marks.
Question No. 1 is mandatory. Answer any 4 question from Q.2-8.

1. **Answer any EIGHT in brief.**   [2x8]
    (a) What is share?
    (b) What is Right share?
    (c) What is disposal of profit?
    (d) What is Average profit?
    (e) What is Super profit?
    (f) What is Amalgamation?
    (g) What is internal reconstruction?
    (h) What is General Reserve?
    (i) Who are unsecured Creditors?
    (j) What is liquidation?

Answer any FOUR questions.

2. A limited company issued a prospectus inviting applications for 200 equity shares of Rs. 10 each at a premium of Rs. 2 per share payable as follows.   [16]

    On application Rs. 2
    On allotment Rs. 5 (including Premium)
    On 1st call Rs .3
    On 2nd & Final call Rs. 2

    Applications were received for 300 shares & pro rata allotment was made on the applications for 2400

                                                            (P.T.O...)

shares. Money overpaid on applications was employed on account of sum due on allotment.

Pawan to whom 40 shares were allotted failed to pay the allotment money & on his subsequent failure to pay the 1st call his shares were forefeited, Pramod, the holder of 60 shares failed to pay the two calls and his shares were forfeited after the 2nd call.

Of the shares forfeited. 8o shares were sold to Ankur credited as fully paid Rs 11/- per share, the whole of Pawan's share being included.

Pass the necessary entries & Prepare the cash book of the company.

3. Explain the followings   [4x4]

(a) Provision & Reserve
(b) Reserve fund
(c) Capital Reserve
(d) Buy Back of shares

4.   The following particulars are available in respect of the   [16]
     business carried on by wise head

(i) Capital employed Rs. 50,000.

(ii) Trading result 1989 profit 12200, 1990 profit 15000, 1991 loss 2000, 1992 profit Rs. 21000.

(iii) Market rate of interest of investment 8%

(iv) Rate of risk on capital invested in the business 2% &

(v) Remuneration from alternative employment of the proprietor (if not engaged in business) Rs. 3600 p.a.

You are required to compute the value of goodwill on the basis of 3 years purchase of super profit of the

business calculated on the average profit of the last four years.

5.   ALtd. & BLtd. were amalgamated on & from 1st April-   [16]
     2016. A new company CLtd was formed to take over the business of the existing companies. The B/S of ALtd & BLtd as on 31st Mar 2016 are given below. (in lakhs)

Liabilities	ALtd.	BLtd.	Assets.	ALtd.	BLtd.
Share capital-Eq shares of 100 each	800	750	Land & Building	500	400
			Plant & machinery	350	250
12% performance. share of 100 each	300	200	Investments	150	50
			Stock	350	250
Reserve & Surplus			Sundry Debtors	250	300
Revaluation Res	150	100	Bills & Receivable	50	50
Gen Res.	170	150	Cash & Bank	300	200
Reserve	50	50			
P/L A/C	50	30			
10% debenture @ 100 each	60	30			
Sundry creditor	270	120			
Bills payable	150	70			
	2000	1500		2000	1500

Additional information-

(i) Debenture holders (10%) of ALtd & BLtd were discharged by CLtd issuing such number of its 15% Debertures of Rs 100/- each so as to maintain the same amount of interest.

(ii) Preference share holders of the two companies are issued equivalent number of 15% preference shares of Cltd at a of 155% per share (face value Rs 100)

(iii) CLtd will issue 5 equity shares for each equity shares of ALtd & 4 equity shares for each equity shares of BLtd. The shares are to be issued @30 each having a face value of Rs 10/- per share.

(P.T.O...)

GACR

+3, 5ᵗʰ SEMESTER EXAMINATION-2019
(ARTS)

Sub.- HISTORY   Time: 3 Hours

PAPER : Core-XI   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.**   [2x 6

   a)   Necker

   b)   The spirit of Laws

   c)   Clergy

   d)   Tennis court oath

   e)   Danton

   f)   Code Napoleon

   g)   Legion of Honour

   h)   Rechelieu

   i)   Bourgeosie

   j)   Carbonari

   Answer any FOUR questions.

2. a)   Economic crisis of Ancient Regime   [8+8

    b)   Division of the French society

OR

Examine the role of intellectual currents for   [16
the outbreak of the French Revolution.

P.T.O.

3. Write short notes on: [8 x 2
  a) The fall of Bastille
  b) The Legislative Assembly

OR

Write a note on the conquests of Nepoleon. [16

4. Make an assessment of the concert of Europe. [16

OR

Discuss the causes of the February Revolution of 1848.

5. Write short notes on: [8 x 2
  a) Forces of conservatism
  b) Objectives of the Congress of Vienna

OR

Criticlly examine the Metternich system. [16

6. Write short notes on: [8 x 2
  a) Impact of Industrial Revolution
  b) Proletariat

OR

Throw Light on the process of urbanisation in modern Europe. [16

7. Write short notes on: [8 x 2
  a) Mazzini
  b) Vilafranca Treaty

OR

Give an account of the unification of Germany. [16

8. Write short notes on: [8 x 2
  a) Irish Independence
  b) Rise of nationalism in the Balkans

OR

Analyse the factors which led to the rise of Nazism in Germany. [16

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GACR

+3, 5ᵗʰ SEMESTER EXAMINATION-2019
(SCIENCE)

Sub: **PHYSICS**　　　　　　　　　　　　Full Marks: 60

Paper: **CORE-XI**　　　　　　　　　　　Time: 3 Hours

Answer the questions as per instruction.
The figure in the right hand margin indicate marks.
Question No. 1 is mandatory. Answer any 4 question from Q.2-7.

1. **Answer any SIX questions.** Choose the correct answer.　　[2x6]

 (a) If $\hat{A}$ and $\hat{B}$ be two commuting operators, then

　　(i) $[\hat{A}, \hat{B}] = -i\hbar$　　　　(ii) $[\hat{A}, \hat{B}] = 0$

　　(ii) $[\hat{A}, \hat{B}] = -1$　　　　(iii) $[\hat{A}, \hat{B}] = +1$

 (b) The expectation value of 'x' for the state described by

　　$\psi = Ax.\exp\left((-x^{2}/2)\right)$ is

　　(i) A　　(ii) $A^{2}/2$　　(iii) $\dfrac{A}{4}$　　　　(iv) 0

 (c) Quantum mechanical tunneling is due to the

　　(i) Particle nature of matter

　　(ii) Wave nature of matter

　　(iii) dual nature of matter

　　(iv) None of these

 (d) The eigen vallues of momentum of a particle trapped in a one-dimensioal box are

　　(i) continous　　　　(ii) discrete

　　(iii) zero　　　　　(iv) $\overline{\wedge}\,\hbar$

 (e) The spin motion of electron was first proposed by

　　(i) Schrodinger　　(ii) Bohr

　　(iii) Pauli　　　　(iv) Einstein

(f) Stern-Gerllach experiment proved that

   (i) the idea of spinning electron

   (ii) the idea of space quantisation

   (iii) spin magnetic moment

   (iv) All of the above

(g) Zeeman effect is observed if the source is placed in

   (i) weak magnetic field

   (ii) no magnetic field

   (iii) non-uniform magnetic field

   (iv) strong magnetic field

(h) The wave function $\psi(x)$ is normalised if, $\int_T |\psi(x)|^2 .dx$

is equal to

   (i) 0   (ii) 1   (iii) – 1   (iv) -i$\hbar$

Answer any FOUR questions.

2. Derive schrodinger time independent wave equation. Also describe the physical significance and properties of wave function.   [12]

3. (a) Prove that the vector momentum operator is Hermitian   [12]

   (b) Prove that the eigen values of Hermitian operators are real

4. What is Gaussian wave packet? Explain the spread of a Gaussian wave packet for a free particle in one dimension.   [12]

5. Give a general discussion of bound states in an orbitary potential.   [12]

6. Give an account of the quantum mechanical tunneling of a particle through one dimensional rectangular potential barrier.   [12]

7. What is normal Zeeman effect? On the basis of quantum theory, explain the effect of magnetic field on energy levels of an atom. Also explain the splitting of spectral line in normal Zeeman effect.   [12]

8. Solve Schrodinger wave equation for linear Harmonic oscillator and find its eigen values and eigen function.   [12]

- x - x - x -