English

GSE/19

Roll No. 10

201

Total Pages: 4

Maximum Marks: 80

Time: Three Hours

3. Answer any five of the following questions in 75 to 100 words each:

(a) Describe the relationship that Gandhi shared with his friend.
(b) How is the vision of a culture formed?
(c) What is the result of the partializing effect?
(d) Write about the positive side of rebellion.

4. Where is the Kruger Pass located?

5. According to Shanxi, who is a good citizen?

6. How can one achieve excellence in life?

7. Where does the World Treaty refer to?

8. What is the second criterion that makes up the identity of an individual?

9. Where is the second criterion that makes up the identity?

10. Answer any four of the following questions in about 30 words each:

Top, rear, air, gold, able, hot, girl, shirt, serve, rather, window.

11. Transcribe any eight of the given words:

Time: Three Hours

701/20.900/KD/345

Friendship.

(a) Mental Health

(b) TV Series

(c) Child

Given topics:

12. Write a paragraph of about 200 words on any one of the topics:

(a) Give the meaning of polite.

(b) Give the meaning of calm.

(c) Give the meaning of sad.

(d) Give the meaning of dead.

(e) Give the meaning of sad.

(f) Give the meaning of calm.

(g) Give the meaning of dead.

(h) Give the meaning of sad.

(i) Give the meaning of calm.

(j) Give the meaning of dead.

(k) Give the meaning of sad.

(l) Give the meaning of calm.

(m) Give the meaning of dead.

(n) Give the meaning of sad.

(o) Give the meaning of calm.

(p) Give the meaning of dead.

(q) Give the meaning of sad.

(r) Give the meaning of calm.

(s) Give the meaning of dead.

(t) Give the meaning of sad.

(u) Give the meaning of calm.

(v) Give the meaning of dead.

(w) Give the meaning of sad.

(x) Give the meaning of calm.

(y) Give the meaning of dead.

(z) Give the meaning of sad.
4. Read the passage given below and answer the questions that follow:

From the top of a building, a young person took the plunge. Akash fell 12 million dollars since morning. In a white shirt (wear), he was always ready to do a job. He always leave his family and friends, family and himself.

(a) What is the most basic problem for a young person?
(b) What is the positive side of rebelliousness?
(c) What would you do in this situation?
(d) What is the ultimate goal of a young person?
(e) What is the number of these houses?

5. Make sentences of your own from any eight of the given words:

Dark, love, sin, work, never, suddenly, lost, force, book.

6. (a) Supply the correct form of the verbs given in brackets:

(d) shaded, obey, defined

8. Decide, obey, defined.
I. Give phonetic transcription of any eight of the following:

**Note:** All questions are compulsory.

Maximum Marks: 80

Time: Three Hours

ENGLISH

CSE/D-19

TOTAL PAGES: 5
3. Answer any five questions in about 75-100 words each.

(a) What ideas does the essay discuss?

(b) Name the essay and the author.

Questions:

(c) Read the given passage and answer the following questions:

(i) Who according to Nehru is Bhala Malani?

(ii) Culture? The responsibility of young men?

(iii) What is the importance of fostering a good work

(iv) Dr. Kalpana and thoughts that led Gandhi to write this.

(v) But conceptually I became a student: Explain the views

(vi) ‘Wounded Princes’ National Identity

(b) What is the significance of the three series of

(a) How is the vision of a culture formed? Language and

(c) Justify the title "The Generation Gap"

Finally the "Temple of Modern India" ends.

(d) Discuss the essay on which the essay "Are Dumas the

(e) From two words using the suffix "ly,"

(f) Give synonyms of any four words:

(g) Give antonyms of any four words:

(h) "Police, obey, same, work, interior, flow.

(i) Complete the sentence according to the myths, the first man originated
Party.

1. We have invited (much/many) guests to the
2. Don't we like (good) chicken and
3. Ranch is my (old) brother.
4. Fill in the blanks with correct articles
5. I am doing work.
6. (Father) God helps those who help themselves.
7. Sometimes it better than
8. Fill in the blanks with suitable pronouns
9. Mother plays football.
10. Write the following sentences into their interrogative

Rewrite the following sentences into their interrogative.

(a) My name is a common node. travel
(b) The shop is far.
(c) I have jumped wish the well.
(d) I prefer tea coffee.

Correcting the preposition in the blank and correct preposition in the blank.

Do as directed. Attempt any multiple sentences. Insert

(a) I love (a) teacher.
(b) (a) in the west.
(c) The sun (rise) in the east and

For 30 years.

(b) (By) 2020 (work) in this college

Tomorrow:

(a) Finish his work by 7 pm
(b) Meet next month.
8

(3)

(2)

(1)

(6)

(5)

(4)

(3)

(2)

(1)

(6)

(5)

(4)

(3)

(2)

(1)

(6)

(5)

(4)

(3)

(2)

(1)

(6)

(5)

(4)

(3)

(2)

(1)

(6)

(5)

(4)
(6=9+18)

(2×4=8)

(1×8=8)

(4×2=8)

(8=8×1)

(4+3=7)

(2×4=8)

(6=9+18)

(2×4=8)

(1×8=8)

(4×2=8)

(8=8×1)
Punjabi (E)

10

CSE/D-19

710

Total Pages: 8

Roll No.

Time: Three Hours

Maximum Marks: 80

710/2600/KD/979
3.

4.

5.

6.

7.

8.

9.

10.
<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Applicant</td>
</tr>
<tr>
<td>2.</td>
<td>Allocation</td>
</tr>
<tr>
<td>3.</td>
<td>Answers</td>
</tr>
<tr>
<td>4.</td>
<td>Cash book</td>
</tr>
<tr>
<td>5.</td>
<td>Circulator</td>
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<tr>
<td>6.</td>
<td>Compliances</td>
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<td>7.</td>
<td>Compliances</td>
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<tr>
<td>8.</td>
<td>Condensed</td>
</tr>
<tr>
<td>9.</td>
<td>Costs price</td>
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<tr>
<td>10.</td>
<td>Daily Wages</td>
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<td>11.</td>
<td>Document</td>
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<td>12.</td>
<td>Estimate</td>
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<td>13.</td>
<td>Enclosure</td>
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<tr>
<td>14.</td>
<td>Eligible</td>
</tr>
<tr>
<td>15.</td>
<td>Demerit Allowance</td>
</tr>
</tbody>
</table>
1. (1) Explain the concept of healthcare.

2. (1) Explain the concept of education.

Maximum Marks: 80

Time: Three Hours
لا يمكنني قراءة النص العربي المكتوب بالخط العربي المتضخم في الصورة.
with the help of a production possibility curve. 

How can the central problems of the economy be solved in the production possibility curve? 

(c) Mention the factors which will cause an upward shift in the production possibility curve diagram.

Also tell the meaning of the marginal opportunity cost and show it in the diagram.

On this basis, draw production possibility curve and table.

<table>
<thead>
<tr>
<th>Price (units)</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantity</td>
<td>10</td>
<td>9</td>
<td>7</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Good</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
<td>E</td>
</tr>
</tbody>
</table>

Following are the different possibilities of production of units.

Case 1

Case 2

Select one question from any three.

Choose No. 1 and 2 are compulsory. In all do five.

Maximum Marks: 80

Micro Economics-I

ECONOMICS

722

Total Pages: 7
3. (d) Infinity,
(c) Greater than unity,
(b) Zero,
(a) Unity.

When the demand curve is parallel to x-axis, then price elasticity of demand is

(111) Choose the correct answer:
(a) (b) (c) (d) (e) (f) (g) (h) (i) (j)
Economics

1. **Utility Elastic**: 
   - Match the following:
   - \( \frac{X}{I} \) (a)  
   - \( \frac{AX}{TV} \) (b)  
   - \( \frac{AV}{AX} \) (c)  
   - \( \frac{TV}{AX} \) (d)  
   - \( \frac{TV}{AX} \) (e)  
   - \( \frac{TV}{AX} \) (f)  

2. **Paradox of Poverty**: 
   - Mixed economy  
   - Alfred Marshall  
   - Utility Elastic  

3. **Unchanged Total**  
   - More production  
   - Expenditure  

4. **Family of Isoquant**: 
   - Leads to less income  

5. **Isoquant Map**: 
   - 5. Coexistence of private and public sector
9. Explain short run cost curves as per traditional theory of Cost.

10. Explain the relationship among total revenue, average revenue, and marginal revenue.

8. What is meant by elasticity of supply? Explain the degree.

UNIT I-V

7. Explain the law of variable proportion.

UNIT III-V

6. What is indifference curve? Discuss its properties.

5. Define consumer surplus. How is it measured?

UNIT II-V

4. Define the following:

3. What is demand? How is it measured?

UNIT I-V

2. Explain the law of demand. What factors affect demand?

1. Is Economics a science or an art? Discuss.

UNIT I-V

1. Explain the relationship among total revenue, average revenue, and marginal revenue.
UNIT-II (कक्षा-II)

1. Define health according to World Health Organization.

2. What do you mean by physical education? Discuss the scope of physical education. Write down the objectives and

UNIT-I (कक्षा-I)

1. Define physical education. Write down the objectives and

HEALTH AND PHYSICAL EDUCATION

GSE/B-19

Total Pages: 3

ROLL NO. 17/16 77/12
UNIT-III

5. Define yoga according to Mahatva Parashat. Explain the importance of yoga in modern society.

6. What do you mean by Pranayama? Explain techniques.

7. What do you mean by anatomy and physiology? Explain.


9. (a) What are the steps of Pranayama?
    (b) Smaller unit of human body.
    (c) Explain system in human body.
    (d) Meaning of Yoga.
    (e) Physical factors affecting personal hygiene.
    (f) What is reflex-unconscious correlation.

UNIT-II

4. Explain the term hygiene. How a person can keep the hygiene of various parts of the body?

UNIT-I

3. How do you rate yourself in terms of emotional development?

2. Explain personal hygiene.

1. What are the three steps of Pranayama?
UNIT-I (Vocal-1)

I. Write Notion of Viamhri Khvam of Ranga Aliya Bhilaal.

II. Discuss about Rang Bhupali with notion of Duri Bandish.

III. Give the introduction of Ranga Aliya Bhilaal in detail.

Note:
Answer five questions in all, selecting at least one question from each unit. Each question carries 8 marks.

Time: Three Hours

Maximum Marks: 40

Paper-I

(Theory)

MM-40

MUSIC VOCAL

730

GSE/619

Total Pages: 3
7. Explain in detail about the difference between Shrut and

UNIT-III (III)

6. Discuss in detail about the history of Indian Music from

UNIT-II (II)

5. Write in detail about Shrut.

UNIT-II (II)

4. Write the definition of following:

UNIT-II (II)

3. Write the definition of following:

UNIT-II (II)

2. Write the definition of following:

UNIT-II (II)

1. Give the definition of following:

UNIT-II (II)

9. Write Ekran of Char Tala and Teen Tala with detailed

UNIT-II (II)

8. Discuss in detail about the contribution of Pt. Vishnu

UNIT-II (II)

7. Explain in detail about the difference between Shrut and

UNIT-III (III)

6. Discuss in detail about the history of Indian Music from

UNIT-II (II)

5. Write in detail about Shrut.

UNIT-II (II)

4. Write the definition of following:

UNIT-II (II)

3. Write the definition of following:

UNIT-II (II)

2. Write the definition of following:

UNIT-II (II)

1. Give the definition of following:

UNIT-II (II)

9. Write Ekran of Char Tala and Teen Tala with detailed

UNIT-II (II)

8. Discuss in detail about the contribution of Pt. Vishnu
2. Write the detailed description of your Ablution ritual. 

3. Write the notation of any Mascet Khamael of your syllables with two losses.

SECTION-I (0-20)

Note: Attempt five questions in all, selecting at least one question from each section. All questions carry equal marks.

Time: Three Hours

Maximum Marks: 40

Paper-I (Theory)

Music Instrumental (Sitar)

ROLL NO. ........................................

TOTAL PAGES: 3
3. Discuss the merits and demerits of decentralization of office services.

2. An office is a business. What is the main spring is to a watch. Explain this statement and explain the significance of modern office.

1. What do you mean by 'Office Management'? What are the functions of office management?

Note: Attempt any five questions. All questions carry equal marks.

Total Marks: 80

Time: Three Hours
10. Write a detailed note on correspondence through internet.

16. Discuss various communication services used in a modern office.

9. What do you mean by the term 'office communication'?

8. Discuss the impact of noise in relation to clerical work and how it can be reduced.

16. Describe the layout of an office. What are the benefits and drawbacks of office accommodation?

6. Describe the factors affecting the choice of office layout.

16. What qualities should a successful office manager possess?

16. What do you mean by the term department of office?
2. (a) Prove that every Hermitian matrix $A$ can be expressed as $A = B + iC$, where $B$ is real and symmetric and $C$ is skew-symmetric.

SECTION I

1. Is linearly independent.

(e) Prove that every subset of a linearly independent subset

1. Roots of the equation $x^2 - 3x + 2 = 0$.

(d) Find an equation whose roots are the reciprocals of the

1. With examples.

(c) Give definition of orthogonal matrix and unitary matrix.

1. Give definition of row echelon matrix with example.

1. If $A$ is non-singular matrix, then prove that det $(A^{-1}) = \frac{1}{\det A}$.

Complementary Question

Complementary: Select one question from each section.

Note: Attempt five questions in all. Question No. 1 is compulsory.

Maximum Marks : 27

Time: Three Hours

Paper: BM-111

ALGEBRA

GSE/B1 4

ROLL NO. ..................................................
SECTION

2

Given equation are in A.P.

\[ 2x + y = 2a + b \]
Also find the value of \( x \) & \( y \)

\[ \gamma = \lambda \] and \[ x = \gamma + \lambda \]

Find the roots of the equation \( x^2 - 6x + 11x + 1 \). \( \gamma \) is a root.

(b) \( \gamma \) is a root, the roots are in H.P.

3

\[ 15x^4 - 8x^2 + 14x - 2 \]

Find the roots of the equation.

3

Where roots are given to be in G.P.

3

= \( b + px + qx \) and \( d = q - x \)

Lay \( b + px + qx \) \( x \) to division of \( x^2 \) + 120x + 3600.

Find the remainder in the division of \( x^2 + 15x + 700x + 6400 \).

SECTION III

2

Using Sylvester's criterion,

\[ \Delta x = 2 \Delta + 2 \Delta + 2 \Delta \]

\[ \Delta x = -x^2 + 2x + 8x \]

\[ \Delta x = -x^2 - 2x + 8x \]

Determine the definiteness of the quadratic form.

3

Also find rank, index, signature and equations of\( x^2 + 2xy + 8x \).
(a) Find the length of the axes, the eccentricity, and the

coilations of the axes of the conic

2. (a) Find the length of the axes, the eccentricity, and the

SECTION 1

2

Show that the two spheres

2

Generators.

2

Under what condition can \( ax^2 + by^2 + cz^2 + 2\alpha yz + 2\beta zx + 2\gamma zx = 0 \) have three mutually perpendicular

I

Define conjugate diameters.

I

Discuss the nature of conic \( ax^2 + 2\alpha yz + 2\beta zx + 2\gamma zx = 0 \).

Complementary Question

Each Section Question No. 1 is compulsory.

Note: Attempt five questions in all, selecting one question from

Maximum Marks: 27

Time: Three Hours

Paper: B.M-113
(Solid Geometry)

MATHEMATICS

CSE/D-19

Roll No. 3

Total Pages: 3
To prove that six normals can be drawn from a point.

SECTION-III

2.\( \frac{x^2}{a^2} + \frac{y^2}{b^2} + \frac{z^2}{c^2} = 1 \)

3.\( \frac{x^2}{a^2} + \frac{y^2}{b^2} + \frac{z^2}{c^2} = 1 \)

SECTION-II

(a) To prove that six normals can be drawn from a point.

9. Prove that the equation whose surface whose equation is \( 16x^2 + 4y^2 + 9z^2 = 6 \) represents a cone.

8. (a) To find the equation of the envelope of the cylinder of the sphere \( x^2 + y^2 + z^2 = 25 \) having the generator parallel to the plane \( 2x + 3y = 5 \).

7. (a) Find the equation of the envelope of the cone.

6. (a) To prove that six normals can be drawn from a point.

5. If through any chord \( AB \) of the sphere, having the circle of equation \( x^2 + y^2 + z^2 = 2 \) as the base, circular is a coaxial sphere with each other.

4. (a) Obtain the equation of the director circle.

3. (a) To find the polar equation of director circle.

2. (a) To find the equation of the polar plane of a point.

1. To find the equation of the polar plane of a point.
2. (a) Prove that every square matrix $A$ can be expressed in a diagonal form.

SECTION I

1. (a) Find $\frac{n}{1}$, then find $\sum_{i=1}^{n}$.

2. (b) If $a, b$ are roots of equation $x^2 + x + c = 0$, then show that every identity matrix of order $n \geq 2$ is positive definite.

3. (c) Prove that the quadratic form $x^2 + x + \frac{1}{2} = b$ is positive definite.

4. (d) Prove that the set of vectors $(1, 2, 0, 0)$, $(0, 3, 1)$, and $(1, 2, 0, 0)$ is linearly independent.

5. (e) Prove that the set of vectors $(1, 2, 0, 0)$ is non-singular.

Complimentary Question

Complimentary. Select one question from each section.

Note: Attempt five questions in all. Question No. 1 is compulsory.

Maximum Marks: 40
Time: Three Hours

Paper: BM-III
ALGEBRA
GSEB-19

782
Total Pages: 4
SECTION I

Given cubic has two imaginary roots. Hence show that the equation whose roots are \((a-x)(x-b)(x-c)\) find the equation whose roots are \(\frac{b+c}{a} \), \(\frac{c+a}{b}\) If \(a\), \(b\), \(c\) are the roots of the cubic \(x^3 + 3x + 2 = 0\), find the condition that the sum of two roots of the equation is equal to zero. Find the condition that the sum of two roots of the equation is the value of \(c\). If \(a\) and \(c\) are real and \(2 - \sqrt{3}\) is a root of the equation, then \(a = b + x\) or \(c = x\). Find the remainder in the division of \(x^3 + 3x + 2\) by \(x - 2\). Given that the matrix is \(A\), find its inverse. If it exists, prove that the characteristic equation satisfies the characteristic equation. Prove that the characteristic roots of a real symmetric matrix are all real. Hence find the rank of \(A\), such that \(PAQ\) is in normal form. For the matrix \(A\), find non-singular matrices \(P\) and \(Q\).
1. (a) Define point of inflexion.
   (b) Find the radius of curvature of the curve $y = \theta^x$ at the
   point where it crosses the y-axis.
   (c) Find the area of the ellipse $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$.
   (d) Derive reduction formula for $\int \ln x \, dx$.
   (e) Evaluate $\lim_{x \to 0} \frac{e^{x^2} - 1}{x^2}$.

**Complexity Question**

Each section question No. 1 is compulsory.

**Note:** Attempt five questions in all, selecting one question from each section. Question No. 1 is compulsory.

Maximum Marks: 40

Time: Three Hours

Paper: BM-112
(Calculus)

Mathematics

CSE/D-9

Total Pages: 4

Roll No. .................
4. Find the volume of the sphere so formed.

5. The circle $x^2 + y^2 = 1$ is revolved about the x-axis.

6. Evaluate $\int_{x=1}^{x=3} \frac{z}{z^2 - 5} \, dx$ where $u$ is positive even and odd.

SECTION-III

SECTION
2. Find the center, length and equation of axes, eccentricity.

SECTION 1

\[ z = 0 \]
\[ \frac{z}{x} + \frac{z}{y} + \frac{z}{2} = \frac{z}{6 + \lambda} = \frac{4}{2 + \lambda} \]
\[ z = z^2 + z^2 + z^2 \quad \text{meets the sphere} \quad x^2 + y^2 = 1 \]
\[ z + z = \frac{z}{2 - \lambda} = \frac{z}{1 + x} \]

Complementary Question

Each section, Question No. is compulsory.

Note: Attempt five questions in all, selecting one question from

Maximum Marks : 40

Time : Three Hours

Paper : BM-113
(Solid Geometry)

MATHEMATICS

CSE/D-19

Roll No. : 9

Total Pages : 3
4. Find the equation of the surface whose equation is $16x^2 + 4y^2 + 2z^2 + 4x + 8y + 2z - 16z = 0$.

SECTION-IV

4. The equation of the cylinder of the conical

$$ \frac{z}{x} = \frac{z}{z} = \frac{1}{x} $$

Find the equation of the enveloping cylinder of the conical

4. The equation of the plane of the line

$$ \frac{z}{z} = \frac{z}{z} = \frac{z}{1-z} $$

SECTION-V

4. Find the equation of the center of the circle of the conic

$$ 0 = 1 + 6y - 3x + 2z^2 + 7x + 3y + z $$

4. Show that the given by the equations

SECTION-III

4. To prove that six normals can be drawn from a point

4. Find the equation of the right circular cylinder of radius

$$ \frac{z}{x} = \frac{z}{1-x} = \frac{z}{1-x} $$

4. Find the equation of the right circular cone whose vertex

4. A point of contact

4. Show that the

SECTION-II

4. Find the equation of the sphere through the circle

4. Show that the given by the equations

3. Show that the equation $9x^2 + 9y^2 + 2xz - 2x - 16y + 16z = 0$.

1. To express a paraboloid. Also find its focus, vertex.
(b) Explain in brief the importance of centre of mass.

6

Single particle

2.

(a) State and prove law of conservation of energy of a

UNIT I

2

when explain how it vanes.

What ever mass of a particle is a constant quantity, if not

2

frame of reference ?

(2)

What do you understand by inertial and non-inertial

2

Definition of configuration space. What is its importance.

2

Conservative force.

I.

(a) What is a conservative force ? Give an example of a

Compulsory Question

Each unit the symbol have their usual meaning.

Note : Attempt four questions selecting one question from

Maximun Marks : 40

Time : Three Hours

Paper-1

Classical Mechanics and Theory of Relativity

PHYSICS

89

GSE/B.TECH/19

Total Pages : 3
UNIT-IV

8. (a) What are Lorentz-Transformations? Explain Length Explanation of the result.
(b) Describe Michelson and Morley Experiment.
(c) Give a brief explanation of the result.

UNIT-III

8. (a) What is a conserved force? Write its two consequences.
(b) What is a conserved quantity in inertial under these transformations.
(c) What are Galilean transformations? Prove that law of conservation of kinetic energy in inertial under these.

UNIT-II

8. (a) What are the possibilities of special theory of relativity? Define particle.
(b) Differentiate between degrees of freedom and equation from Hamilton's principle and derive Lagrange's equations.
(c) What is angular momentum? State and prove law of conservation of angular momentum of a system of N particles.
220 V. Calculate its peak value.

(d) The r.m.s. value of alternating voltage in mains is

2

2

How is displacement current different from conduction current?

(c) What is the magnetic field of a diamagnetic material?

(b) What is effect of temperature on magnetic susceptibility?

2

Fields.

(a) Distinguish between solenoidal and irrotational vector

Comprehensive Question

allowed.

(iv) Use of scientific (non-programmable) calculator is

(iii) Attempt all parts of Question No. 1 at one place only.

from each unit

(ii) Attempt four more questions, selecting one question

Note: (i) Question No. 1 is compulsory.

Maximum Marks : 40

Time : Three Hours

Paper-II

Electrostatic, Magnetism and Electromagnetic Theory

PHYSICS

60

60

GSE/D-19

Total Pages : 4

3

What is the bandwidth of the circuit?

(q) How is it related with bandwidth of the circuit?

5

(b) What is the meaning of sharpness of a series resonant circuit?

(!!) Resonant frequency of this circuit:

(!!) Capactive reactance (Xc) of capacitor and (!!)

(!!) Inductive reactance (Xi) of inductor.
UNIT-I

1. What are electromagnetic waves? Write their general properties.
2. What are magnetic scalar potentials? Derive relation for electric and magnetic fields and discuss the significance of each equation.
3. Derive relation for curl of a vector in Cartesian co-ordinates.
5. State and prove Gauss divergence theorem. How is it different from Stokes' theorem?
6. Show that divergence of curl of a vector is always zero.

UNIT-II

1. Calculate the absolute and relative permeability.
2. The magnetic susceptibility of a material is $2.3 \times 10^{-6}$.
3. Permanent magnets are made of certain rare earth magnets and rare earth materials. Derive relation for magnetic susceptibility.
4. Show that energy loss per unit volume per cycle of magnetization is equal to area of $B-H$ curve of a material.

UNIT-III

1. Write Maxwell's equations for electromagnetic field.
2. Consider a circuit in which an inductor, $L$, a capacitor, $C$, and a resistance, $R$, are connected in series. Find the response of the circuit. Discuss physically the source of alternating current. Discuss electrically the source of alternating current.
and in has value ... when a subsheil is labelled as 's', the value of \( E \) is ...

(ii) NO;

Name the type of hybridisation of central atom in ?

(iii) Why \( Li_2CO_3 \) is unstable while \( Na_2CO_3 \) is quite stable?

(e) Define Polarisability:

Which lattice defect decreases density of ionic?

Why size of anion is bigger than neutral atom?

(f) Why many deceneable orbitals are present in \( 3d \)

(g) Why dipole moment of \( CC4 \) is zero?

Compulsory Question

Note: Attempt the questions in all sections to score full marks. Three Hours: Three Hours

Maximum Marks: 32

Paper: CH-101 (Inorganic Chemistry)

Chemistry

CSE/D-19

Roll No. 3

Total Pages: 3
SECTION A

2. (a) Why do H atoms have a high electron affinity? 
(b) Why NaCl has a high melting point? 
(c) Why is the bond length of NaCl shorter than that of KCl? 

2. Why are the ionic radii of Na and Mg smaller than those of NaCl and MgCl₂? 
(a) Ionic charge is higher for Na. 
(b) Ionic charge is higher for Mg. 
(c) Ionic charge is higher for MgCl₂. 

2. Why does NaCl dissociate in water? Does NaCl have a high or low solubility? 
(a) High solubility. 
(b) Low solubility. 
(c) Neither. 

2. Why does NaCl have a high melting point? 
(a) Strong ionic bonds. 
(b) Weak intermolecular forces. 
(c) High thermal conductivity. 

2. Why does NaCl have a high melting point? 
(a) Strong ionic bonds. 
(b) Weak intermolecular forces. 
(c) High thermal conductivity. 

SECTION B

6. (a) Discuss the shape of ClO₃⁻. 
(b) Draw the molecular orbital energy level diagram for ClO₃⁻. 
(c) What is the molecular geometry of ClO₃⁻? 

2. (a) Draw the Lewis structure of NO₂. 
(b) What is the molecular geometry of NO₂? 
(c) How many lone pairs are present on the nitrogen atom? 

2. (a) Draw the Lewis structure of NO₃⁻. 
(b) What is the molecular geometry of NO₃⁻? 
(c) How many lone pairs are present on the nitrogen atom? 

2. (a) Draw the Lewis structure of CO₂. 
(b) What is the molecular geometry of CO₂? 
(c) How many lone pairs are present on the carbon atom?
3%  
"A Collision of temperature and pressure on collision frequency."

(b) Define the term (1) mean free path. (2) Collision

2%  
"If the critical pressure is 42 atmospheres, then will be the pressure at 10.2 and 0.7 respectively. What will be the pressure of a gas."

2. (a) The reduced volume and reduced temperature of a gas.

SECTION A

1. (d) What is Boyle's temperature?

2. Briefly explain the law of constancy of interfacial

3. Give the deviations from ideal behavior. 
   Especially in terms of compressibility factor how real
   differ from an ideal gas and a real gas. Explain.

2. (b) Distinction between an ideal gas and a real gas. Explain.

1. (a) At what temperature the root mean square velocity of

Compulsory Question

Compulsory: Select two questions from each section.

Note: Attempt five questions in all. Question No. 1 is

Maximum Marks : 32

Time : Three Hours

Paper-II
(Physical Chemistry)

CHEMISTRY

793

CSE/D-19

Total Pages : 3
1. Why cooling is caused by evaporation?

2. Define surface tension. Describe any one method for measuring its value. Express the numerator and denominator in appropriate units.

3. The determination of surface tension of a liquid

4. Briefly explain the terms: (a) Point mean square velocity, (b) Diffusion.

5. Describe Andrews experiment on critical phenomena. (c) Critical constants in terms of Van der Waals's pressure and (d) Critical volume. Derive expressions for both.

6. a. What is the angle between X-rays of wavelength 1.542 and 10-10 m in a first order reflection by a plane separated by 3.5 x 10-10 m?

b. What is the angle of Bragg's equation for the diffraction of X-rays.

c. Why formula is used with an example.

d. Derive Bragg's equation for the diffraction of X-rays.

8. a. Why is the temperature at which the value of density is 1.046 cm-

b. Describe each of them.

c. Describe Oswald's method for determination of viscosity.

9. a. Calculate the molecular refraction of acetic acid at 25°C.

b. Describe the elements of symmetry in crystallography.

10. a. Why is the viscosity of the liquid.

b. Describe an expression for specific viscosity.

c. What are the factors on which specific viscosity depends?

d. Why are different X-ray diffraction patterns are remarkably different.

Both NaCl and KCl have similar structures, yet their

2. Why is sodium D light.

3. Which gives a reflection of 7.2° in a 10 cm cell at 20°C concentration in grams per litre of solution of increase

4. a. The value of [L]° for Iosep is 55.4°. Whar is the

...
Give an example of plane of symmetry.
(c) Give the type of hybridisation and structure of alkyl carbocation.
(d) Give the type of hybridisation and structure of alkene.
(e) Give the type of preparation of cycloalkanes.
(f) Give two methods of preparation of cycloalkanes.

9. (a) Define and explain reactivity–selectivity principle.

\[
\text{C}_3H_6 \\
\text{CH} - \text{CH} – \text{CH}_3
\]

(b) Give IUPAC names of the following:

\[
\begin{align*}
\text{(i)} & \quad \text{CH}_3 - \text{CH} - \text{CH}_3 \\
\text{(ii)} & \quad \text{CH}_3 - \text{CH} - \text{CH}_2 \\
\text{(iii)} & \quad \text{CH} - \text{CH} - \text{CH}_3 \\
\text{(iv)} & \quad \text{CH}_2 - \text{CH} - \text{CH}_2 \\
\end{align*}
\]

4. (a) Give preparation of alkanes by:

\[\text{(i)} \quad \text{Kohler's reaction.} \]

\[\text{(ii)} \quad \text{Addition reactions.} \]

\[\text{(iii)} \quad \text{Substitution reactions.} \]

(b) Explain the following with suitable examples:

3. (a) What are electrophiles? Give their types with examples.

4. (b) Why are all carbon–carbon bonds equivalent in benzene?
SECTION B

2. (a) What are carboxylic acids? Give their physical and chemical properties.
(b) What is a carboxylic acid and draw its structure.

2. (c) Explain the mechanism of the addition reaction.

4. (a) Explain the mechanism of the elimination reaction.
(b) What is the mechanism of the substitution reaction?

3. (a) Define the concept of conjugation.
(b) What is resonance conjugation, why is it called resonance?
(c) Why is it called resonance?

5. (a) What are meso compounds? Give examples.
(b) Explain the difference between meso and D,L compounds.

6. (a) What are functional groups? Give examples.
(b) Explain the importance of functional groups.

SECTION A

2. (a) ROH, H₂O, B₃H₃, CN-
(b) Pick up the best example from the following:
   - ROH, H₂O, B₃H₃, CN-
   - HO-CHO-CHO-CHO-

3. (a) What is the secondary carbon atom in the following compound?
But a white celestial thought
Or touch my soul to happy another
Appointed for second race
Before I understand this place
Shine in my angel-instasy!

Happy those early days, when I

OK

Why the King is despised?

Explain the expression "dull race."

Why the rulers are being compared to leeches?

What do you understand by dull race?

Name the poem and the poet.

Read the passage and answer the questions that follow:

Note: All the questions are compulsory.

Maximum Marks : 40

Time: Three Hours

ENGLISH

CSE/D.19

797

Total Pages : 7

Roll No. 123456789 X 6
1. Translate the following passage into English:

"..."
Why did Prem Chand go to attend the meeting held in Agra?

Why was Prem Chand's wife stung with grief?

Questions:

Homage to Gorky.

People say this frail man walked from his sick bed to pay his respects. He was, like Prem Chand, a writer of the poor. Writing. He was, like Prem Chand, a writer who had given blood and tears to his work. Like him, a writer who had given blood and tears to his work, Prem Chand, Gorky was nearer than his own. He was nearer to Prem Chand. Gorky was nearer than his own. When he was nearer to Prem Chand, he was nearer to his own. When he was nearer to Prem Chand, he was nearer to his own. When he was nearer to Prem Chand, he was nearer to his own. When he was nearer to Prem Chand, he was nearer to his own.

Everyone fell that his end was near. He had grown pale and breathless. This will not happen in places where there are sometimes, wages of a good part of the surface soil on a farm for which, without a single heavy shower to form soil in which, without a single heavy shower to form soil, the food that animals need. Nature takes millions of years to form soil, and under the soil, the rocks of various kinds, the surface, and under the soil, the rocks of various kinds, the surface, and under the soil, the rocks of various kinds, the surface, and under the soil, the rocks of various kinds, the surface, and under the soil, the rocks of various kinds, the surface, and under the soil, the rocks of various kinds. The trees prevent the surface soil of the earth from being washed away by shower. Our earth has a covering of fine soil on it.

Read the passage and answer the questions that follow:

For Non-Hindi speaking students in lieu of translation:

(a) Why did Prem Chand go to attend the meeting held in Agra?

(b) Why was Prem Chand's wife stung with grief?

Questions:

(a) Why did Prem Chand go to attend the meeting held in Agra?

(b) Why was Prem Chand's wife stung with grief?

Questions:
7. Do as directed:

(10) He is a coward man.

(11) Neither of his parents are Indian.

(12) Mohan and Sohan help one another.

(13) No one in their senses can do it.

(14) The sister of Ram is very good at cooking.

(15) What are the news?

(16) Correct any four of the following sentences:

(17) You are devoted... Common sense.

(18) He is afraid... Going there.

(19) I will meet him... higher.

(b) Fill in the blank with correct prepositions:

1. Make-up.

2. Wipe out.

3. Take after.

(a) Use these phrasal verbs in sentences of your own:

7. Write a paragraph on any one of the given topics.

(a) Why did everyone react?

(b) Why did Prem Chaudhary conquer?
UNIT-I

1. Describe the structure of a typical bacterial cell.

UNIT-II

2. Describe the cycle of Prokaryota.

8. Write short notes on the following:
   (a) Sexual reproduction in Prokaryota.
   (b) Asexual reproduction in Prokaryota.

7. Give a concise account of any two of the following:
   (a) Transmission of Plant viruses.
   (b) Bacteriophage.

6. Write short notes on the following:
   (a) Transformation.
   (b) Sympotems.
   (c) Symbiosis.
   (d) Saprophytes.
   (e) Prokaryotes.
   (f) Herotrophilms.
   (g) Componum.
   (h) Azotofiny.

Compostory Question

Each unit Question number 1 is compulsory. All questions carry equal marks.

Note: Attempt 4 questions in all selecting two questions from each unit.

Maximum Marks: 40

Time: Three Hours

Paper: I

BOTANY

GESE/D-19

800

Total Pages: 2
UNIT-I

4. (a) Peroxisomes and Vacuoles.

5. Explain the following briefly:


(b) Stroma and Chemical nature of cell wall.

(c) Lysosomes.

3. Write short notes on the following:

2. Describe the Ultra-structure and function of Endoplasmic

Reconstitum.

UNIT-II

(b) Peroxilosomes and Vacuoles.

(c) Glios Bodies.

2. Write short notes on the following:

3. What is cell-division syndrome in a child?

1. What is the significance of Meiosis?

2. Define Nucleo-plast complex.

3. What is microfibrils?

4. What are allozymes?

5. What is Teloromere?

6. What is Gamatia?

7. Define Oxyzones.

8. Compare prophase stage of Mitosis and Meiosis.
(a) What are lymphocytes?

(b) Name the organs of primary lymphatic system.

(c) What is Wartsheff Effect?

(d) What is NQR?

(e) Name all the large forms of Pascola.

(f) What is an amoeba?

(g) Sierofasculans

(h) Why is the gastric of Oliga (OBELTA) is called...

I. Answer the following question in not more than 20 words:

**Compassory Question**

Well labelled diagrams wherever they are necessary.

Select one question from each Section A and B. Draw

**Note**: Attempt the questions in all Q. No. I is compulsory.

Maximun Marks : 40

*Time : Three Hours*

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**ZoOLOGY**

**803**

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**CSED-D.19**
9. (f) Explain the detailed structure of IgG. What are the various forms of immunoglobulins?

6. (a) Describe the structure and function of nuclear pores.

SECTION-B

2/2

(c) Structure of a Cnidoblast

2/2

(b) Life history of Amoeba

2/2

(a) Life history of Schizosaccharina

5. While notes on the following:

- Discuss parasitic adaptations in Fascula
- Of a liver fluke
- Describe various larval stages found in the life history
- Platyhelminthes
- Discuss the general characters of Phylum Cestodaria
- Define the phenomenon of polymorphism in

3/2

(b) Difference between a polyp and medusa of Obelia

2. (a) Give an account of histology of polyp of Obelia

SECTION-A

1. Explain interphase.

(b) Why human RBC have a very short lifespan?

(f) Why are protozoans considered as simple organisms?


UNIT-I

8. Explain and draw the h-parameter model of a CE.

UNIT-II

5. Discuss the operation of a capacity filter in a full wave rectifier.

UNIT-III

4. Calculate the ripple factor in a half wave rectifier.

UNIT-IV

7. Draw and explain a circuit to find the static characteristics of a semiconductor device.

UNIT-V

6. Discuss the various current flowing in an ac supply based on the input and output characteristics.

UNIT-VI

3. Explain the operation of a voltage follower circuit.

UNIT-VII

2. Explain the operation of a emitter follower using the approximated h-parameter model for a emitter follower circuit.

UNIT-VIII

1. Why CE configuration is mostly used in amplifiers?

Compulsory Question

Note: Attempt five questions in all selecting one question from each unit. Question No. 1 is compulsory.

Maximum Marks : 40

Time : Three Hours

Paper 1

(Electronic Devices and Circuits-1)

Electronics

806

806/500/KD/171

P.T.O.

28/11/17

2. (a) Explain diode characteristics.

3. (b) Discuss a pn diode circuit clipper.

4. (c) Voltage regulation:

What is voltage regulation? Explain a zero current

4. (a) Explain the V-I characteristics of pn diode.

1. (a) Why CE configuration is mostly used in amplifiers?

2. (b) Which transistor configuration is used for impedance

3. (c) Explain avalanche breakdown in pn diode.

4. (d) Explain drift and diffusion currents in semi-conductors.

4. (e) Which transistor configuration is used for impedance

2×4=8 (2×5=10)

3×4=12 (3×5=15)

4×4=16 (4×5=20)

5×4=20 (5×5=25)

6×4=24 (6×5=30)

7×4=28 (7×5=35)

8×4=32 (8×5=40)
**GSE/D-19: 807**

**Electronics Paper-I: Electronics Devices & Circuits-I**

**Time: 3 hrs**

<table>
<thead>
<tr>
<th>NOTE : Attempt <em>FIVE</em> questions in all. Question No. 1 is compulsory. Select <em>ONE</em> from each unit.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>(Compulsory Question)</strong></td>
</tr>
<tr>
<td>1. (a) Define hole current. How are the electron-hole pairs formed? [1(\frac{1}{2})]</td>
</tr>
<tr>
<td>(b) Explain why a bridge rectifier would be preferred over two diode full wave rectifier. [1(\frac{1}{2})]</td>
</tr>
<tr>
<td>(c) Define peak inverse voltage (PIV) in a rectifier circuit. How it affects the rectifier? [1(\frac{1}{2})]</td>
</tr>
<tr>
<td>(d) Which transistor amplifier configuration is most versatile and why? [1(\frac{1}{2})]</td>
</tr>
<tr>
<td>(e) Define diffusion and drift currents in semiconductors. [2]</td>
</tr>
</tbody>
</table>

**UNIT – I**

2. (a) What are the two types of capacitances across a PN junction? Which of these is more important in forward biasing? [4]

(b) What are the various breakdown mechanisms in a junction diode. Describe the working of a zener diode. [4]

3. (a) Explain the forward and reverse characteristics of a semiconductor diode. [4]

(b) Draw and explain the operation of biased shunt clipping circuits. Sketch the input & output waveforms. [4]

**UNIT – II**

4. (a) Explain the working of a bridge rectifier. What are its advantages over two diode full wave rectifier. [4]
5. (a) Derive the expressions for ripple factor and efficiency of a centre tap full wave rectifier.

(b) What is a voltage multiplier? Draw circuits of voltage tripler and quadrupler.

**UNIT – III**

6. (a) What is Early effect? What are the consequences of base width modulation.

(b) Define alpha, beta and gamma of a transistor and obtain the relationship between them.

7. (a) Draw and explain the potential curves and minority carrier concentration of biased transistor.

(b) Draw the input & output characteristics of CE transistor. Discuss the different regions of operation.

**UNIT – IV**

8. (a) What is the conclusion of Ebers-Moll model of transistor? Explain.

(b) State and prove Miller’s theorem and its dual.

9. (a) Find the expressions for transistor amplifier parameters in term of h- parameters.

(b) Explain the use of Emitter follower.
UNIT I

1. (e) What is a program loader?
2. (d) Elaborate the concept of problem solving.
3. (c) What is machine language? Why it is required?
4. (b) Define storage capacity, access time, access mode of Random access memory.
5. (a) How does a keyboard in a computer work?

Compulsory Question

Carry equal marks.

Each unit contains 1 compulsory. All questions in each unit. Select one question from the above question.

Note: Attempt five questions in all. Select one question from each.

[Maximum Marks: 40]

Time: Three Hours

Paper-1

Computer and Programming Fundamentals

COMPUTER SCIENCE

GSE/D-19

Total Pages: 3

ROLL NO. ........................................
UNIT IV

4. Explain bottom-up programming methodology with an example.

7. Explain steps for drawing a decision table.

3. What are advantages and limitations of pseudo codes?

5. Develop pseudo code to find roots of a quadratic equation ax^2 + bx + c.

UNIT III

2. User login and password.

3. Device Management

4. Memory Management

5. Elaborate the following function of operating system i.e.,

2x4

(d) BIOS

(c) USB port

(b) Parallel port

(a) Serial port

4. Explain:
UNIT-I

(2) What is the significance of templates in Powerpoint?
(3) What do you mean by pivot table in MS-Excel?
(4) Explain the concept of formatting in MS-Word.
(5) Write short note on Windows Explorer.

Computers Question

Equal marks, select one question from each unit. All questions carry 40 marks.

Note: Attempt five questions in all. Question number 1 is compulsory. In addition to compulsory question student is allowed to attempt four more questions.

Time: Three Hours

MAXIMUM MARKS: 40

PAPER-II

(PE Software)

COMPUTER SCIENCE

811

GSE/B-19

Total Pages: 2

Roll No. 9999334455
UNIT I


8. Elaborate on the following concepts in PowerPoint:

UNIT II

4. Explain various features of MS-Word with suitable examples.

UNIT III

5. Elaborate on the following with examples in MS-Word:

(a) Mail Merge

(b) Macros

UNIT IV


UNIT I

I. Define Cache Memory.
(c) Define Recycle Bin.
(b) Define RAM.
(a) Define ASCII code.

UNIT-II

I. Write note on:
(c) Light Pen,
(a) Touch Screen.

UNIT-III

5. Explain monitor as display unit of computer. Give various
(4+4)

UNIT-IV

I. Write note on:
(4) Write note on:

Note: Attempt five questions in all. Question No. 1 is compulsory. Select one question from each unit.

Maximum Marks: 40

Time: Three hours

Paper-1

(Operating System)
(Fundamentals of Computers and Windows)

GSE/B.Tech

COURSE:

COMPUTER APPLICATION

ROLL NO. ..........................

TOTAL PAGES: 2

812/450/XD/175
UNIT-I

1. Explain various types of charts in MS-Excel.

2. Explain various mathematical operators in MS-Excel with example.

3. What is MS-PowerPoint? What is a slide? Explain.

4. Also explain different views of a slide.

5. What is Outlook Express? Explain its features and uses.

6. Also explain how to configure and use Outlook Express.

7. Explain how to arrange multiple workbook.

8. To enter data and edit data in a worksheet.

UNIT-II

1. Explain the structure of worksheet to create, to save.

2. Formatting:


4. Explain the area of use of MS-Word. Explain various menus and commands.

5. Available text styles and text attributes, paragraph and page formatting text.

UNIT-III

1. Linking worksheet and workbook.

2. Tabs and Indents.

3. Spell and Thesaurus.

4. Animation and sound effects.

5. Explain the following:

COMPULSORY QUESTION

Note: Attempt five questions in all, selecting one question from each unit. Question No. 1 is compulsory. All questions carry equal marks.

PAPER-I

OFFICE AUTOMATION TOOLS

COMPUTER APPLICATION

813

Total: 19
UNIT-I

Write short note on the following:
1. What is IPK?
2. Discuss its advantages and disadvantages.
4. Role of Biotechnology in Food Industry.
5. Discuss role of Biotechnology in management of waste.
6. What are Recombinant DNA Technologies?
7. How can Biotechnology help the farmers?
8. What are monoclonal antibodies and how these are being produced?
10. Immobilized Enzymes.

UNIT-II

Write short note on the following:
1. Define Vaccines.
2. What are single cell proteins?
3. Define Transgenic Animals.
4. What is Trade secret?
5. Define Somonomial Varitions.
6. Expand VNTR.
7. What is suspension culture?
8. Give brief answer of the following:
   - What are Recombination enzymes?
   - Define restriction enzymes.

Compulsory Questions

Each unit question No. 1 is compulsory.

Note: Attempt five questions in all, selecting two questions from each unit.

Maximum Marks: 40

Time: Three Hours

Paper 1

Introduction to Biotechnology

BIOTECHNOLOGY

816

CSE/D-19

Total Pages: 2