1. Describe the Chunnel Project scene.

2. Why do the subtitles represent in the play a Commissioner?

3. How does Musketeer get the title of the Grand Master?

4. Answer any five of the following questions in about 150 words each:

The title is deceptively good and bad. For goodness sake, don't check these lines, then the question

You have been nagging me.

Speak when I speak, where to the speak, where to hear.

And see which gain will grow and which will not.

If you can look into the faces of men.

Note: brave and noble.

SUCCESS

1776

GSO M-16

Total Pages: 4
5. In addition to taught subjects, a list of optional subjects is made available. A student must take a minimum of 12 hours of these optional subjects. The number of subjects taken is determined by the student's admission. The subjects include physics, chemistry, mathematics, and biology. These subjects are typically taught in a single lecture hall, with a maximum of 50 students per class. There is a strict adherence to the curriculum, and students are encouraged to participate actively in class discussions.

10. Finally, students are required to attend a training session on workplace ethics. This training is designed to prepare students for the workplace by teaching them the importance of honesty, integrity, and professionalism. Students are also given the opportunity to ask questions and discuss their concerns with the faculty. This training is mandatory for all students and is an essential part of their educational experience.
z = ia - 5 = 'l

(a) 12.3 the text is in "" "
12.0 is not in the section (b) a prelude to the text

(c) the text is in "" "

Time: Three hours

For Fresh Candidates (Only)
Panjab University (Examinee)

GS0/M-16

Total Pages: 05

Roll No: ...
<table>
<thead>
<tr>
<th>Q.</th>
<th>22</th>
<th>21</th>
<th>20</th>
<th>19</th>
</tr>
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<tbody>
<tr>
<td>(p)</td>
<td>(p)</td>
<td>(c)</td>
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<td>(a)</td>
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VIII.

(1) የፋርት ያርካታን በፋርት ይወጣ ይታሰብ

(2) በፋርት የተካሄወ ይታሰብ

(3) በፋርት ይታሰብ

(4) በፋርት ይታሰብ

VIII.

(1) የፋርት ይወጣ ይታሰብ

(2) በፋርት ይታሰብ

(3) በፋርት ይታሰብ

(4) በፋርት ይታሰብ
There are five questions in this part.

Choose the correct answer in the following questions.

1. Which of the following is correct?
   A. Modern World
   B. History
   C. Option 1
   D. Option 2

2. Which of the following is not correct?
   A. Modern World
   B. History
   C. Option 1
   D. Option 2

3. Which of the following is correct?
   A. Modern World
   B. History
   C. Option 1
   D. Option 2

4. Which of the following is not correct?
   A. Modern World
   B. History
   C. Option 1
   D. Option 2

5. Which of the following is correct?
   A. Modern World
   B. History
   C. Option 1
   D. Option 2
When did the Constitution of America come into force?

When did the fleet reach the south pole?
When did World War I begin?
1. Choose the correct alternative:

A. 7
B. 9
C. 16
D. 20

Note: Answer five questions in all sections at least one.

Time: Three Hours

Section: Aspects of Indian Economy

ECOMONICS

GSOM-16

Total Pages: 06

9. What are the main causes of low remuneration ratio in...
(a) India is the largest borrower of World Bank.

(b) Which of the following is the highest import item?

   (i) \( \text{a) } \)
   (ii) \( \text{b) } \)
   (iii) \( \text{c) } \)
   (iv) \( \text{d) } \)
   (v) \( \text{e) } \)

(c) Which is the maximum direct investment flows is

   (i) \( \text{a) } \)
   (ii) \( \text{b) } \)
   (iii) \( \text{c) } \)
   (iv) \( \text{d) } \)
   (v) \( \text{e) } \)
7. Describe the achievements and shortcomings of Israel.

8. Describe the achievements and shortcomings of India.

9. Explain the main disadvantages of WTO to India.

10. What do you mean by trade and financial institutions?

11. Explain various sources of agricultural income in India.

12. What are the mainShortcomings of agricultural income in India?
Human Development

302

HOME SCIENCE

1793

GSO/M-16

Total Pages: 04

ROLL NO. 41

1. Explain the characteristics of childhood

8. Discuss the stages of pregnancy

7. Explain

(a) Maternal

(b) Infantile

(c) Signs of pregnancy

(d) Education of the child

Comprehension Question

1. True or False: The concept of intelligence is used for measurement of intelligence (True)

I. State whether the following statements are True or False:

(a) Parent Education Policy

(b) Parent Education Policy

(c) Peer Pressure

(d) Counsel

(e) Cold

9. Explain the following:

22.22

Maximum Marks: 40

Time: Three Hours
2. Write short notes on the following:

Unit 1

1. Define learning and explain the different factors which affect the process of learning.

2. Write notes on the influence of personality, habit, and intelligence on learning.

3. Define intelligence. Write the different methods of measuring the intelligence of a person.

4. Types of personality. List the types of personality.

5. Explain the role of play in learning.

6. What causes the decrease in learning ability in older age? State two causes.

7. Discuss the factors affecting learning in children.

8. State three difficulties faced in the teaching of children with learning disabilities.

9. What is the role of home in the development of children's learning abilities?

10. What are the advantages and disadvantages of the use of technology in teaching?
1. Discuss the role of education in the influence of behavior.

2. Explain socialization through sports in detail.

(Time: Three Hours)

HEALTH AND PHYSICAL EDUCATION
1977

Note: Attempt five questions in all sections at least one.
10 \times 2 = 20

8. What are the effects of exercise on different systems?

10 Explain the mechanism of digestion in detail.

IV. UNIT IV

9. (1) What is digestion?

10. Explain the importance of diet and in detail.
1. Write down the notation of any range of notes.

   Example:

   C4 D4 E4 F4

   Time: Three Hours

   Paper I (Theory)

   MUSIC-INSTRUMENTAL

   1999

   GSO/M-16

   Total Pages: 03
1. Explain the contribution of Ul. All Akbar Khan in promoting Sufi music.

2. Write the history of Indian Music during 17th to 19th century.

3. Write a brief introduction of notation system with its features.

4. Write the notation of any Rag in Hariprasad Chaurasia.

5. Explain and write the role of electronic media in promoting and popularizing Indian classical music.

6. Explain the function of Ul. All Akbar Khan in promoting Sufi music.

7. Explain the contribution of Ul. All Akbar Khan in promoting Sufi music.
2. Explain the basic principle of operations of computer.

(b) Differentiate between analog, digital and hybrid circuits.

1. (a) Explain various characteristics of computers.

Time: Three Hours

Mark: 80

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

**Theory**

Computer Applications in Office Management

1810

GS/M-16

Roll No. 04

10. Write short notes on the following:

- (a) Cables
- (b) Bus
- (c) CPU
- (d) O.S. (Operating System)
- (e) RAM
- (f) ROM
- (g) CD-ROM
- (h) Memory card
- (i) Pen drive
6. What do you mean by word processor? Explain its uses.

7. When do you mean by memory? Explain various types of memories.

8. Write a short note on Electronic Data Processing.

9. Write short notes on the following:
   (a) GUI
   (b) WWW and its elements
   (c) WAN and LAN
   (d) What do you mean by network? Differentiate between LAN and WAN.

10. What do you mean by video conferencing? Explain.

11. Explain why websites are called hypermedia.

12. Explain the importance of user interface.

13. Define and explain the following:
   (a) Operating System
   (b) Application Software
   (c) System Software
   (d) Access Time
   (e) Share capability
For all $v \in V$, prove that:

$$\|v\| = \|T(v)\|$$

Let $T: V \rightarrow W$ be a linear transformation. Then:

1. For all $v \in V$, show that $W$ is a subspace of $V$.
2. Let $\{0\}$ be the field of real numbers and $\{v, w\}$ be a vector of real numbers.

**Computation Question**

Question from each letter. No. 1 is compulsory.

Note: Attempt all questions in all sections at least once.

Maximum Marks: 26

Time: Three Hours

Linear Algebra

RM 362

Mathematics

GGM/M-16

Total Pages: 04

Roll No. 04

Unit 3
Let $\mathbf{v} \in \text{Ker}(T)$ and $\mathbf{w} \in \text{Range}(T)$.

Prove that if $\mathbf{u} \in \text{Ker}(T)$, then $\mathbf{u} \perp \text{Range}(T)$. Let $\mathbf{v} \in \text{Ker}(T)$ be a vector in the kernel of $T$. Then, for any vector $\mathbf{w} \in \text{Range}(T)$, the dot product $\langle \mathbf{v}, \mathbf{w} \rangle = 0$. Therefore, $\mathbf{v}$ is orthogonal to every vector in the range of $T$.
1. acceleration

with constant angular velocity. Find the radial

A particle descends an incline with speed \( v_0 \).

(c) \( a \)

1. Show that in space, the particle moves at right angles

to radius vector.

(c) \( a \)

1. Define SHM and its amplitude.

(b) \( q \)

1. Define angular acceleration along a plane curve.

(c) \( a \)

(Compulsory Question)

Question from each line. 0 No. 1 is Compulsory.

Note: Attempt Five questions in all, selecting at least one

Maximum Marks: 27

Time: Three Hours

Dynamics

BM-363

MATHEMATICS

GSQ/M-16

1824

Roll No:

Total Pages: 05
Unit III

\[ \text{A particle slides down the outside of a smooth sphere.} \]

1. Potential energies are conserved throughout the motion.

2. Two particles are dropped from the same point at the same time.

3. Prove that the work done against the tension in

\[ \text{is } \frac{1}{4} \text{ in the first } 4 \text{ seconds.} \]

4. A particle moving with a uniform velocity

5. A smooth horizontal table, the string passes over a high point in the first 12 seconds.

6. Find the safety factor of the tension and the maximum tension and the net force at the top. Show that the angle of friction is equal to the angle between a high elastic string and the product of the angle and the mass of the object.

7. Two scale pans each of mass 2 kg are connected by

\[ \text{the string and the pressure on the pulley.} \]

8. Two particles of masses \( m_1 \) and \( m_2 \) are connected by

\[ \text{Unit II} \]

9. A particle moving with SHM of period 1.2 seconds.

10. Frictional forces and the means of the initial and final tension of the same string is equal to the product of the angle and the mass of the object.

11. Accelation of a point in a plane curve.

12. Two scale pans each of mass 2 kg are connected by

\[ \text{Two particles of masses } m_1 \text{ and } m_2 \text{ are connected by} \]

\[ \text{Two particles of masses } m_1 \text{ and } m_2 \text{ are connected by} \]

\[ \text{Two particles of masses } m_1 \text{ and } m_2 \text{ are connected by} \]
(a) Find the equation of the path is 
\[ x = r \cos \theta \]
of a central acceleration with the velocity from infinity under the action of a particle is projected from an angle at a distance in polar coordinates.

(b) Prove differential equation of central orbit in polar coordinates.

Finally,

\[ \frac{x}{l} = \frac{2a}{r} + \frac{1}{l} \]

and the component of the velocity at the ends of a chord of projectile's path and the horizontal chord are parallel.

(c) If \( v_1 \) and \( v_2 \) be the velocities at the ends of a chord, prove that 

\[ \frac{v_2}{l} = \frac{v_1}{l} \sin \theta 
\]

If the vertex is above the plane of projection and the point of projection is in the plane of projection, then the focus of a reflective lens is below the vertex.
(a) Discuss the nature of different transformations.

(b) Find the equation of reflection and angle of reflection.

(c) Prove that the equation of a line halves the line if:

\[ \frac{x + t}{L} = \frac{y}{Y} \]

(d) Find the equation of reflection and angle of reflection.

(e) Under the transformation \( y = \frac{1}{2} x \), draw the hyperbola and also draw the hyperbola under the transformation \( y = \frac{1}{2} x \).

(f) Find the image of the hyperbola after the transformation:

\[ y = \frac{1}{2} x \]

(g) Prove that a linear function maps two distinct fixed points \( (0,0) \) and \( (1,1) \) to the plane, turn the transformation by 45°.

(h) Find the transformation which maps the point \( z = 1 \) to \( \frac{1}{2} z \).

(i) Find the function \( f \) is continuous if:

\[ f(z) = \frac{1}{z} \text{ for } z \neq 0 \]
The value of \( n \) in
\[
\frac{e^x + x^2}{x} + A - A = 1
\]
and
\[
x = n = f(z)
\]
for \( x \) in the interval \((0, 1)\), prove that the Fourier coefficient (i.e., \( c_n \)) and
\[
\sum_{n=1}^{\infty} c_n \sin nx
\]
are not sequences of bounded and integrable functions on \([-\pi, \pi]\) and \( y \). Prove that the Fourier coefficients (i.e., \( c_n \)) and
\[
\sum_{n=1}^{\infty} c_n \sin nx
\]
are not sequences of bounded and integrable functions on \([-\pi, \pi]\) and \( y \).
1. (a) Define rank and nullity of a linear transformation. (b) Define ortho-normal complement of a vector space. (c) Define orthonormal complement of a vector space. (d) Define orthonormal projection of a vector space. (e) Prove that similar matrices have same characteristic polynomial. (f) Define normed vector space. (g) Prove that the sum of subspaces is a subspace of the product space. (h) Prove that the sum of subspaces is a subspace of the product space.

Note: Attempt five questions in all sections at least one.

Time: Three Hours

Linear Algebra

BM-362

Mathematics

19833

Total Pages: 16

Roll No. 01

\[ \langle \mathbf{v}, \mathbf{a} \rangle + = \mathbf{v} - \mathbf{a} + \mathbf{n} + \mathbf{n} + \mathbf{n} + \mathbf{n} + \mathbf{n} \]

Then:

Show that if \( \mathbf{v} \) are vectors in an inner product space \( V \), show that \( \mathbf{T} \) can be an inner product space of finite dimensions.

(b) Let \( V \) be an inner product space. Then show that:

[Further details and questions related to linear algebra and inner product spaces are present in the document, but not transcribed here.]
Section I

(1) Prove that if \( L \) : \( \mathbb{R}^n \rightarrow \mathbb{R}^n \) is a linear transformation then \( L^{-1} \) is isomorphic to \( \mathbb{R}^n \) in \( \mathbb{R}^n \) and \( L^{-1} \) is also invertible. Find the characteristic polynomial of \( L^{-1} \) and its roots.

(2) Prove that \( \mathbb{R}^n \) is a subspace of \( \mathbb{R}^n \) if and only if \( \mathbb{R}^n \) is a subspace of \( \mathbb{R}^n \). Find the set of vectors \( \{v \in \mathbb{R}^n : v \neq 0 \} \). (q)

Section II

(3) Let \( W \) be a subspace of \( \mathbb{R}^n \). Find a basis for \( W \). Show that \( W \) is a subspace of \( \mathbb{R}^n \). (t)

Section III

(4) Let \( S \) be a set of vectors in \( \mathbb{R}^n \). Find a basis for \( S \). Show that \( S \) is a subspace of \( \mathbb{R}^n \). (t)
Conclusion (p. 16) Find the acceleration of the masses.

mass of 2 kg is on the other end. If the coefficient of
friction is 0.2, the mass of the brick is 10 kg and the speed of
the mass is 5 m/s. Calculate the force of friction acting on the
brick and express it as a fraction of the weight of the brick.

A mass of 4 kg is drawn across a rough horizontal
surface. The frictional force is 20 N. Calculate the
acceleration of the mass.

2. (a) The velocity of the passing train
the same direction takes 4 seconds to pass by.
When
when which is 100 m long and moving constantly.

Passenger train is in a train with velocity 90

Passenger train is in a train with velocity 90

[Diagram Question]

All questions carry equal marks.

Question from each Section. 9 No. 1 is compulsory.

Note: Attempt 5 questions in all, selecting at least one

Answer Mark: 40

Total Marks: 40

1834 1834 1834 1834 1834 1834 1834 1834

09/17/91 1834

Total Pages: 05

Request No: 05
Find the centripetal and normal acceleration at

A particle moves along the curve \( x = \theta \) and \( y = \theta \). (q)

Velocity of the particle

where \( \alpha \) is the

tangent vector and \( \text{normal} \) to the path of the particle makes an angle \( \alpha \) with the radius
of the path. Vector sum of the normal and centripetal

Section

Initial conditions and the initial and

force that the work done against the tension in

period of

Hooke's law motion whose amplitude is

and

\( q + \frac{\pi}{2} \) is

\( x = \text{cos} + \text{sin} \) then it describes a simple

motion in a straight line is expressed by the equation

Show that if the displacement of a particle moving

1
8. (a) Prove that if a particle moves with a central acceleration, then the distance covered by the particle is given by

\[
\frac{d}{dt} \left( \frac{v^2}{2} \right) = a \cos \theta
\]

where \( v \) is the velocity of the particle and \( a \) is the central acceleration.

Section III

(a) A heavy particle slides down a smooth cylinder, showing that the centripetal acceleration is equal to the acceleration of the particle due to gravity.

(b) A particle moves along a smooth curve, showing that the acceleration is perpendicular to the tangent of the curve.
end of $3$ seconds.

The amplitude, maximum velocity and the velocity at the peak is $12$ seconds and $10$ inches in $3$ seconds. Find

(a) A particle starting from rest and executing SHM of the train.

(b) The train, with which it appears to strike the passerby strikes in the direction of the velocity of the stone

(c) At right angle with a speed of $33$ km/h. Find the

(d) A train is moving at a speed of $44$ km/h. A stone strikes

...}

UNIT I

Define power giving units in W.K.S. and P.S.

Write the formula for horizontal range and line in

Determine Newton's Third Law, and Kepler's Law.

If the tangential and normal accelerations of a particle

...
UNIT I

8. The greatest and least velocities of a planet in its orbit
under a force to the pole. Find the law of force.
(a) A particle describes the path of revolution. 
(b) Obtain the differential equation of central orbit in
rectangular co-ordinates.

UNIT II

4. (a) A train of mass M is subjected to a smooth incline of
deceleration is \( f \), and \( \mu \) is the effective force.
Prove that the frictional force of weight of the balloon that must
be doubled in order to double its acceleration is \( \frac{520\text{N}}{\sqrt{8 + f \mu}} \).

UNIT III

1. (a) If the string of an Archimedes' screw can bear a strain of
\( \frac{8}{1} \), speed is raised to \( 45 \text{ m} / \text{h} \).
(b) If at any point on a parabolic path velocity be \( n \)
the lower of the point where it hits the ground.
(c) The lower of the point where it hits the ground.
(d) At any point on a parabolic path velocity be \( n \).
(e) The lower of the point where it hits the ground.
(f) The lower of the point where it hits the ground.
(g) A friction of 30° with the weight.

3. (a) An engine of mass 30 tons pulls after it a train of

2. (a) A ball is thrown from the top of a tower 200 ft high with

\( v_0 = \sqrt{2g(h + 200)} \).
For a simple cubic lattice,

\[ \text{(b) Obtain a relationship between the incommensurate spacings} \]

5 dimensions.

Explain different types of Bravais lattices in three dimensions.

2. (a) When do you understand by Bravais lattices?

Unit

2

Explain molecular association.

2

Explain magnetic levitation.

2

What is the need of reciprocal lattice?

2

What is a unique space primitive cell?

Note: (1) No. 1 is compulsory. Answer four more questions.

Maximum Marks: 40

Time: Three Hours

Solid State and Nano Physics

Paper XI, Ph-691

PHYSICS

1857 GSO/M-16

Total Pages: 03

Red No. 03
3. (a) What do you understand by a space lattice, unit cell, primitive and non-primitive cell? 
(b) Define and explain Miller indices and write down their important features.

**Unit II**

4. (a) Discuss the rotating crystal method of X-ray diffraction for crystal structure analysis.
(b) Show the reciprocal lattice of a simple cubic lattice is itself a simple cubic lattice.

5. (a) Explain the concept of reciprocal lattice and discuss its properties.
(b) From the following data, calculate the wavelength of the neutron beam and the speed of neutrons. Given $\phi = 30^\circ$, $d = 3.84\AA$, $n = 1$. Take the mass of neutron $= 1.67 \times 10^{-27}$ kg.

**Unit III**

6. (a) Define superconductivity. What is the significance of critical temperature, critical magnetic field and critical current density for superconductors?
(b) Explain the difference between type I and type II superconductors.

7. (a) What is Josephson’s effect? Discuss d.c. and a.c. Josephson’s effects and explain their importance.
(b) The actual energy gap at 0 K in lead is $2.73 \times 10^{-3}$ eV.
(i) What is the critical temperature according to BCS theory?
(ii) Radiation of what minimum frequency could break apart copper pair in lead at 0 K.

**Unit IV**

8. (a) What is scanning electron microscope (SEM)? Explain its construction and working.
(b) Discuss the application of nanotechnology in the field of automobile industry.

9. (a) Explain the benefits and challenges in molecular manufacturing of nano-structure.
(b) Discuss the application of nanotechnology in the field of Biotechnology.
2. Discuss vector form also and various quantum nos.

3. (a) Discuss hydrogen absorption spectra associated with H.

1. (a) What is the importance of atomic or molecular

1.4=8

2. The energy levels of a molecule, \( E \) =

(c) Explain Pauli's exclusion principle.
(d) Explain quantum of rotational or vibronic

Note: 10 is compulsory. Answer four more questions.

Maximum Marks: 40

Number of Questions: 03

Total Pages: 03

1838

Paper XII

PHYSICS

GEO/M-16
1. What is Zemann Effect? Give its classical explanation.

2. What do you mean by hyperbolic structure of special relativity?

3. Discuss hyperbolic sine function in case of L-S complement.

4. Discuss hyperbolic tangent function in case of L-S complement.

5. What is Larmor precession? State and prove Larmor's postulate.

6. What are precessing and non-precessing orbits?

7. Explain special orbits:

8. (a) Prove that the relation in the Zemann frame is given by $\theta = \frac{\beta}{\sqrt{1 - \beta^2}}$.

9. (a) Prove that the relation in the Zemann frame is given by $\theta = \frac{\beta}{\sqrt{1 - \beta^2}}$.
Section A

Questions from each Section

Note: Answer four questions in all sections at least one.

Translation Marks: 27

Time: Three Hours

Inorganic Chemistry

Paper XWII OPE (CH-304)

CHEMISTRY

1839

GSO/M-16

Red Xerox

Total Pages: 9
1. Give any uses of phosphates.

2. Write the following:

   (a) \( \text{NpCl}_4 \) + 6KSO\( _4 \)
   (b) \( \text{NpCl}_4 \) + 6Na\( _2 \)PO\( _4 \)
   (c) \( \text{NpCl}_4 \) + 6ClH\( _4 \)

3. How is \( \text{HClO}_4 \) more acidic than \( \text{HNO}_3 \)?

4. What are the essential elements used in biological functions of \( \text{HNO}_3 \) and \( \text{HClO}_4 \)?

5. What are the differences and similarities in the structure of \( \text{HNO}_3 \) and \( \text{HClO}_4 \)?

6. Discuss the role of Ca\( _2 \) in biological systems.

7. Why is CO\( _2 \) stable while \( \text{NaClO}_3 \) is unstable?

8. (a) When are isomorphous in biological systems? How is it
   (b) When are fundamental requirements of biological
   (c) When are metabolomers?

Section B

1. \( \text{H}_2\text{O} \) and \( \text{H}_2\text{O}_2 \): What is PCA? How is \( \text{H}_2\text{O}_2 \) more acidic than
   (a) Explain the structure of \( \text{H}_2\text{O}_2 \) and \( \text{H}_2\text{O} \).
   (b) When are Lewis acids and bases given?
   (c) When are fundamental prerequisites of HSB principles?
   (d) Why is \( \text{H}_2\text{O}_2 \) stable, while \( \text{NaClO}_3 \) is unstable?

2. Explain how \( \text{H}_2\text{O}_2 \) and \( \text{CO}_2 \) behave as Lewis acids.
2. (a) Write a short note on fluorescence and fluorescence. What is the difference between phosphorescence. What is the chemical reaction of phosphorescence. What is the chemical reaction of fluorescence?

(b) Write a short note on electronic absorption and electronic spectroscopy.

(c) Write a short note on electron transfer and electronic spectroscopy. Also, draw an electron transfer and explain this concept. Explain why and why not. How do you determine the mechanism and what happens if an acid is not present? Explain the mechanism of acid and base and how to determine the mechanism of acid and base.

1. (a) Which is the correct symbol of molecules in Section 1?

Note: Answer five questions in all sections at least once.

Time: Three hours

Maximum Marks: 26

Physical Chemistry (Theory)
PAPER XIX (CH-30)

CHEMISTRY

1840 GS/M-16

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

TOTAL PAGES: 03
Section II

1.  Explain the terms used with examples.

2.  State phase rule and explain the significance of mass observed in certain cases.

3.  Write out all the properties which are abnormal molecular properties. Write them down at the point of contact between the stable phase diagram and water solution.

5.  (a) Draw a well-labeled phase diagram and water solution.

6.  (a) Draw a well-labeled phase diagram and water solution.

7.  (a) When do you interpret from the slope of the melting point curve.

8.  (a) Draw a well-labeled phase diagram and water solution.

9.  (a) When do you interpret from the slope of the melting point curve.

10. (a) Draw a well-labeled phase diagram and water solution.
1. Give the equation for the reaction of dibromo methane with:

(a) Sodium

(b) Hydrogen bromide

(c) Sodium hydroxide

1. Give the following:

(a) The name of dibromo methane

(b) The molecular formula (PN)

1. Prepare a diagram of dibromo methane by classifying the following:

(a) Synthesis

(b) Reaction

(c) Preparation of dibromo methane

1. Write the structures of ketone and aldehydes of:

(a) 1-bromo-2-propanone

(b) 2-bromo-1-propanone

1. Give names and structures of mononuclear units of polycondensation involved. Give one example of each with preparation and use.

(a) When are polymers and polynuclear? Name the types.
Section A

1. Polymerase Chain Reaction (PCR):
   (a) 8-8
   (b) Electroosmosis
   (c) COSMID Vector
   (d) Restriction Nucleases Enzymes
   (e) Recombinant DNA technology

2. Name the hormone which induce de novo synthesis of hydrophilic enzymes
   (a) When is Bolting?
   (b) Name derived from which amino acid
   (c) Define Coenzyme

3. Complexory question:
   Carry equal marks.

Attempt two questions from each unit. All questions carry equal marks.

Maximum Marks: 40

Section B

Biochemistry & Plant Biotechnolgy

Biology

Botany

1844

GS0/M-16

Roll No. ------------------------------------------

Total Pages: 02

5. Write note on the following:

(a) Lysosomal Lipase

(b) Apoptosis

(c) Abstract and its growth inhibition

(d) Cholesterol

6. Write note on the following:

(a) Hydrophilic Coenzyme

(b) EH 2

(c) Hydrophilic Coenzyme Concentration

(d) Where do you mean by Genetic Engineering? Give an int.
Give a concise account of origin, distribution, botanical, economic and uses of coconut. 

1. Write short notes on the following:
   (a) coconut
   (b) palm
   (c) bamboo

2. Which are spices?
   (a) (b) (c) (d) (e)
   Which is hallucinogen?
   (a) (b) (c) (d) (e)
   Which region is most suitable for coconut?
   (a) (b) (c) (d) (e)
   How is coconut oil obtained?
   (a) (b) (c) (d) (e)
   Why are coconut nuclets in demand?
   (a) (b) (c) (d) (e)
   Which part of coconut contains the oil?
   (a) (b) (c) (d) (e)

3. Which of the following are sources of protein?
   (a) (b) (c) (d) (e)

4. Write short notes on the following:
   (a) Gurjum
   (b) Sugar
   (c) Senna

5. Which of the following are sources of carbohydrates?
   (a) (b) (c) (d) (e)

6. Write a concise account of morphology of palm plant used.
Zoological name of the skin pore

(a) Cephalopods
(b) Molluscs
(c) Fishes
(d) Insects
(e) Reptiles
(f) Birds
(g) Mammals

(b) Explain the following in about 20 words:

1. Aquaculture and pest management
2. Paper I
3. ZOOLOGY
4. 1846

Max. Marks: 40

Time: Three hours

Total Pages: 03
Section B

5. While now on the following:

(a) Cold water showers

(b) Soothe (rushing)

(c) Three false (rushing)

(d) Three false (rushing)

(e) Soothe (rushing)

6. While now on the following:

(a) False (rushing)

(b) False (rushing)

(c) False (rushing)

(d) False (rushing)

(e) False (rushing)
I. Name the phonetic name used for control of

(1) (a) What are the phonetics?

(2) When do you mean by phonetics?

(3) When is International?

(4) Define Lead.

(5) Name the years used for span collection.

(6) (a) (b) (c) (d) (e) (f) (g) (h) (i) (j) (k) (l) (m) (n) (o) (p) (q) (r) (s) (t) (u) (v) (w) (x) (y) (z)

**Compulsory Question**

Compulsory: All questions carry equal marks.

Allocate five questions in all sections of least one question from each section. Question No. 1 is

Note: Attempt five questions in all sections at least one.

Maximum Marks: 40

Time: Three Hours

Agricultural and Forest Management-II

Paper-I

ZOOLOGY

GSQ/M-16

1847

Roll No. 03

Total Pages: 03
Section A

1. Describe invasive species and resource investment techniques.

2. Explain the factors that influence a species' invasion potential.

3. Discuss the potential impacts of invasive species on local ecosystems.

4. Explain the role of human activities in the spread of invasive species.

5. Discuss the role of invasive species in disrupting ecosystem services.

6. Describe the impact of invasive species on human health and agriculture.

Section B

3. Discuss the following:

4. Explain artificial reef technology and its role in marine conservation.

5. Discuss the role of artificial reefs in marine conservation.

6. Have you ever visited an artificial reef? If so, describe your experience.

7. Discuss the importance of artificial reefs in marine conservation.

8. Explain the benefits of artificial reefs for marine biodiversity.

9. Discuss the potential drawbacks of artificial reefs for marine conservation.
(a) Make a control word for the following configuration of 8255 A in mode 0:

Port A: input
Port B: output
Port C: input

(b) Differentiate between Hardware and software interrupt in brief.

(c) How many counters are there in 8253 and how are they selected?

(d) Elaborate in brief the role of DMA in data transfer.

Note: Attempt Five questions in all, selecting at least one question from each Unit. Question No. 1 is compulsory.

[Maximum Marks: 10]

1. ELECTRONIC MICROPROCESSOR ARCHITECTURE AND PROGRAMMING-II

(Paper-I)

Time: Three Hours

Roll No. 

Total Pages: 03

1850
UNIT III

5. Discuss in detail the model I control configuration of 8255. Write an assembly language program to generate a square wave of 1 KHz frequency using 8255.

6. Explain the bit pattern of control word format of IC 8255 along with its control word and status word.

UNIT IV

2. The wave should be available at PA pin of Port A where we use the 2nd pin of PA.

3. Write a program in assembly language to generate a square wave of 1 KHz frequency using 8255.

4. (a) Discuss the bit pattern for control word format of 8255.

5. Explain the differences between maskable and non-maskable interrupts. What is an interrupt? How data is transferred in interrupt E1 and D1 instructions with the aid of examples.

6. (a) Discuss the bit pattern for important data transfer.
2. (a) Discuss the need for and logical operations in C.

2. (b) Explain the purpose of expressions.

9. (a) How are multidimensional arrays declared in C?

9. (b) Explain the meaning of the declaration.

2.2.4

(a) How are multidimensional arrays declared in the program?

(b) What is the purpose of the print function?

(c) Name and discuss the four basic data types in C.

1. (a) What is the purpose of the data type int?

1. (b) What is the purpose of the data type float?

2. (c) Name and discuss the four basic data types in C.

4. (a) How do you use a pointer variable declared in the program?

4. (b) What is the significance of the data type int?

4. (c) Describe the array that is declared in the following:

```
{1, 2, 3, 4, 5, 6, 7, 8, 9, 0}
```

(c) Do you agree with the statement that an extra character is automatically added to the end of an unquoted string?

When a one-dimensional character array ends with a null character, what is the difference between passing by value and passing by reference?
4.4

Unit I

{.
  printf("x, y, z = %d, %d, %d\n", x, y, z);
  
  int i;
  
  for (i = 0; i < n; i++)
  
    printf("x = %d\n", x);
    x = x + 1;
  
}

4.4

Unit II

{.
  int x;
  
  if (x > 15)
  
    printf("x is greater than 15\n", x);
  else
  
    printf("x is less than or equal to 15\n", x);
  
}
Discuss briefly and logically operations in C.

(a) Explain the purpose of expressions.

2. (a) Explain the meaning of the declarations:

(i) double a[12];
(ii) int * p = &a;
(iii) char C[2] = "CD";

(b) Name and discuss the four basic data types in C.

(c) While are one-dimensional arrays declared? When is the purpose of the print function? How is it used within a program?

(d) What are multidimensional arrays declared? Compare with the manner in which one-dimensional arrays are declared.

Comptuer Question

Attempt one question from each unit.

Note: Attempt five questions in all. No. I is compulsory.

Time: Three Hours
Maximun Marks: 40

1. Introduction to C and its Programming

Paper II (TH)

Electronics

1851

GS0/M-16

Roll No. 04

Total Pages: 04
1. Write short notes on the following:

(a) Draw a sketch of a network data model.
(b) Write the conditions for 2nd normal form.

2. **Compulsory Questions**

Questions carry equal marks.

Note: Students are required to attempt all the questions in each section.

**Note:** For Regular Students only

Relational Database Management System

Paper-I

Computer Science

G50/M-16

Total Pages: 01
7. Discuss the different types of controlled variations with examples.

8. (a) Role and Comment Statement
(b) Alter and Update Statement

Example: 

6. Explain the following SOL statement with syntax and

Unit III

5. What is Normalization? Why do we need it? Discuss

8/5

4. What do you mean by Relational Calculus? Differentiate

Unit II

8/5

3. What do you mean by Data Model? Draw a comparable

network data model.

4. What is relational algebra? Discuss relational-orientated

and set-oriented operations with suitable examples.

8/3

2. What is SOL? Draw a SOL diagram of different control statement used in

Unit I

8/5

1. What is PL/SQL? How are variables declared in

PL/SQL? Write a note on EXCEPTION block.

8/5

9. What are the advantages of PL/SQL? How control

structure achieves inherent control in PL/SQL?

8/5

Writing: (d) List the name of different control statement used in

(c) Difference between Primary Key and Unique Key.
(a) What is shortest path algorithm?
(b) What is pure AI/HC?
(c) What is term and types of term?

(iii) Define Protocol.
(iv) Explain various elements of protocol.
(v) Define Computer Network.
(vi) Explain various types of computer network.

1. (i) Define Computer Network.

Note: Attempt five questions in all selecting at least one.

Time: Three Hours
Maximum Marks: 80
Paper II
COMPUTER SCIENCE

1853
550/M-16
Total Pages: 03
(2) Token Ring

(b) Show ALLOHA

6. Explain the categories of Collision
connection.

7. Write short notes on the following:

(a) Explain various methods of error detection and

Unit IV

5. Write short notes on the following:

(a) Bandwidth and Data Rate

(b) Explain various types of switching

Unit III

3. Write short notes on the following:

(a) Explain various types of

network topologies

2. Why is OSI model used? Explain various layers of OSI

Unit II

8. What is routing and types of routing algorithms?

9. Write short notes on the following:

Digital Signatures

(2) Congestion Control
Unit IV

7. Explain 2-D Animation Techniques with emphasis on Digital Sound.

8. Define Sampling, Frequency, Sound Depth and Channels.

Unit III

8. Explain various Animation Techniques.

7. Explain the forms of human eyes in Multimedia. Also, discuss various

6. Define bases of multimedia. Also discuss various

5. Explain multimedia tools in Multimedia. Also discuss various

4. Define multimedia applications. List some tools.

3. Explain multimedia applications. List some tools

2. Define multimedia. Explain its use in entertainment and

1. Define multimedia applications. List some tools.

For Regular Candidates only

Multimedia Tools

CO-ordinator APPLICATION

1854

GS/M-16

ROLL No. : 02

Total Pages : 02

609

7

8

9

10
2. What is polymorphism? How is polymorphism achieved?

Unit I

Ch - 12()

\( \text{C++}] \)

What is the difference between the statements:

(d) Conversion

(e) Compare Constructor conversion and Operator

(b) Explain the role of preprocessor in terms of access Modifiers

(2X4=8)

Explain the difference between structure and class

Time: Three Hours

Paper II

ADVANCED PROGRAMMING USING C++

GS/M-16

1855

Roll No.

Total Pages: 03
Unit I

(2.3.1-1.8.85) 1.1855

7. Develop an object oriented program in C++ to create a

8. Which of the following is a different form of inheritance? Give an example for each.

6. What does inheritance mean in C++? What are the

Unit III

(a) Write a program in C++ which converts class type

(b) Write a program in C++ which converts one base

class to another class

5. We have two classes X and Y. If h is an object of X

and y is an object of Y, and we want to say X is

an object of Y and Y is a base class. Why?

4. The assignment operator =: Explain why?

3. A friend function cannot be used to overload the

Unit II

8. A pure virtual function

7. What is the implication of making a function

virtual? When are the implications of making a function

virtual? Why do we need virtual
UNIT I

1. Explain the following:

- Animation
- Transitions
- VB Script datatypes
- Scroll Bar
- Formatted Bar
- Frames
- Message and Input Box
- Links

Note: Q. No. 1 is compulsory. Attempt one question from each Unit.

Maximum Marks: 80

Time: Three Hours

BCA-361
ADVANCE TOOLS
WEB DESIGNING USING
BCR/M-16

1893

UNIT II

1. Make a website of your choice with dream weaver.

2. Objectives. Give examples.

3. What is animation? Which tools are used to animate an object? Give examples.

4. Explain the following in both VB and Java:

- Functions
- Control Statements
- Subroutines

5. How are objects and methods used in Java script?
2. Explain two process solutions for critical sections.

(i) Semaphore
(ii) Explains Deadlocks and starvation problem in
(iii) Pseudo code for deadlock avoidance

(iv) Explain the structure of file system in Linux briefly.
(v) Describe the structure of file system in Linux briefly.
(vi) Define seek time and latency time.
(vii) Explain advantages and disadvantages of single level

1. Compulsory Question:

Question from each unit.
Note: Attempt Five questions in all selected at least one

Maximum Marks: 80

Time: Three hours

B.C.A.-362
OPERATING SYSTEM-II

1894
B.C.A./M-16

RoHNo. ........................ Total Pages: 03
Explain the following commands in Linux:

8

(i) `ls`
(ii) `mkdir`
(iii) `rm`
(iv) `cd`

6. Explain Linux Architecture. Also, explain how Linux is different from Windows and Unix.

Unit III

10

Disadvantages: Discuss and also explain its advantages and disadvantages. Also explain its architecture and general graph.

9

Explain in detail the concept of Monitor. What are

8

(i) `mv`

Explain various editing commands available in VI.

6

Explain all batch and run commands by using examples.

4

Describe various file system components.

3

Write a program to check whether a given number is a palindrome number or not.

8

Explain the syntax of case-sensitive statement with the editor.

4

Explain various editing commands available in VI.
2. Discuss various ways to circulate information on the web.

8x2

8. (a) When is the need of Intranet?
   (b) What is the difference between Intranet and
   Extranet?
   (c) How can remote login be done?
   (d) When do you mean by Web-based mail?
   (e) When is ICMP?
   (f) When is the mean difference between IP4 and IP6?
   (g) Explain some popular search engines.
   (h) When do you understand by WWW?

1. Compulsory Question:

Questions carry equal marks.

Note: Answer five questions in all selecting exactly one question from each Unit. Q. No. 1 is compulsory. All questions carry equal marks: 80

Time: Three Hours

BCA-364

INTERNET TECHNOLOGIES

BCE/M-16

1996

Roll No. ...........................................

Total Pages: 03
(b) Write a short note on Web browser and Chat on web.

3. Describe the architecture and layers of TCP/IP in detail.

Unit II

4. (a) What do you mean by recursive and iterative resolution in mapping? Explain.
(b) Explain the packet formats of UDP and IP protocols.

5. Write short notes on the following:
   (i) ICMP
   (ii) DHCP
   (iii) ARP
   (iv) RARP.

Unit III

6. (a) What is NFS? Explain its working in detail.
    (b) Explain SMTP and MIME in detail.

7. (a) Explain the concept of VOIP. How does it work?
    (b) What are RIPv and RCTP? Explain differences in their features.

Unit IV

8. (a) What is Mobile IP? Explain in detail.
    (b) Discuss various measures for Internet security.

9. (a) What is VPN? Discuss various types of VPNs.
    (b) Describe the format along with working of IPSec.
BCA/M-16 1897

ADVANCED PROGRAMMING WITH
VISUAL BASIC
BCA-365

Time : Three Hours] [Maximum Marks : 80

Note : Attempt Five questions in all, selecting at least one
question from each Unit. Q. No. 1 compulsory.

1. (a) Explain properties of form.
   (b) Differentiate Picture Box and Image Box.
   (c) How can you add shortcut keys to menu items ?
   (d) Explain currentX and currentY properties of
        Graphics.

2. (a) Write a program in VB to multiply two matrices.
   (b) What is purpose of For Each–Next loop ? Write its
       syntax and explain with example.
UNIT I

8.8 Explain the following with examples:

(a) Line and circle methods.

(b) Panel Event

7. Explain the following with examples:

6. Discuss the handling in DB giving necessary statements.

UNIT III

6. Explain user control with example.

10. Describe different strategies for developing forms and controls with database.

5. (a) What is the purpose of tool bar control? Write steps to create tool bar of your choice in VB form.

UNIT II

4. Explain concept of multiple forms with example.

4. How can you manage forms at run time?

4. Discuss Drag and Drop operation with the help of Form of your choice.

3. (a) Explain concept of multiple forms with example.
UNIT I

8-7 × 8

1. Explain how to import a package

2. Explain why some classes and interfaces are "root" classes.

3. Explain the difference between JEP and VM.

4. Explain the various mechanisms for passing arguments to a method.

5. Explain what is a package. Also, explain various features of Java.

6. Explain the use of super keyword in Java.

7. Explain the concept of exception handling in Java.

Questions carry equal marks.

Two Questions from each Unit. Q. No. 1 is compulsory. All the Questions in all the sections at least one answer.

Maximum Marks: 80

Time: Three Hours

BCA-366

PROGRAMMING IN CORE JAVA

BCA/M-16

1898
They examples:
various types of inheritance supported in C++ along with
2. Define inheritance. What is its significance? Explain

Compulsory Question

Questions carry equal marks.
Questions selecting one question from each L1. All questions student will have to attempt four more
questions. Student will have to attempt four questions in
Note: Student will be required to attempt four questions in

Maximum Marks: 80

BCA-361

PROGRAMMING IN C++

BCAR/M-16

Total Pages: 03

ROLL NO. 03

1899
UNIT III

5. Write short notes on the following with suitable examples:

(b) Type Conversion
(c) Virtual Destructor

6. Explain the concept with the help of any program.

UNIT II

7. Explain the concept of the compiler in C.

8. Explain the concept of the handling of errors.

9. Explain the concept of the handling of exceptions.

10. Write short notes on the following with suitable examples:

(d) Exception handling and error handling

11. Explain the concept of class and objects.

12. Explain the concept of private, public, and protected access specifiers in inheritance. Give suitable examples to illustrate the use of access specifiers.
UNIT I

1. Explain TCP/IP model architecture in detail. Also explain various protocols used in different layers of TCP/IP.

2. Explain IP addressing and Packet format.

3. Explain Internet Protocol and Internet Protocol interception.

UNIT II

4. a) Differentiate TCP and UDP
   b) Discuss Telnet
   c) What is Anonymously FTP?
   d) Explain RIP, VPDN, L2TP, DHCP, VPDN, PPP

UNIT III

5. What is ICMP?
6. What is ARP?
7. What is ARA?
8. What is a single machine?
9. Explain VTP.
10. Discuss Resource Reservation and RSVP.

Maximum Marks: 80

Time: Three Hours

B.Com 3rd Year

INTERNET TECHNOLOGY

BCF/M-16

Paper No: 02
2. (a) Difference between procedural event-driven and

Unit 4

2×8=16

(1) Windows-based
(2) Collections in VB
(3) Arrays
ture
(4) Graphics-oriented
(5) Application-oriented
(6) Object-based
(7) Event-oriented
(8) A&D-oriented

1. In Visual Basic context, comment on the following:

marks

question from each Unit. All questions carry equal
out of units I, II, III and IV by selecting at least one
Note: Q. No. 1 is compulsory. Attempt any four questions

Maximum Marks: 80

Time: Three Hours

BCA-364

VISUAL BASIC

BCA/R/M-16

1902

Roll No.

Total Pages: 03
Unit IV

8. Write a program in VB having menu items such as File, Edit and Format. The File menu contains New, Open and Save. The Edit menu consists of Cut, Copy and Paste. The Format menu contains Bold, Italic etc. Write the coding.

9. Write a program which explains the concept of passing an array to a procedure.

10. Write a program which explains the concept of the Call by Reference with the help of proper example.

Unit III

8. Describe various ways of inputting data in VB.

9. Describe in detail the various control structures available.

10. When is a constant? Explain various types of variables. Suitable examples.

Unit II

8. Explain InputBox function. MsgBox function and alarm function.

9. Explain in detail any six types of properties that can be developed in VB.

10. Discuss in detail any six types of properties that can be developed in VB.

(a) Immediate Window.

(b) Property Window.

(c) Project Explorer Window.

(d) Form Layout Window.

(e) Find the following in Bater:

(f) What is Visual Basic? Discuss different features of Visual Basic.

(g) Describe in detail the various control structures available.

(h) When is a constant? Explain various types of variables. Suitable examples.

(i) Explain InputBox function. MsgBox function and alarm function.
UNIT I

1. (a) Write a short note on Run-Length Coding.

2. (a) Write a short note on Binary Encoding.

3. (a) Write a short note on DVD.

4. (a) Write a short note on MPEG.

5. (a) Define Compression Ratio.

6. (a) Write a short note on HDTV.

7. (a) Write a short note on Hypermedia.

8. (a) Write a short note on Multimedia.

9. (a) Write a short note on PDF.

10. (a) Write a short note on PowerPoint.

11. (a) Write a short note on HTML.

12. (a) Write a short note on XML.

13. (a) Write a short note on E-Commerce.


15. (a) Write a short note on E-Health.


(COMPULSORY QUESTION)

Questions carry equal marks.

In addition to Compulsory questions, attempt four more questions selecting one question from each unit. All questions are compulsory.

NOTE: Attempt five questions in all. Q. No. 1 is Compulsory.

Maximum Marks: 80

BCA-365
MULTIMEDIA TECHNOLOGY

BCAR/M-16

1903

ROLL NO. 02

TOTAL PAGES: 02
8. Write a short note on H.263.
9. (a) Explain MPEG video compression techniques.
10. (a) Explain various types of audio file formats.
8. What is dictionary based coding? Explain LZW.
10. Explain Color Look Up Table.
6. Explain the difference between RGB and CMY.
4. Explain different color models in video.
1704.1-1922

| 3 | 3 | 2 | 7 | 12 |

サンスクリット（補充）

CSOA/R-M-16

裏面No. 03

Total Pages : 03
The text on the image is not legible due to the quality of the scan. It appears to be a page from a document with text written in a script that is not easily recognizable. Without clearer scans or a better image, it is not possible to accurately transcribe the content.
1.  Πάντα λέει η Εκκλησία η πράγματα.

2.  5×2=10

3.  Πάντα λέει η Εκκλησία η πράγματα.

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9.  Πάντα λέει η Εκκλησία η πράγματα.

10. Πάντα λέει η Εκκλησία η πράγματα.

11. Πάντα λέει η Εκκλησία η πράγματα.

12. Πάντα λέει η Εκκλησία η πράγματα.

13. Πάντα λέει η Εκκλησία η πράγματα.

14. Πάντα λέει η Εκκλησία η πράγματα.

15. Πάντα λέει η Εκκλησία η πράγματα.
1. \( 2 \times 3 = 6 \)
2. \( 2 \times 6 = 12 \)
3. \( 3 \times 3 = 9 \)
4. \( 4 \times 4 = 16 \)

\[ S = 4 \times 4 = 16 \]

\[ 2 \times 3 = 6 \]

\[ 2 \times 6 = 12 \]

\[ 3 \times 3 = 9 \]

\[ 4 \times 4 = 16 \]
1. Explain different types of bridges built in these two periods.

2. Give few applications of subconcrete arcs.

3. Write a note on top-down and bottom-up.

4. State Bridge's law of differentiation.

5. Distinguish between cylindrical and monopolar solids.

**Compulsory Question**

Note: Answer five questions in all sections at least one.

**Time: Three Hours**

Solid and Nano Physics

Paper-XI

PHYSICS

1927

Roll No.:
4. What are the techniques for determining molecular structure?
5. Write a short note on Carbon Nanotubes (CNT).
6. What are the challenges of molecular visualization?

CHAPTER 4

2. Explain the Bragg’s law of X-ray diffraction in the first order.
3. What is the crystal structure of NaCl? Explain the mechanism of X-ray diffraction.
4. What are Miller indices? Explain the relation between Miller indices and the orientation of a crystal.
5. Explain the crystal structure of Sodium Chloride.
(a) Calculate the ground state energy of electron in hydrogen-like atoms.
(b) Discuss the effect of nuclear motion on the spectra.

#### Question 1

1. What is the spectral term of an atom with $S = 1/2$ and $J = 3/2$? Write the spectral term of an atom with $S = 1/2$ and $J = 3/2$.
2. Explain the meaning of zero point energy of a molecular bond.
3. What is Landau's level? Explain the meaning of zero point energy of a molecular bond.
4. If you mean by spin-orbit interaction, what is the meaning of zero point energy of the atom in the above question?
5. (a) Can a free electron absorb a photon energy greater than $E_f$ in a hydrogen-like atom? Explain why or why not. (b) What are the spectral terms of an electron in a hydrogen-like atom? (c) Write the spectral term of an atom with $S = 1/2$ and $J = 3/2$.

#### Note

Select one question from each line. All questions carry equal weight. Answer any five questions. Note: 1 is compulsory.

Maximum Marks: 45

Time: Three Hours

Atomic and Molecular Spectroscopy
Paper—XIII

PHYSICS

GSR/M-16

1928
UNIT I

4. On the basis of classical model, obtain an expression for quantum defect in a benzene ring over an alkyl group.

5. Find an expression for Larmour frequency.

6. What do you understand by Larmour precession?

UNIT II

6. When is Zeeman effect observed in an expression for Landé g-factor. Show that anomalous Zeeman pattern of a principle series doublet of sodium by central transitions.

6. Explain how doubling of spin and each of which can accommodate a maximum of 2-electrons.

6. When is Landé g-factor ? Find out the special terms.

UNIT III

6. Explain how the doublet fine structure is explained on the basis of vector atom model.

6. Describe the general feature of spectra of alkali atom.

6. Explain hyperfine structure of spectra and discuss its origin.
1. Why do you mean by Rockefeller? What were his

16 causes of his rise?

1. What is the meaning of the word "Rockefeller"? What were his causes of rise?
8. Explain the impact of the First World War.

9. Examine the causes responsible for the Second World War.

10. On the outline map of Europe, show France on the eve of

6. Discuss the main causes of the French Revolution.


f(1) f(2) f(3) f(4) f(5) f(6) f(7)

f(8) f(9) f(10) f(11) f(12) f(13) f(14)

Which of the following:

- a) 1.61 (1)
- b) 1.61 (1)
- c) 1.61 (1)
- d) 1.61 (1)
inity constraints.

Differentiate between unity integrity and referential integrity.

Define relation. Explain various characteristics of relation.

UNIT 1

2.4

What is drop schema and drop table command?

Define null functional dependence.

Define degree of relation.

What is Redundant Database Schema?

1. Complimentary Question:

Question from each line. Q. No. 1 is compulsory.

Note: Attempt five questions in all, selecting at least one from each unit.

Time: [ ] hours

Maximum Marks: [ ]

Relational Database Management System

Paper A

COMPUTER SCIENCE

GSR(13-15)/M-16

1938

Roll No. [ ]

Total Pages: [ ]
I, \ldots\quad = \ldots-1 \quad \ldots)
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\quad '-:
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\quad O=
\quad a=ai.-
\quad 101
\quad (b) Explain various data types available in PL/SQL.
\quad 8
\quad (c) Explain various control structures in PL/SQL.
\quad 8

UNIT IV

(b) Explain various data types available in PL/SQL.

(c) Explain various control structures in PL/SQL.

UNIT V

(b) Why are many nulls in a relation considered bad?

(c) Discuss insertion, deletion, modification anomalies.

UNIT VI

(b) Why is the FUNCTION operation used?

(c) Explain JOIN operation is required.

(d) Discuss various types of JOIN operations. Why?
3. Explain basic features of Linux operating system.

8. Difference between the Windows and Linux Operating

Unit I

Explain the use of echo command in Linux.

(4) (d)

Explanation on various the system types

(c) (e)

What is the use of write command in Linux?

(d) (p)

Known as open source software. Why is Linux

(a) (g) (a)

What is Open Source Software? Why is Linux

Unit II

Explanation on various the system types

Explanation on various the system types

(a) (g) (a)

What is the use of write command in Linux?

(d) (p)

Note: Attempt five questions in all "Q. No. 1 is compulsory.
Maximum Marks: 40"

Unit III

Introduction to Linux

Paper 1A

COMPUSER APPLICATON

CSAR(13-15)/M-16

Total Pages: 02

Q. No. 1-1939

1. Explain the following control statements in Linux with

9. Give examples.

8. What is vi editor? Explain various modes of vi editor.

Unit

Explanation on various the system types

(a) (g) (a)

What is the use of write command in Linux?

(d) (p)

Note: Attempt five questions in all "Q. No. 1 is compulsory.
Maximum Marks: 40"

Time: Three Hours

9. Explain the following control statements in Linux with

8. What do you mean by mode in Linux? Which information

Unit

Explanation on various the system types

Explanation on various the system types

(a) (g) (a)

What is the use of write command in Linux?

(d) (p)

Note: Attempt five questions in all "Q. No. 1 is compulsory.
Maximum Marks: 40"

Time: Three Hours
Introduction to .NET

Paper-A

COMPUTER APPLICATION

GSQR(13-15)/M-16

Roll No. 03

Total Pages: 03
What is Common Language Runtime (CLR)?

Explain different features of .NET.

1. What is Run Time Polymorphism?

Help of example.

What do you mean by inheritance? Explain with the help of example.

What is method overriding? How is it achieved?

Explain bitwise AND, OR, EX-OR operators.

What is scope of instance and static variable?

2. What is Microsoft Intermediate Language (MSIL)?

Note: Attempt Five questions in all, selecting at least one from each Unit. Three Hours

Time: Three Hours

Maximum Marks: 40

Introduction to .NET

Paper

COMPUTER APPLICATION

1940

GSR (13-15)/M-16
UNIT III

3. Discuss the different types of variables in C#.

(b) What is default value of a variable declared and initialized?

5. How are the variables declared?

What do you mean by a variable? List the rules of

UNIT II

4. Explain Class Libraries in C#.

(b) Explain the evolution of web development.

8. What is inheritance? Write a program in C# to implement it.

8. (a) What is multiple inheritance? Write a program in C# to implement it.

9. When is exception thrown? Give some examples. How do we handle them?

8. (a) Finally block.

Finally block.

8. (a) Catch block.

Try block.

(b) Define the following:

Show the use:

(b) What are the purposes of using them in C# sections?
What do you mean by locality of reference?

Draw a space-time diagram for a six-stage pipeline showing the time it takes to process each task.

How many switch points are there in a crossbar switch network that connects 8 processors to 16 memory modules?

(c) List four peripheral devices that produce an asynchronous output signal.

What is the purpose of parallel processing?

What is the goal of memory hierarchy?

1. Attempt all questions.

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

Maximum Marks: 40

Time: Three Hours
1. Why do you mean by cache memory? Explain it here.
   
2. Explain the four-segment instruction pipeline with an example.
   
3. Write a short note on Memory Interleaving. (a)
   
4. (a) What are the advantages and disadvantages of each? Why are the advantages and mapped I/O. What are the disadvantages and
   
(b) Differentiate between isolated I/O and memory

5. (a) Explain the concept of Concern Addressing Memory

6. Explain the interconnection structures with examples.

(c) How can we improve the performance of coupled systems?

(b) Differentiate between tightly coupled and loosely coupled systems.

7. (a) What do you mean by multiprocessing? Explain it here.
with examples.
be declared? Explain characteristics of a friend function.
2. How can a common friend function be used in two different classes?

Unit I

(a) Differentiate a template and a macro in C++.
(b) Write advantages of inheritance?
(c) Differentiate between ios, app, and ios.out?
(d) Significance of
(e) Define a virtual base class in C++? What is its

1. Compulsory Question:

Questions carry equal marks.

Note: Attempt five questions in all, selecting at least one each from unit I and II.

Maximum Marks: 40

BTIM-602
PROGRAMMING IN C++- II

BTIM-M-16

Roll No. 03

Total Pages: 03
4. Write a short note on standard template library.
   (b) Write the concept of generic programming.

5. (a) Virtual constructor and virtual destructor.
   (a) Abstract class.

6. Explain the following:

7. (a) Write the advantages of exception handling.
    (b) Example.
    (c) Explain each one of them with an in-built exception.

9. (a) What are the keywords on which exception handling?

4.4
7. (a) Distinguish the input functions (scanf(), gets(), etc.)
   (b) Output functions (printf(), etc.)
   (c) Precision functions (scanf(), gets(), etc.)
   (d) Width functions.

8. (a) Explain the following functions:

(3.4)

7. (a) Write a program in C++ to declare this class and
   overloaded + operator to add two objects of distance type.

Given. Write a program in C++ to declare this class and
3. A class called distance is, data in feet and inches is
UNIT 1

1. Explain the following:
   (a) Nested Frameset
   (b) Inline Style
   (c) Data Instance
   (d) XML Parsers

COMPULSORY QUESTION

Questions carry equal marks.

Choose one question from each unit. Q. No. 1 is compulsory. All questions carry equal marks.

Maximum Marks: 45

Time: Three Hours

Reguler: 40

BSIT-603
BASIC DESIGN TOOLS-II
WEBSITE DESIGN IMPLEMENTATION AND
12143
BSIT/M-16

ROLL NO. 02

1. Explain the various properties of CSS padding with example.

UNIT II

6. Explain various methods to add style sheet to HTML document.

UNIT III

How is it helpful in designing web pages.

2. Differentiate the major features of HTML with from page.

4. Explain various tools of multimedia in designing a website.

UNIT IV

Any two form control
   (a) Radio Button
   (b) Form Attribute

4. Write notes on the following:
UNIT I

2. Differentiate between symmetric and asymmetric key

3. Discuss the various types of viruses.

(b) Write a short note on cookies.

(c) Cryptography

UNIT II

4. Write short notes on the following:

(d) HTML
(e) EDI
(f) Cipher

UNIT III

5. Discuss the concepts of online shopping and

6. What do you mean by e-commerce?

7. Describe E-commerce systems.

8. Types of e-commerce systems.

Note: Attempt five questions in all, selecting one question from each unit. 0. No. is compulsory

Time: Three Hours

Maximum Marks: 40

B.T.I.-M-16
INTERNET CONCEPTS & APPLICATIONS

B.T.I.-L-12144

ROLL NO.

TOTAL PAGES: 02

350
Discuss the memory devices for embedded systems.

2. Write the difference between RISC and CISC.

Unit

1. Define Embedded Systems. When are the components?

By selecting only one option from each blank.
No. 1 is compulsory. Attempt remaining four questions.
Each question makes Attempt Five questions in all.

Note: There are nine questions in this paper. All questions carry equal marks. Attempt five questions in all.

Maximum Marks: 40

Time: Three Hours

BSEIT-605
MICROCONTROLLER
EMBEDDED SYSTEMS & 8051

BSEIT/M-16
1245

Roll No: ____________________________
Total Pages: 03
(a) Explain and call instructions of 8051 microcontroller.
(b) Differentiate RA and R16 instruction in 8051.
(c) Give steps to program 8051 for serial data transfer.
(d) Examples.
(e) Explain jump and call instructions of 8051 with according to their priorities.
(f) List different interrupts of 8051 microcontroller.

UNIT III

4. Explain the memory structure of 8051.
4. Explain the memory structure of 8051.
5. What is the difference between the inner and counter microcontroller?
8. With neat sketch explain the architecture of an 8051

UNIT II

4. Define system on chip (SOC) with an example.
2. Discuss the processor selection criteria for an embedded system.
3. Classify the processors in embedded system.
First time in history, he quoted the planter morn:

End of it.

'\[ 16.47/1470 \]

Read the passage and answer the questions given at the end of it.

Abundantly humming his plodding in the own

Inside my brain a dull corn-lou begins

Of cracked corners

And the matches

Among the windings of the violins

OR

Before the telling of a loast and era.

And for a hundred visions and revisions,

And time for hundred indecisions,

Time for you and time for me.

1. (a) Explain with reference to the context

Note: Attempt all questions.

Maximum Marks: 80

Time: Three Hours

Paper-IX

(Modern English Literature-II)

ENGLISH

携

Total Pages: 4

ROLL NO.

15

Pupil keeps up his appearance with confidence and self-esteem. Pupil has presented a general society. hollow from within.

Discuss, "Portrait of a Lady" in the light of the statement that
1. Identify the problem of communication in "Portion of a Certain Conduct" by Wharton.

2. Write any six short answer type questions:

3. What is the theme of man-woman relationships in "Portion of a Certain Conduct" by Wharton?

4. Read the following and answer the questions:

"The Love Song of J. Alfred Prufrock"

(7x7=49)

(a) Discuss Hansel and Gretel's encounter with the Witch of Portion of a Certain Conduct.

(b) How does "The Love Song of J. Alfred Prufrock" represent a critical break with nineteenth-century tradition of poetry?

(c) How does "The Love Song of J. Alfred Prufrock" be a sort of instruction and emotional counsel?

(d) Does "The Love Song of J. Alfred Prufrock" justify its verse by any two assertions:

(6x4=24)

(e) What is the significance of Prufrock's use of "Portion of a Certain Conduct"?

(f) Why is Prufrock considered the most important character in "Portion of a Certain Conduct"?

(g) Why is he considered the most important character in "Portion of a Certain Conduct"?

(h) Why is the story considered the most important character in "Portion of a Certain Conduct"?

(i) How does the World Controller and the development of technology influence the life of Prufrock in "Portion of a Certain Conduct"?

(j) How does Prufrock influence the novel, and how is this influence unique?

(k) What is the significance of Prufrock's use of "Portion of a Certain Conduct"?

(l) What is the significance of Prufrock's use of "Portion of a Certain Conduct"?

(m) What is the significance of Prufrock's use of "Portion of a Certain Conduct"?
(i) Who was Aunt Doos?
(ii) What did she see?
(iii) Why did Margerayna look up?

Margerayna looked up as a shadow fell on his nose-book.

Read the passage and answer the following questions:

6

Foe slept and lost his use.
And she lay there weeping.
A bed made soft with tears
They let her side from feet of vanity into

OR

Bending my bedroom door like a brooding dog
Darkness to bring it here to the
Or in will desolate, pick an animal of

1. (a) Explain with reference to the context:

Note: Attempt all questions.

Maximum Marks: 80

Time: Three Hours

Paper-X

(Indian Writing in English-II)

ENGLISH

BHMG-M-16

16148

Roll No.

Total Pages: 3
2. Write in short on any six of the following:

(a) Discuss images and symbols in the poetry of Kamaala Das.
(b) Write a note on the conventional mode in Kamaala Das's poetry.
(c) Write a note on R.K. Narayana's art of plot construction with
   reference to "The Financial Expert".
(d) Write a note on Kamaala Das as a rebel and as a poet of protest.
(e) Attempt a critical appreciation of the poem "The Sunshine Can".
(f) Examine critically the role and influence of the family
   in moulding the career of Mangappa, the financial expert.

3. Answer any two of the following:

(a) What massasess has been given by R.K. Narayanan through
   "The Financial Expert"? How is the central figure, "Mangappa"
   shown as a financial expert?
(b) What is the central theme of the poem "A Hot Noon"
   in Marathi?
(c) Describe the total mood in the poem "A Hot Noon".
(d) "The Sunshine Can" is a poem of realistic sensibility.
   Describe the mood of the poem "The French".
(e) The poem "The Sunshine Can" is a poem of realistic sensibility.
(f) Write the dialogue to help you to get out of your trouble.

OR

5. How far would it be correct to say that Mangappa is a financial
   expert? Give a reasoned answer.

15 Write a note on R.K. Narayana's art of plot construction with
   reference to "The Financial Expert".
WHY was the boy bleeding?

Why the housemaid has been arrested is an unusual event.

One evening, the housemaid and the weeping gardener - into the house.

The housemaid and the weeping gardener - into the house.

and they entered into the man, the wife, the household.

of the security call with saws, where cutters, choppers,

while the bleeding mass of the little boy was hacked out

probably the alarm set up while at the little boy. Then the man and the wife burst

day it was, came running, the first to see and to scream

The housemaid and the weeping gardener, whose

Questions that follow:

1. Answer any two paragraphs. Read the passage and answer the

SECTION-

Note: Do as directed.

Maximum Marks : 80

Time : Three Hours

Paper : X VI

Modern World Literature-II

ENGLISH

16149

Roll No. 4

TOTAL PAGES : 2
The Question:
Draw the character sketch of Acharly as per your reading of
Or
Comment upon the appropriateness of the title The Guest.
Answer all the questions:

SECTION-C

(5×5=25)
(i) Write a short note on the character of Acharly.
(ii) Write a short note on the plot of Things Fall Apart.
(iii) Comment on the title of Things Fall Apart.

UNIT-III

Story?

(5×5=25)
(a) Why does Corinne call Once Upon a Time: a Bedtime Story.
(b) What is the message of the story The Handsomest Man in the World?
(c) What is the context of the above conversation?
(d) The Cheek explores the themes of confinement and liberty.

UNIT-II

Explain.

(5×5=25)
(a) What is the theme of The Cheek?
(b) The Cheek expresses the theme of confinement and liberty.

UNIT-I

until

2. Answer any five questions, selecting at least one from each

SECTION-B

(2x5=10)
(i) Write the summary of Incapable Polity.
(ii) What lies under the table?
(iii) Who was the laucher?
(iv) One day in his essay Lauchon was of course a broker, the dead man's mouth he saw the folly of not uniting what he owed every neighbour some money, from a few
(v) Name the chapter and the writer.
(vi) mite the chapter and the writer.
(vii) What is the context of the above conversation?
(viii) I don't know, why
(ix) Are you coming with us?
(x) I don't know. 4
(xi) Is he going to come back tomorrow?
(xii) The schoonmaster looked at him.
9 Այս թվամակները տվում են համակարգերի
վերցումը և դասերի բաժանմունքը (8)

9 Այս թվամակները տվում են համակարգերի
վերցումը և դասերի բաժանմունքը (8)

(5×4=20)

2 Այս թվամակները տվում են համակարգերի
վերցումը և դասերի բաժանմունքը (8)

(2×8=16)

(5×2=10)

(5×2=10)
BHQ/M-16
POLITICAL SCIENCE
(Comparative Constitutions of U.K. & U.S.A.)
Paper-I

Time: Three Hours] [Maximum Marks : 80

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

नोट: किन्हीं पाँच प्रश्नों के उत्तर दीजिए। सभी प्रश्नों के अंक समान हैं।

1. What are the main features of the British Constitution? 16

2. Examine the power and position of British Prime Minister. 16

3. Discuss the main features of Social-Economic System of U.S.A. 16

4. Make a comparative study of the American Cabinet and the British Cabinet. 16
5. Discuss the composition, power and position of the House of Commons.

6. Discuss the organisation and programmes of the two leading Political parties of England.

7. Discuss the various factors which determine Voting behaviour in England.

8. What do you understand by Bureaucracy? Discuss the characteristics of Bureaucracy in America.

9. Objective Type questions.

(a) “There is nothing like Constitution in U.K.” Who said this?

(i) Munro
(ii) De TocQuville
(iii) Jennings
(iv) Dicey.
(8) The Speaker of the House of Lords was

(vii) The Speaker of the House of Commons was

(ii) Deputy Speaker

(vi) Principal Officer

(i) Member of Parliament

(c) The political system is

(i) Parliamentary

(ii) Federal

(iii) Monarchy

(iv) The president is

(ii) Elected

(i) Appointed

(ii) The term of the Government is

(i) 5 years

(ii) 2 years

(iii) One year

(iii) The term of the House of Representatives is

(i) 5 years

(ii) 2 years

(iii) One year

(iv) The term of the House of Senate is

(i) 5 years

(ii) 2 years

(iii) One year

(v) The Constitution is

(i) Flexible

(ii) Rigid

(iii) Hybrid

(vi) The budget is

(i) Balanced

(ii) Deficit

(iii) Surplus

(vii) The currency is

(i) Dollar

(ii) Pound

(iii) Euro
Hamilton
George Washington
Benjamin Franklin
Jefferson
Is President of U.S.A. was
(A) 1789
(B) 103
(C) 17
(1)

Questions:
(1) How many Articles are there in the American Constitution?
(A) 11
(B) 109
(C) 17
(1)

(2) What are the length of the time of Congress?
(A) Five years
(B) Six years
(C) Four years
(1)

(3) Terms of the House of Congress is
(A) 2 years
(B) 3 years
(C) 4 years
(1)

(4) How many houses of Congress is
(A) 2
(B) 3
(C) 4
(1)
1. Define the meaning, nature and basis of international organizations.

2. The League of Nations was the child of the First World War.

3. What are the powers and functions of the General Assembly of U.N. Explain its statement, "The League of Nations was the child of the First World War.

4. Evaluate the role of U.N. Security Council in maintaining international peace and security.

Attempt all the questions. All answers carry equal marks.

Maximum Marks: 80

Time: Three Hours

16193

INTERNATIONAL ORGANIZATION

POLITICAL SCIENCE

B.H.I.L-16

TOTAL PAGES: 5

ROLL NO.
<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>5. Discuss the main objectives and failures of UN.</td>
<td>(a) The main objectives are to maintain international peace and security, to promote cooperation among nations, and to promote friendly relations among nations. The failures include the inability to prevent and resolve conflicts, the液晶屏幕和战争的加剧, and the challenges in implementing the resolutions.</td>
</tr>
<tr>
<td>6. Write a detailed note on Peace-building</td>
<td>(a) Peace-building involves a range of activities aimed at preventing and resolving conflicts. It includes conflict prevention, peacekeeping, post-conflict reconstruction, and development efforts. Peace-building requires a comprehensive approach that involves political, economic, social, and security measures.</td>
</tr>
<tr>
<td>7. What do you understand by Decolonization of UN? System?</td>
<td>(a) Decolonization of the UN system refers to the process of ensuring that the United Nations operates in a way that respects the sovereignty and self-determination of all nations. It involves the removal of colonial-era obstacles to equal participation and representation in the UN.</td>
</tr>
<tr>
<td>8. Discuss the main functions of UN Security Council.</td>
<td>(a) The main functions of the UN Security Council include maintaining international peace and security, preventing the threat of war, and responding to acts of aggression. It also discusses the various methods of resolving disputes under the UN Charter.</td>
</tr>
<tr>
<td>9. Objective Type Questions</td>
<td>(a) Russia, China, France, America, and others.</td>
</tr>
<tr>
<td>10. Who is the Father of Political Science?</td>
<td>(a) Aristotle</td>
</tr>
<tr>
<td>11. Which country has the veto power?</td>
<td>(a) The five permanent members of the UN Security Council (USA, Russia, China, France, and the UK) have the veto power.</td>
</tr>
</tbody>
</table>

**Follow-up:**

(a) Discuss the main achievements and failures of UN. |

(b) How many members are in UN General Assembly? |

(c) Write a detailed note on Peace-building. |

| (a) The main achievements include the prevention of armed conflicts, the promotion of international cooperation, and the establishment of international institutions like the International Court of Justice. The failures include the inability to prevent wars, the液晶屏幕和战争的加剧, and the lack of enforcement of resolutions. |

(c) Include the various methods of resolving disputes under the UN Charter. |

| (a) Discuss the various methods of resolving disputes. |

| (a) The methods include peaceful negotiation, mediation, conciliation, arbitration, and the enforcement of resolutions. |

**Follow-up:**

(a) Discuss the various methods of resolving disputes. |