to darken other people's doors.

Who had sent her out
curses heaped upon her parents.
their wings neglisten her; the money spent,
The usual words came and beat

OR

And leaves the world to darkness and to me.
The plowman homeward plods his weary way.
The lovers bend with slow'ry o'er the tea.
The curfew tolls the knell of parting day.

I. Explain the following stanza with reference to the context:

Note: All questions are compulsory. Maximum Marks: 80

Time: Three Hours
1. Would you (like) come in my car?

2. You often (get) up earlier.

3. It is easy (make) mistakes.

4. He made me (repeat) the lesson.

Insert, if necessary, before the infinitives in:

5. Answer any five out of the following:

- When I am Old.
- My Last Duchess, as a dramatic monologue.
- What is Pope's concept of man in Know Thyself?
- 100 words each.
- Trace any one of the following questions in about 5 words each.
- When does T'gore mean by Narrows Domestic?
- Why does the poet call the hunches token of dead love the poet call the hunches token of
- What is the role of time in the poem 'When You are Old'.
- My Last Duchess.
- (iii) What kind of freedom does T'gore visualize for
- The Glory, Jest, and Riddle of the
- In some Xmas.
- How does the poet complete eternity with mortality.

6. Evaluate 'My Last Duchess' as a dramatic
(c) Give phonetic transcription of any five words.

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(c) Give phonetic transcription of any five words.

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(c) Give phonetic transcription of any five words.
Write synonyms of any four words:

4. BAT

5. GIVE

Give antonyms for the following words. Do any five:

(For Blind Candidates Only)

OR

5. BEAN

Write an essay on any one of the following in about 300 words:

12. Beauty of Nature

13. Religion and Politics

14. Punctuality

15. Value of Games
behalf and possess his daughter's hand on his father's
the Yarmuk. He went to the chair of the Physicians
of his meeting with the Physicians on the banks of
and questioned the king's Charmer came to know
secret cause for the medical condition of his father
The wise Devastra realized that there must be a
A power situation there.
for soon well be executing
It does not need procedure
suching anywhere
Some unpleasantencies
And if there is some section
or
was not spoken of the soul
just born at to dust removed
And the grave is not his goal
Life is real! Life is earnest
1. Explain with reference to the context:
Note: Attempt all questions

Maximum Marks: 60
Time: Three Hours

ENGLISH

842

GSN/D-16

Total Pages: 4

Roll No. 

(16x1=16)

Hello (s)
Course (c)
Peace (p)
Difference between the following pairs of words:
Make sentence for each word so as to bring out the
He does not know to swim.
If is such a car which I desire
Clean are always humble
They have run the race
Correct the following sentences:
She refused to go
He requested me for a glass of water
"Easy" says "Why are you arguing"
Change the nation:
They punished him
She planned the saplings
The boss granted him leave
How could you do it

Change the voice:
1. How were the Pandava princes born? (W) A. When the cause was pronounced upon Yudhishthira B. When the son of the eighth king was born to Ganges C. When did Shiva give Amba? D. To have Highwaysman E. Who was Tim? Why was he jealous of the Kingdom and wealth for you without shedding a drop of blood? (6x2=12)

2. Answer any four of the following questions briefly.

3. Answer a detailed summary of the poem The Highwaysman.

4. Describe briefly the surroundings of Dhrupad in your own words.

5. Use any three of the following words/phrases in sentences:
   - acquire
   - audible
   - opaque
   - forgive
   - reveal
   - frustrate
   - discuss
   - false
   - deceive
   - freeze

6. Answer any three of the following questions briefly.

7. Supply the correct form of the verb given in brackets:
   - Supplies any six such items.
1. Insert the name in the space provided.

Maximum Marks: 80

Time: Three Hours (Compulsory)

HINDI

CS/WD-18

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

Pages: 4
(2×5=10)

(2×4=8)

(1×7=7)

(6×2=12)

(7×1=7)

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Legend: Literal, Direct, Dramatica, Prose, Essay, Pastiche, Racket, Idea, Abstract, Accidental, Bajada, Brevity, Chorus, Climax

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2. (8x2=16)

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3. (6x1=6)

Maximum Marks: 80

Time: Three Hours

SANSKRTI (Computers)

GSM/D-18

Roll No. 4

Total Pages: 4
1. The total marks are 80.

Time: Three Hours

SANSKRIT (Elective)

853

GSM-D-18

Total Pages: 3

Roll No. .....................
(8=1×8)

(4×2=8)

(8=1×8)

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(8=1×8)
I. Tick the Right answer:

Compulsory Questions (5 marks each)

1. Who was the successor of Babur?

(1) Akbar
(2) Humayun
(3) Hindal
(4) Khaman

Note: Attempt all questions in all sections. Selecting one question from each unit. Question No. 1 is compulsory. The part remaining visially handicapped candidates only.
The battle of Passy was fought between British East

(a) 1540 AD.
(b) 1539 AD.
(c) 1532 AD.
(d) 1530 AD.

When was war of Kurnaul (Belgian) fought?

(a) 1540 AD.
(b) 1539 AD.
(c) 1532 AD.
(d) 1530 AD.

System 6.

(v) In how many parts land was divided by Zafar.
UNIT II (1839-1848)

4. Write an essay on the Manasraman system during Ruhfali period.

UNIT I (1837-1848)


2. Discuss the causes, events and impacts of the First battle of Panipat.

1. Who was the Governor-General of India during the

(V) Treaty between British and Maharaja Ranjit Singh.

(a) 1837 A.D.
(b) 1838 A.D.
(c) 1843 A.D.
(d) 1845 A.D.
(e) None of the above.
(f) War against Rani Lakshmibai Bal.
(g) Policy of Subsidiary Alliance.
(h) Doctrine of Lapse.
(i) The State of Jhansi was made a part of the British Empire.
6. Describe the causes, events, and results of the Crimean War.

7. Explain about the political, social, religious, administrative, economic, and military causes of uprisings of 1857.

8. On the outline map of India, show the British Empire at the death of Akbar (1605). Also write an explanatory note.

9. On the outline map of India, show the expansion of British Empire up to 1856 A.D. In India, also write an explanatory note.
856/3.400/K/D/279/Online map of India.

(d) Persian
(e) Turkic
(q) Arabic
(a) Urdu

1. Choose the correct answer:

Comprehension Question (Subjective Type)

Note: Handwritten candidates should attach relevant explanatory notes with all answers. Each line carries 1 mark. It is compulsory to write the answers from the question as enclosed.

Maximum Marks: 80

Time: Three Hours

3. (i)
When did Vasco da Gama come to India?

(a) 1497 AD
(b) 1498 AD
(c) 1499 AD
(d) 1500 AD

The year the Khalsa was established by Guru Gobind Singh?

(a) 1699 AD
(b) 1707 AD
(c) 1700 AD
(d) 1690 AD

Which among the following historians is the writer of 'The African System of Mughal India, 1556-1707'?

(a) Lutan Habib
(b) Sir J.N. Sarkar
(c) Jash Chundra
(d) Amber Ali

The battle of Chausa between Humayun and Sher Shah took place in:

(a) 1537 AD
(b) 1545 AD
(c) 1539 AD
(d) 1540 AD
UNIT I (EXTRA-1)

2. Throw light on the causes, events, and impacts of the First

(b) Battle of Plassey

(a) The Battle of Plassey took place in:

   (a) 1757 AD
   (b) 1762 AD
   (c) 1766 AD
   (d) 1764 AD

(c) Among the following Governor-General who introduced

   (a) Lord Cornwallis
   (b) Lord Hastings
   (c) Lord William Bentinck
   (d) Lord Dalhousie

(d) Who called the event of 1857 as the First War of Indian

   (a) 1852 AD
   (b) 1853 AD
   (c) 1854 AD
   (d) 1855 AD
UNIT IV

1. What do you know about the Marathas? Write a note also.

2. Write an essay on the Mughal-Sikh relations.

UNIT III

1. What is the significance of the 1857 Uprising? Write a note also.

2. Write an essay on the Mughal Empire prior to 1856. Write a note also.

UNIT II

1. What is the significance of the 1857 Uprising? Write a note also.

2. Write an essay on the Mughal-Sikh relations.

3. Evaluate the religious policy of Aurangzeb.
Discuss the influence and contribution of St. Augustine.

2. Critically examine Aristoxenis theory on justice.

3. Critically examine Plato's views on education.

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

Time: Three Hours

Maximun Marks: 80

Paper-1

Westem Political Thinkers

POLITICAL SCIENCE

GSN/D-18

Total Pages: 7

Refl No: 0

7. Discuss Bentham’s contribution to Political Thought.

8. Critically discuss J.S. Mill’s view about Liberty.

4. Why is Machiavelli called the father of modern political thinkers?
8. Critically discuss Lip's NHS view about liberty.

7. Discuss Bentham's contribution to Political Thought.


5. Discuss Locke's contribution to Political Theory.

4. Why is Mill known as the Philosopher-Thinker?
3. Examine the economic ideas of Dada Bhagwan.

4. Examine Gokhale's Liberalism and Nationalism (8+8=16)

2. Saam Dayandada was a Religious reformer. Explain.

1. Discuss Raja Ram Mohan Roy as a social reformer.

Marks: 10

Note: Attempt any five questions. All questions carry equal marks. Maximum Marks: 80
9. OPENSEND: Type Multiple Choice Question (2×8=16)

8. Was Swami Vivekananda succeeded in the youth?

7. Was there a revolutionary Explanation

6. Explain the Political Ideas of Lala Lajpat Rai

5. Mention briefly the contribution of Aurobindo Ghose
When was Bangladesh divided?

(a) 1971

(b) 1972

(c) 1973

(d) 1974

(e) 1975

(f) 1976

(g) 1977

(h) 1978

(i) 1979

(j) 1980

(k) 1981

(l) 1982

(m) 1983

(n) 1984

(o) 1985

(p) 1986

(q) 1987

(r) 1988

(s) 1989

(t) 1990

(u) 1991

(v) 1992

(w) 1993

(x) 1994

(y) 1995

(z) 1996

(1) 1997

(m) 1998

(n) 1999

(o) 2000

The correct answer is:

(a) 1971
PART-I (Objective-1)

Choose one correct alternative from the given options.

(a) Write the following equations on the nature of demand and supply. Explain.

(b) Types of investment.

(c) Explain the relation between MFC and MEL.

(d) What do you mean by marginal efficiency of capital? When is it equal to zero?

UNIT-IV (Objective-2)

(a) Explain the relationship between demand and supply. Explain.

(b) Determine the propensity to consume. (8+8=16)

(c) How are the determinants of the propensity to consume?

9. Write notes on the following.

(a) What do you mean by the marginal efficiency of capital? Explain.

(b) What is the relation between MFC and MEL?

(c) Explain the nature of demand and supply. Explain.

(d) What are the determinants of the propensity to consume?

(e) How do the determinants of the propensity to consume change over time?
Neither increase nor decrease.

(b) Break-even point

(c) Investment will increase

(d) Investment will decrease

(ii) If WEC > Rate of Interest then

(a) None of the above.

(b) Both Investment and Inflation

(c) Inflation to the National Income

(d) Inflation of Goods is

Choose the correct answers from the given alternatives:

2. (a) Increase in demand (effective demand) will

(b) Decrease in demand (effective demand) will

(c) Increase in supply (effective supply) will

(d) Decrease in supply (effective supply) will

3. When is the importance of the concept of effective employment?

(a) (b) Which is unemployment equilibrium according to Keynes? Show with the help of diagram.

(b) (c) What is underemployment equilibrium in this economy?

(d) (e) When is the point of effective demand in this table?
(e) Disposable Income

(d) Keynesian Economics

(c) Multiplier

(b) The General Theory of Employment, Interest and Money

(a) Consumption + Saving

(B) Match the following with their correct answer:

(a) Old Age Pension

(b) Payment to Domestic Servant

(c) Unemployment Allowances

(d) Scholarships

(e) All of these

(f) Hicks

(g) Keynes

(h) Classical Economists

(iii) Full employment is a normal feature, according to

(a) Keynes

(b) Say

(c) Hicks

(d) Say

(e) None of the above

(f) "AVC = AVC"

(g) "AVC = AVC"

(h) "AVC = AVC" = 1
7. What do you mean by consumption function? Discuss.

UNIT III (Module III)

Income and Employment

Distinguish between Classical and Keynesian theory of


UNIT II (Module II)

Economics

4. Discuss the nature, scope and importance of Macro

sector economy.

3. Discuss Circular Flow of Income in Two, Three and Four

PART II (Module II)
(i) Price level and value of money are positively related.

(ii) A normal recession.

(iii) According to classical economics, full employment is the theory of national income comes under the scope of micro economics.

(iv) True or false, state whether the following statements are true or false:

Computatory Question (Attempt 4 or 5)
2. Explain the meaning of Gross Domestic Product (GDP). How can it be measured?

UNIT-1 (Section-1)

(a) GDP = National Income + (ii) Increase in inventories
(b) GDP = Production + (iii) Increase in net exports
(c) GDP = Consumption + (iv) Increase in imports

Choose the correct alternative:

(i) GDP is always equal to 0
(ii) If MPC = 0, then value of Multiplier will be...
(iii) If MPC = 1, then...
(iv) If MPC = 2, then...
(v) If MPC = 3, then...

(01/1)
1. Discuss different phases of the trade cycle. How they can be controlled?

2. Explain Keynesian Theory of Employment. What are the limitations?

3. What is the difference between micro and macro economics?

4. Supply creates its own demand. Discuss the statement.

5. Explain Keynesian Theory of Employment. What are the limitations?

6. Discuss different phases of the trade cycle. How they can be controlled?

7. When is mean by Investment Multiplier? Discuss its working.


9. What are the functions of money? Discuss the importance of money in a modern economy.

UNIT-III (Financial Sector)
UNIT-II

3. Explain the modes of transmission of communicable diseases.

10

UNIT-I

2. What are the principles of prevention of sports injuries?

10

1. Discuss the importance of safety education.

10

PAPERS

PAPER-THEORY HEALh AND PHYSICAL EDUCATION

GSW/D-18 874

Total Pages: 3
(c) Define Abortion

(b) Define Injuries

(a) What do you mean by safety education?

9. Answer in short:

UNIT-V (5th-10th)

Comprehension Question

UNIT-V (5th-10th)

Explain the effects of exercise on circulatory system.

7. Describe the structure of Heart in detail.

UNIT-VI (10th-15th)

Explain the factors affecting balanced diet.

6. Discuss the factors affecting balanced diet.

UNIT-III (10th-15th)

Discuss Dengue and Malaria in detail.

5. Explain the importance of balanced diet.

(2x10=20)
UNIT I ( asign-1)

Write the introduction of the Rāg Malhar.

2. Write the mouments of a Dhrūv Khyal in any Rāg from your syllabus. 

3. Write the notation of a Vilambit Khyal in any Rāg from your syllabus.

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

Maximum Marks: 40

Time: Three Hours
UNIT II (Franco-III)

1. Design the layout of a new French newspaper.

2. Write the headline about the latest news.

EXPLAIN THE FOLLOWING MUSICAL TERMS:

(a) Lento
(b) Allegro
(c) Presto
(d) Vivace

UNIT III (Franco-III)

3. Write the contribution towards music by Paul Dukas.

4. Give full description of a new musical and write lyrics with.

5. Explain the following musical terms:

EXPLAIN THE FOLLOWING MUSICAL TERMS:

(a) Lento
(b) Presto
(c) Vivace
(d) Allegro

6. Write the details about the latest events.

7. Describe the placement of a new musical in France.

8. What is the importance of science for the promotion of music in detail.

UNIT III (Franco-III)

9. Write the contribution towards music by Paul Dukas.

10. Describe the relationship of music and science.

Mansoor.
8. Write in your own words about the origin and development of Indian classical music.

9. Write in detail about the historical development of Gitar.

8. Write about the role of Pritisndi Ghosh towards Indian music.

SECTION C 


7. What is Classical music? Write in your own words.

6. What is Camerata music? Write in your own words.

5. Write about the following terms:

(a) Camerata

(b) Cremation

(c) Haraksham goal

SECTION D 

8. Write the nomenclature of Donal Gail with two Tods in any ragas.

7. Write any one of the following tales in different layakatas:

(a) Tiya

(b) Deekshith
1. Define Secretary. Explain the types and qualities of a secretary. 

2. Explain the role of a secretary in an educational society.

3. Define Company. Distinguish between company and partnership.

4. When do you understand by private company? How can a private company be converted into public company?

Note: Attempt five questions in all. All questions carry equal marks.

Maximum Marks: 80

Time: Three Hours

OFFICE MANAGEMENT

867

CSM/D-18

Roll No. .................................. Tem No. ............

Total Pages: 2
10. What do you understand by transfer of shares? What are the restrictions imposed on transfer of shares?

9. What is the procedure of allotment of shares of a public company limited by shares? What is the effect of an irregular method of allotment of share capital?

8. What is share capital? Explain its forms and different methods of flotation of share capital.

7. Describe the steps taken with documents necessary for the incorporation of a public company.

6. State the duties and liabilities of Company Secretary.

5. Define Company Secretary. State the qualification and importance of a Company Secretary.
1. Define Curvature and Torsion.

2. Give the statement of Young's theorem.

1/2

\[ \frac{\phi}{\eta} \cdot \text{prove that} \ x \cdot \frac{\kappa - x}{\varepsilon^2} + \frac{\lambda^2}{\varepsilon^2} \]

1/2

Evaluate \( \lim \frac{\log (x-a)}{\log (x-a)} \)

1/2

Write the statement of Taylor's theorem with Lagrange's form of remainder.

1/2

Show that \( f'(x) = x^2 \) is uniformly continuous on \([-1, 1]\).

1. Compulsory Question

Equal marks. Select one question from each unit. All questions carry equal marks. Note: Attempt the questions in all Question No. 1 is Compulsory

Time: Three Hours

Maximum Marks: 27

UNIT-I

1. Find the curvature and torsion of the helix is differentiable at the origin.

\[ \phi(0, 0) = (\phi', \phi') \]

\[ \phi(0, 0) \neq (\phi', \phi') \]

\[ \frac{\phi'(x) - x}{\phi''(x) - x} \]

\[ \frac{(\phi' x) + \phi'(x)}{\phi''(x) - x} \]

Show that the function given by

1/2

G. Show that the radius of curvature is constant.

The normal at any point \( P \) of the ellipsoid is an evolute only when the curve is a plane curve. Show that the focus of the center of curvature of a curve is not the center of the sphere on which the curve lies.

8. (a) Find the radius of spherical curvature at the point on a sphere of a constant curvature.

[Paper : BM-231]

Advanced Calculus

MATHEMATICS

CSM-B-18
2. For maxima and minima, examine the function $f(x,y) = x^2 + y^2 - 6x - 2y + 1$.

3. A given sphere is a cube. Show that the rectangular solid of maximum volume that can be inscribed in a given sphere is a cube.

4. Find the value of the parameter $u$ so that

\[ 2 \int 0 = \left( \frac{\theta e}{\Lambda e} \right) \sin \left( \frac{\theta e}{\Lambda e} \right) + \left( \frac{e}{\Lambda e} \right) \frac{\lambda e}{\Lambda e} \left( 1 - \theta \cos \theta \right) \]

5. Find the value of the parameter $u$ so that

\[ \lim_{\kappa \to 0} \frac{\kappa}{\kappa - \epsilon \delta} = b - \epsilon \delta \]

6. A given sphere is a cube. Show that the rectangular solid of maximum volume that can be inscribed in a given sphere is a cube.

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10. A given sphere is a cube. Show that the rectangular solid of maximum volume that can be inscribed in a given sphere is a cube.

11. For maxima and minima, examine the function $f(x,y) = x^2 + y^2 - 6x - 2y + 1$.

12. A given sphere is a cube. Show that the rectangular solid of maximum volume that can be inscribed in a given sphere is a cube.

13. Find the value of the parameter $u$ so that

\[ \lim_{\kappa \to 0} \frac{\kappa}{\kappa - \epsilon \delta} = b - \epsilon \delta \]

14. A given sphere is a cube. Show that the rectangular solid of maximum volume that can be inscribed in a given sphere is a cube.
Problem 3.10

Write the two-dimensional wave and harmonic equations.

\[ 0 = \frac{\partial^2 \phi}{\partial t^2} + \frac{\partial^2 \phi}{\partial x^2} + \frac{\partial^2 \phi}{\partial y^2} \]

Classify the differential equation.

If \( c \) are compatible or not.

\[ \frac{\partial^2 \phi}{\partial x^2} + \frac{\partial^2 \phi}{\partial y^2} = \frac{\partial^2 \phi}{\partial x^2} - \frac{\partial^2 \phi}{\partial y^2} \]

Examine whether the equations contain \( \alpha \) and \( \beta \) from the equation \( \alpha \neq \beta \) or \( \alpha = \beta \).

4. (a) Find the differential equation by eliminating the arbitrary constant. 

**Question**

Equal marks. Select one question from each unit. All questions carry equal marks. 

Note: Answer the questions in all cases in complete sentences. 

Maximum Marks: 26 

Examine the solution. 

For \( \frac{\partial \phi}{\partial t} = \frac{\partial \phi}{\partial x} \) and \( \frac{\partial \phi}{\partial t} = \frac{\partial \phi}{\partial y} \), find the solutions of the wave equation.

Partial Differential Equations (PDEs)

MATHEMATICS

Paper: BM-232 

GSN/DM-18 

Total Pages: 4
\[ \cos x = \left[ \frac{\frac{d}{dx}(\sin x)}{\frac{d}{dx}(x)} \right] \] subject to \( z(x) = 0 \) and \( \sin x = 0 \).

Find the solution of the equation.

UNIT-IV

2.4

(a) Solve

(b) \( z(x) = z(1 - D + xD^2) = z(x) \) \( \forall \) \( x \).

Solve the following partial differential equation.

UNIT-III

2.4

(a) \( \gamma x = 2(1 - xD - zD) \).

(b) Find the general solution of the partial differential equation.

UNIT-I

2.4

(a) \( 0 = \frac{\frac{d}{dx}(\sin x)}{\frac{d}{dx}(x)} + \frac{\frac{d}{dx}(\cos x)}{\frac{d}{dx}(x)} + \frac{\frac{d}{dx}(x)}{\frac{d}{dx}(x)} \).

(b) Find the real characteristics of the equation.

(c) \( \gamma x = 2(1 - xD - zD) \).

(d) Find the general solution of the partial differential equation.

(e) \( z(x) = z(1 - D + xD^2) = z(x) \) \( \forall \) \( x \).
and also the moment of the couple.

respectively. Find the force in magnitude and direction.
three points (1, 0), (0, 1), 1 unit

force acting in the plane of rectangular axes about

The moment of force F acting through the origin and a

which the line of action meets BC.

of a straight line through ABC. Find the magnitude and

Three forces P, 2P, 3P act along the sides AB, BC, CA.

\[ \frac{P - O}{x+y} \]

show that the resultant will move through a distance

and respectively. If P and Q are both increased by x

Two unlike parallel forces P and Q act at A

the angle between \( P \) and R. Show that \( \theta = \frac{\theta_1 + \theta_2}{2} \).

the angle between \( P \) and R is double the

equilibrium and the angle between \( P \) and \( R \) is double

Three forces \( P, Q, R \) acting at a point \( O \) are in

UNIT-1

compulsory.

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

Time: Three Hours

[Maximum Marks: 27]

PAPER : B14-233

MATHEMATICS

GSM/D-18

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

TOTAL PAGES: 3
UNIT I

5. \[ x^2 - z^2 = (z - c) [x^2(1 - x^2) + x^2z^2] \]

6. A force acts along the axes of a force and a force acts along a straight line intersecting the axes of c at a distance c from the origin and parallel to the plane \(xy\). Show that as this force approaches the surface it is constant and the lines remain the axes of c, the central axes of the system.

5. Show that a given system of forces can be replaced by two forces, equivalent to the given system, in an infinite number of ways, and that the interaction formed by the two forces is equal to the interaction of the equivalent forces, calculated in the given system, in an infinite number of ways. Show that a given system of forces can be replaced by two forces acting along the axes of the given system.

UNIT III

4. Find the center of gravity of the area of the curve of constant volume. Plot the curve of the area of the curve of constant volume.

5. A uniform rod A'B' movable about a hinge at \( A \) rests with one end in contact with a smooth wall. If the rod is given a horizontal impulse at the hinge, prove that the reaction at the hinge is constant.
4. Machiavelli was a Realist Thinker. Discuss.

3. Discuss Sr. Augustin's views on St.


1. Discuss the main features of Plato's Ideal State.

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

Maximum Marks: 80

Time: Three Hours

Option (i)

Western Political Thinkers

Political Science

910 CSE/D. 18

Total Pages: 6
5. Explain the main features of Locke's political philosophy.

6. Critically discuss Rousseau’s theory of the social contract.

7. Critically discuss Bentham’s theory of utilitarianism.

8. How far did Mill improve the principles of Benthamite utilitarianism?

9. Objective Type Questions:

(a) American philosopher

(b) Greek philosopher

(c) English philosopher

(d) Roman philosopher

Who said, “Man is a Political Animal”?

10. Who is the writer of the book The Prince?
(a) Plato
(b) Saint Augustine
(c) Mill
(d) Gandhi

Who said that only Church can liberate the soul?

(a) Plato
(b) Saint Augustine
(c) Mill
(d) Gandhi
\[ 0 < x < \frac{(x + 1)}{e^x} - x > (x + 1) \log e > \frac{2}{x} - x \]

(i) \[ \text{L'Hopital's Rule} \]

(ii) \[ \text{Mean Value Theorem} \]

(iii) \[ \text{Prove that} \]

(iv) \[ \text{Find the equation of the tangent line at the point} \]

(v) \[ \text{If } \frac{d^2 f}{dx^2} > 0 \text{ then vertex} \]

(vi) \[ \text{Show that } f(x) = e^x \text{ is continuous and differentiable on} \]

(vii) \[ \text{Examine for extreme values} \]

**Compulsory Questions**

Select one question from each unit.

**Note**: Attempt five questions in all. No. 1 is compul-

**Maximum Marks**: 75

**Time**: Three Hours

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**Paper**: BM-231

**ADVANCED CALCULUS**

**GSM/D-18**

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1. \[ (a) \text{Find the volume of a circular cylinder } x = a \cos \theta, \]

2. \[ (b) \text{Find the volume of a circular helix } x = a \cos \theta, \]

3. \[ (c) \text{Given by } \mathbf{R} = \mathbf{F} \cdot \hat{\mathbf{t}}. \]

4. \[ (d) \text{Show that the radius } \mathbf{R} \text{ of the spherical curvature} \]

5. \[ (e) \]
Find the curvature and torsion of the helix $x = a \cos t$, $y = a \sin t$, $z = ct$, for $t \leq \pi$.

Plane normal to the helix at these points, and find the equation of the plane.

For the curve $x = 3t$, $y = 3$, $z = 2t$, show that any plane normal to the helix at these points, and find the equation of the plane.

UNIT II

Subject to the condition $ax + by + cz = d$, minimize $\frac{1}{2} + \frac{ax + by + cz}{p}$.

Find the minimum value of the function $f(x, y, z) = x^2 + y^2 + z^2$ subject to the condition $x + y + z = 1$.

Subject to the condition $ax + by + cz = d$, find the least integral for the construction.

Find the dimensions of the box of cubic feet. Find the dimensions of the box with volume $V$.

A rectangular box, open at the top, is to have a volume $V$.

7. A box is not differentiable at the origin.

(a) $f(0, 0) = 0, f(0, 1) = 1, f(1, 0) = 1, f(1, 1) = 0$

(b) $f(0, 0) = 0, f(0, 1) = 1, f(1, 0) = 1, f(1, 1) = 0$

(c) Show that the function is discontinuous at $(0, 0)$.

Show that the function is differentiable at a point $(a, b)$ of the domain, then $f'(a, b)$ is defined, and $f'(a, b) = (\partial f/\partial x)(a, b)$.

Show that the function $f(x, y) = (x^2 + y^2)^{1/2}$ is differentiable at a point $(a, b)$ of the domain, then $f'(a, b)$ is defined, and $f'(a, b) = (2x + 2y)^{1/2}$.

6. (a) $f : \mathbb{R}^2 \to \mathbb{R}$ is a function such that both $f$ and $f'$ are continuous everywhere.

(a) $f$ is a function of $x$, $y$, and $z$.

(b) $f$ is a function of $x$, $y$, and $z$.

(c) $f$ is a function of $x$, $y$, and $z$.

(d) $f$ is a function of $x$, $y$, and $z$.

(e) $f$ is a function of $x$, $y$, and $z$.

(f) $f$ is a function of $x$, $y$, and $z$.

(g) $f$ is a function of $x$, $y$, and $z$.

(h) $f$ is a function of $x$, $y$, and $z$.

(i) $f$ is a function of $x$, $y$, and $z$.

(j) $f$ is a function of $x$, $y$, and $z$.

(k) $f$ is a function of $x$, $y$, and $z$.

(l) $f$ is a function of $x$, $y$, and $z$.

(m) $f$ is a function of $x$, $y$, and $z$.

(n) $f$ is a function of $x$, $y$, and $z$.

(o) $f$ is a function of $x$, $y$, and $z$.

(p) $f$ is a function of $x$, $y$, and $z$.

(q) $f$ is a function of $x$, $y$, and $z$.

(r) $f$ is a function of $x$, $y$, and $z$.

(s) $f$ is a function of $x$, $y$, and $z$.

(t) $f$ is a function of $x$, $y$, and $z$.

(u) $f$ is a function of $x$, $y$, and $z$.

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(x) $f$ is a function of $x$, $y$, and $z$.

(y) $f$ is a function of $x$, $y$, and $z$.

(z) $f$ is a function of $x$, $y$, and $z$.
(a) Solve

\[0 \neq 1 + \lambda \frac{\partial}{\partial x} + \lambda \frac{\partial}{\partial y} + \lambda \frac{\partial}{\partial z}
\]

(b) Reduce the partial differential equation

\[0 \neq \frac{\partial}{\partial t} + \lambda \frac{\partial}{\partial x} + \lambda \frac{\partial}{\partial y} + \lambda \frac{\partial}{\partial z}
\]

(c) Write one-dimensional wave equation and

\[u - \lambda^2 + \lambda = 0
\]

\[1 - \lambda^2 + \lambda = 0
\]

(d) Examine the compatibility of these partial differential equations

\[\left\{ \begin{array}{l}
\frac{\partial}{\partial x} f = 0 \\
\frac{\partial}{\partial y} f = 0 \\
\frac{\partial}{\partial z} f = 0
\end{array} \right.
\]

(e) Determine the one-dimensional wave equation by compatibility

\[u^x + u^y + u^z = 0
\]
\[ f(x) = \begin{cases} \frac{\rho}{\varepsilon} & \text{and } (x) = (0, x)^T \\
\end{cases} \]

Subject to conditions:

\[ 0 < x_0 < \varepsilon, \quad 0 = \frac{\dot{x}}{x} \frac{\varepsilon}{\varepsilon} \quad 1 - \frac{\dot{x}}{x} \frac{\varepsilon}{\varepsilon} \]

Solve the Cauchy problem for the equation.

\[ a \quad \text{Solve the equation} \]

**SECTION-III**

\[ t = (\varepsilon - \mu) + \varepsilon + z + 1 \]

\[ a \quad \text{Solve} \]

To canonical form:

\[ 0 = \frac{\dot{x}}{x} \frac{\varepsilon}{\varepsilon} z + \frac{\dot{x}}{x} \frac{\varepsilon}{\varepsilon} + \frac{\dot{x}}{x} \frac{\varepsilon}{\varepsilon} t + \frac{\dot{x}}{x} \frac{\varepsilon}{\varepsilon} \]

(1) Classify and reduce the equation

\[ t = (\varepsilon - \mu) + \varepsilon + z \]

(1) Solve

To canonical form:

\[ 0 = \frac{\dot{x}}{x} \frac{\varepsilon}{\varepsilon} z + \frac{\dot{x}}{x} \frac{\varepsilon}{\varepsilon} \]

(4) Classify and reduce the equation

**SECTION-H**

By Jacobi's method:

\[ 0 = z d - \frac{d_z d}{d} + \frac{d_z d}{d} \frac{d_z x}{d} \]

(1) Find the complete integral of

(1) Solve

By using Cauchy's method:

\[ \tau d + \varepsilon b + 1 = \varepsilon c \]

(1) Find the complete integral of equation

(1) Solve the partial differential equation

\[ \varepsilon x - \varepsilon = b(x - \varepsilon) + d(\varepsilon - \varepsilon) \]

(1) Solve

**SECTION-1**
Find the moment in magnitude and direction and also the couple in the plane of rectangular axes about one line of action, means CD.

Also find the point in which the line of their resultant A and D meet when A is taken as origin and B as point P, find the magnitude and direction of a square ABCD. Find the moment of the force P acting through the origin and AB, BC, CD.

Two like parallel forces p and q act at given points. If the resultant is same, show \( r^2 = q^2 - \frac{p^2}{3} \) and if the resultant is equal to \( p \), show \( r = p \).

Two forces \( P \) and \( Q \) act at the same point in \( P \). Find the increase in \( P \) if \( Q \) increases. Then the new resultant bisects the angle between \( P \) and \( Q \). What happens if \( P \) and \( Q \) are in the same direction?
1. Define Wrench.
2. Define Equilibrium of Two couples.
3. Find the center of gravity of a thin uniform rod.
4. Find the components of a force P along two directions making angles 45° and 30° with it on opposite sides.
5. Find the magnitude and direction of a force from its components.
6. Determine all the following:

**COMPUTATIONAL QUESTION**

UNIT-I

1. Forces are of constant volume. The number of ways in which the configuration formed by the two forces equivalent to the given system in an infinite number of ways, is called the Wrench. To show that a given system of forces can be replaced by forces acting along two perpendicular diameters of the same size.

UNIT-II

1. Equal forces act along two perpendicular diameters of a circle.

UNIT-III

1. A solid hemisphere is supported by a string fixed to a point in the vertex, show that tan θ = 8 / 6 + tan θ.

2. Equal forces acting along two perpendicular diameters of a circle.

3. Two uniform rods AB, CD of length 2a, 2b respectively are rigidly joined at E and are suspended freely from A. If they tilt slightly and are pulled by a force P acting vertically downward at A, prove the forces acting on the rigid body are in equilibrium.

4. Find the position of C, D of the curve x = a(θ) + b sin(θ).

5. A system of forces given by \( \sum F = 0 \) and another by \( \sum M = 0 \). A system of forces given by \( \sum F = 0 \) is replaced by another system of forces given by \( \sum M = 0 \).
1. Which are basic components of compound Explanatory Function?

2. When is the process of reverse it.

3. What is the phase diagram and triple point on it?

4. When are phasing functions?

5. How many are the five decimal numbers into binary?

6. a) Identify the basic components of Explanatory Function.

Complementary Question

Equal marks. Non-programmable calculator is allowed.

Select one question from each Unit. All questions carry

Note: Attempt any five questions. Question No. 1 is compulsory.

Maximum Marks: 40

Time: Three Hours

Paper A (PH-301)

Computer Programming and Thermodynamics

PHYSICS

G8AD-1S

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

Total Pages: ........................................
For copper, $C = \frac{6.2 + 0.00117T}{\text{cal/g degree}}$.

1. Find the temperature rise in a copper rod of mass of 2 kg.
2. Determine the heat equation for a copper rod of known dimensions.

**Problem 8.31**

1. Find the main equation of the change in the model.
2. Find the main equation of the change in the reference model.
3. Explain the absolute reference model.

**Problem 8.32**

1. Help of developing algorithms for shear and BORTRAN.
2. Find the focus of a distinctive equation with the.
Inference pattern

3. Discuss the conditions the produce good and sustained

Young's double slit interference experiment

2. (a) Devise the conditions of maxima and minima in

UNIT-I

1. (a) Which do you mean by Rayleigh's criterion of

(b) A zone plate has multiple focal. Explain.

(c) Interferometer. How localized fringes are observed in Michelson's

Young's Double slit interference experiment. 1. (a) The intensity of light emerging from one slit in a

Compulsory Question

Discussion carry equal marks. Compulsory. Select one question from each unit. All

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

Time: Three Hours

Paper-VI
( WAVES and OPTICS-I)

PHYSICS

931

931/8/50/1K/1238

Total Pages: 3

Roll No.
UNIT-III

6. Explain the rectilinear propagation of light using the incoherent sources. How is it used to produce Fresnel's diffraction?

7. Explain the working of a zone plate as a convex lens.

8. Describe Moiré fringes. Interferometer. Explain its principle and working. How will you use it to find the wavelength of light used.

UNIT-II

5. What is the wavelength of light used in Newton's rings experiment? Derive the formula to find the wavelength of light used using Newton's rings. What are Newton's rings? Explain its formation and uses.

4. What are Frensel's rings? How is it used to produce different interference fringes from the edges produced in Lloyd's conical source? How are the fringes produced in Frensel's conical source?
1. Name a transition metal which is liquid at room temperature.
   (a) Mo, W
   (b) Zr, Nb
   Which of the following pairs of metals have the most similar ion radii?
   (b) Write the electronic configuration of Cu and Ag.

2. Computer Question

   Computer: Select one question from each section.
   Note: Attempt four questions in all. Question No. 1 is compulsory. Select two questions from each section.
   Time: Three Hours
   Maximum Marks: 32

Paper: VIII C-201
(Tribhuvan University)
CHEMISTRY

932

Total Pages: 4
SECTION A

2. (c) Define non-coordinating solvents with examples.
2. (d) In NH₄SO₄ solution, discuss stability. Explain why it is stable.

8. (a) Explain that SO₂ acts both as Lewis acid and base.

SECTION B

2. (c) Represent neutral element. Explain: Fe is a transition element but K is a.
2. (d) Why W is used for making filament in electric bulb?

6. (a) Why do tetrahedral complexes do not show geometrical isomerism?
6. (b) Why do tetrahedral complexes do not show geometrical isomerism?

7. (a) What are isomers? Discuss the factors which affect

8. (a) Give IUPAC name of \([\text{Co(NH}_3\text{)}_2\text{H}_2\text{O}]^{3+}\) ion.
8. (b) \([\text{Co(EDTA)}^-\text{]}^{-}\) ion also.

9. (a) Draw the structure of [CO(NH₃)₄(H₂O)]²⁺ ion. Discuss the structure of ethylenediamine-tetraacetate ion.
9. (b) Draw the structure of ethylenediamine-tetraacetate ion.

10. (a) Why do tetrahedral complexes do not show geometrical isomerism?
10. (b) Why do tetrahedral complexes do not show geometrical isomerism?

OR

11. (a) In sp³ hybridized tetrahedral complex explain why electron affinity is higher value of transition elements in zero or low oxidation state.
11. (b) Which of the following has higher value of oct. 

12. (a) Write complexes with ligands like CO, NO, PR₃.
12. (b) Transition elements in zero or low oxidation state.

13. (a) Give the statement:
13. (b) Justify the statements:

14. (a) Calculate spin only magnetic moment of Ni⁷⁺ in [Ni(H₂O)₆]²⁺.
14. (b) For Cu²⁺ to Cu⁰ and O₂⁻ → O₂⁻ for Cu⁰ to Cu²⁺.

15. (a) Why Cu⁺ underdistributes in aqueous solution.
15. (b) Why Cu⁺ underdistributes in aqueous solution

16. (b) Why Cu⁺ underdistributes in aqueous solution.

SECTION C

2. (a) Calculate magnetic moment of 1+Cu⁺ with increasing atomic number. Explain with increasing atomic number. Explain.
Define the term Chemical Potential. Write an expression for it.

The products after the equilibrium is attained give

The number that is applicable is

When the conditions under which the reaction is equilibrium

When is meant by Thermal, Mechanical and Chemical

Write the thermal expression for each gas.

Define the thermal expression. Write the thermal

Give the example of each of them

What is the difference between Extensive and Intensive

Computer Question

and Non-Programmable calculator is allowed.

Select one question from each section. Use of long form

Note: Answer four questions in all. Question No. 1 is compulsory.

[Marking Scheme: A = 4, B = 3, C = 2, D = 1]

Time: Three Hours

Paper-1 (X: C202)
(Purest Chemistry)

CHEMISTRY

GS6316

Page No.: 0

(a) Write the dissociation law of complex Ki. According to the following

[The chemical expression is not clear due to the image quality.]
To calculate the reaction:

\[
\frac{\Delta H}{N} = \frac{\Delta H}{V}
\]

1. Determine the reaction:

\[
\left( \frac{\Delta H}{1} \right) \frac{N}{N} = \left( \frac{\Delta H}{V} \right) m
\]

2. Explain how distribution law can be applied to determine the above reaction:

SECTION-A

1. What is the main difference between a chemical change and a physical change?

2. Draw the reaction for the combustion of Hydrogen.

3. What is the value of \( p \) in the reaction:

\[
p = \text{a specific value}
\]

4. Show the reaction for the combustion of Butane gas (C\(_4\)H\(_{10}\)).
2. (a) Complete the reaction and give its mechanism.

**SECTION A**

(i) by UV spectrophotometry

How will you distinguish between C8 and C9 isoforms?

(c) Explain the group shown.

(b) Carboxylic acids do not give characteristic reactions in alkaline solution at pH 9 - 10.

What happens when phenyl rings with benzene propylene 1,3-diol using HIO3?

(a) How will you distinguish between propylene 1,3-diol and 1,2-diol?

**Compulsory Question**

Section B

Any two questions from Section A and two questions from Section B.

**Note:** Attempt all questions in all O'N. No. I is compulsory. Select 2 maximum Marks.

Time: Three Hours

Paper - (CH-203)

(Quantum Chemistry)

CHEMISTRY

CSSD-I8

Total Pages

Roll No. ____________

(c) Explain why Brønsted shows higher value of pKa than the conjugate acid. 

(e) How will you prepare benzene acid from ethyl benzoate?
6. (a) Why is nucleophilic attack substitution or give us

**SECTION B**

7. Discuss the effect of substituents on acidity of phenols.

(a) Explain what happens when 2,4-dimethyl-2,4-hexadiene is treated with sodium

(b) Phenol reacts with zinc dust. Give the reaction and the products that are formed.

(c) Phenol undergoes Kolbe's reaction. Give the products that are formed.

(d) Give the mechanism of the Claisen Rearrangement.

(e) Why phenols do not undergo substitution of -OH like ethers?

(f) Why phenols are more acidic than alcohols? Explain.

(g) Give the mechanism of condensation under hint of permsulfate.

(h) Unlike ethers, epoxides are highly reactive. Give suitable examples.

(i) How does phenol react with oxalic acid at 353 K?
UNIT-1

1. Define the following:

(a) Amphiophyte
(b) Dioxyphyte
(c) Diphyto
(d) Embryo
(e) Cenopodial
(f) Mycophyte
(g) Phytophany
(h) Siphonophany

2. Attempt all the following:

(i) The older

(ii) Arrange the following in chronological order starting from the oldest:

40/2.700/KXD/164

Aerosil, Paleozoic, Cenozoic

Note: Attempt the questions in all the sections except four. Maximum Marks: 40

(a) Explain in Phunts of a Gymnosperm represent three generations.

(b) What is the number of cotyledons in the seeds of Phunts and Ephedra?

(c) Sporophylls of Phunts and Ephedra.

(d) Pinus (name these cells).

(e) At what cellular stage pollination occurs in Cyparissus and Ephedra.

6. Write on the following:

UNIT II

5. Give a concise account of the morphology and reproductive organs of Cycads (= Bennettitae).

4. Classify Gymnosperms according to Piller and Melchior's

3. Describe the process of fossilization and importance of fossils.

(a) Write in brief on the following.

(b) Primitive Angiosperms.

(c) Reproductive structure of Ephedra.

(d) Economic importance of Cyparissus.

7. (a) $2+2+2=8$

(b) $3+3+2=8$

(c) $4+4=8$

9. Write on the following:

(a) $2+2+2=8$

(b) $3+3+2=8$

(c) $4+4=8$

(d) Why is the probable age of origin of life ?

(e) When is the probable age of origin of the Earth?

(f) Period, Epoch, Era.
2. Describe the various components of Phloem. Explain with suitable diagrams.

UNIT-I

(a) 
(b) 
(c) 
(d) 
(e) 
(f) 
(g) 
(h) 
(i) 
(j) 
(k) 
(l) 
(m) 
(n) 

1. Define the following:

Compulsory Question

Maximum Marks: 40

Note: Attempt the questions in all the questions. Maximum Marks: 40

Time: Three Hours

Paper-II

(Plant Anatomy)

BOTANY

GSM/D-18

941

Total Pages: 2

Roll No.
UNIT II

Boehmiana stem.?

5. What is anomalous secondary growth? How does it occur in

5.

(b) Draw well labelled diagram of T.S. of a monocot stem.

4. (a) Differentiate between Tracheids and Vessels.


3. 

(a) Scelenchyma

3. Write short notes on the following:

8. What is angiospermous in 

Phylogeny.

9. What are the respiratory roots? Discuss the anatomical features

4. (b) Parts of a typical root.


8. Write short notes on the following:

7. What is floral apparatus? Discuss its morphological types.

4. Compound leaf.?

4. What is the difference between a Simple leaf and a

4. Phyllotaxy.

6. (a) What is Phyllotaxy? Describe various types of

8.
1. Explain the following in about 20 words each:

(a) Comparative anatomy.
(b) Developmental biology.
(c) Evolutionary relationships.
(d) Ethology.
(e) Neuroethology.
(f) Phylogenetic relationships.

Note: Attempt five questions in all. Select two questions from each from Section-A and Section-B. Question No. 1 is compulsory. Support your answer with neat and labelled diagrams whenever necessary.
9. Give an account of habitat, habits and morphology of

8. Explain swim bladder of Labeo.

7. Write short notes on the following:

6. Discuss the digestive system of Labeo in detail.

5. Write short notes on the following:

4. Describe the digestive system of Branchiostoma.

3. Give an account of the blood vascular system of Hemimana.

2. What are chordates? Give an outline classification of Chordata.
1. Explain the following:

- Propulsive group
- Ankle
- Osteoporosis
- Single muscle twitch
- Survey
- Facilitated diffusion
- Enzyme
- Homopolysaccharide
- Disulfide bond
- Absorption

**Complementary Questions**

Complementary. Select two questions from each section.

**Note:** Attempt five questions in all. Question No. 1 is compulsory. Time: Three Hours. Maximum Marks: 40.
SECTION A

2. (q) Give a detailed account of bone growth.

4. (a) Discuss different types of bone.

6. (a) Give an account of muscle contraction.

8. (a) Describe ultrastructure of striated muscle.

10. (q) Explain different types of tendons.

12. (a) Discuss digestion of proteins.

14. (a) Explain assimilation.

16. (a) Give a detailed account of symbiotic digestion.

SECTION B

2. (q) Briefly discuss active sites.

5. (a) Explain tunnel proteins of membranes.

7. (q) Give classification of enzymes.

9. (a) Discuss cholesterol and its derivatives.

11. (q) Write a note on endocytosis.

13. (a) Give an account of active transport.

15. (q) What are globular and fibrous proteins?

17. (a) Explain the structure of primary and secondary proteins.
UNIT I

2. Define strings. Explain various methods of storing strings in computer memory.

UNIT II

3. Explain complete binary tree in detail.

(j) Comment on the need of a priority queue.

(c) Simple link list

(d) Define advantage of using header linked list over

5. What do you mean by a sparse matrix? Explain.

(e) Stines.

(f) Name various operations that can be performed on various operations that can be performed on

(iii) (Compulsory Question)

Note: Answer five questions from all questions. 40 marks.

Time: Three Hours

Paper I
(Data Structures)

Computer Science

GSM-H-19

Total Pages: 2
4. Write down an algorithm to insert an element in a linked list.

5. Differentiate between following:
   (i) Array and Linked List
   (ii) Singly Linked List and Doubly Linked List.

6. What do you understand by Queue? Explain various

UNIT-III

7. Write an algorithm to calculate an expression in postfix notation

8. Using stacks.

UNIT-II

8. Explain various traversal methods on
   a binary tree using suitable examples.

9. Explain following terms with Graph:
   (a) Graph
   (b) Multigraph
   (c) Adjacency matrix
   (d) Path matrix.

8. What is a binary tree? Explain various traversal methods on

UNIT-I

8. Write an algorithm to evaluate an expression in postfix notation.
UNIT 1

1. Write the phases of software development.

2. Define the term cohesion.

3. Explain the software crisis problems and causes in the software industry.

4. Explain the Waterfall Model in detail and also explain the advantages and disadvantages of Waterfall Model.

5. Define team structure in software project planning.

6. What do you mean by Software Requirement?

7. Define the term structure.

8. Write the phases of software development.

Computer Question

All questions carry equal marks.

Note: Attempt five questions in all, select at least one question from each section. Questions No 1 is compulsory.

Time: Three Hours

Maximum Marks: 40

(CSWD 18)

Computer Science

950
UNIT-IV

(4) Discuss the various types of software maintenance when there are the ways of reducing the need for software maintenance.

(4) What is software testing? Which types of errors will result?

UNIT-III

(4) What are the rules for drawing a DFD?

(4) When is DFD. What are the symbols used to draw a DFD.

UNIT-II

(4) What are the steps involved in software requirement collection.

(4) Explain the various tools involved for information analysis.
UNIT I

1. What is the difference between a web server and a web browser?
2. What does the URL attribute do?
3. Define various types of HTML elements or tags.
4. Define a home page.
5. What is the difference between HTTP and FTP?
6. What is the difference between Internet and Intranet?

Compulsory Question

Select one question from each unit.

1. What is the difference between a web server and a web browser?
2. What does the URL attribute do?
3. Define various types of HTML elements or tags.
4. Define a home page.
5. What is the difference between HTTP and FTP?
6. What is the difference between Internet and Intranet?

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

Time: Three Hours
Maximum Marks: 40
UNIT I

4. (b) Write short note on Page Layouts.

4. (a) Explain the steps of internal linking by using examples.

3. (c) Explain Movement of text.

3. (b) Explain <PRE> tag and its various attributes.

2. (a) Share the features of HTML documents.

UNIT II

5. (b) Explain various steps to host your website.

5. (a) Factors concerning while selecting an ISP.

4. (a) Define ISP. What are its features? Also explain various

“Describe briefly the Web publishing tools.

4. (a) Explain various principles of web design. Also

UNIT III

3. (a) Define how search engine works.

3. (b) What is Web casting? Also define Web casting.

9. (a) How can you set frame markers? Explain with example.

and Radio button field.

8. (a) Explain various types of lists available in HTML.

(b) What do you mean by Rowspan and Colspan attributes?
UNIT-I

1. Explain the following:

(2×4=8)

(a) Disadvantages of DBMS
(b) Entities
(c) Entities models
(d) Relationships
(e) Tables

2. How is the role of DBA formed from DBMS?

3. What is the role of DBA?

4. Explain Schema and Subschema.

UNIT-II

5. When is Client Server architecture used?

6. What is Client Server architecture?
UNIT-I

8. What is Network data model?

8. How RDBMS is different from DBMS?

UNIT-IV

7. Explain Object based data model.

8. Compare and contrast various types of data models.
UNIT I

1. Explain the following in brief:

(i) Hypersensitivity
(ii) Allergen presenting cells
(iii) Immunochemical tolerance
(iv) Cytokines
(v) Types of antigens
(vi) Epitopes
(vii) Affinity of antibody
(viii) Null cells

2. (a) What is innate and adaptive immunity and what are their features?

(b) Describe primary lymphoid organs of the immune system.

(c) How do they influence immune responses and disease processes?
UNIT II

4. (a) Explain the functions of different classes of antibodies.
(b) Draw the structure of antibody and explain the functions of different classes of antibodies in immune responses.
(c) Explain the role of B cells and plasma cells in the immune response.
(d) Describe the role of T cells in the immune response.
(e) Explain the role of complement in the immune response.
(f) Describe the role of natural killer cells in the immune response.

5. Discuss in detail about the primary and secondary immune responses.

6. (a) What are the different factors responsible for the development of immunity?
(b) Write the primary about generation of cell-mediated immunity.
(c) Write short notes on the following:

7. Write short notes on the following:

8. (a) What is the structure of class I MHC molecules?
(b) What is the structure of class II MHC molecules?
(c) What is the structure of class III MHC molecules?

9. (a) What is the structure of antibody?
(b) What is the importance of antibodies in the immune response?
(c) What is the role of antibodies in the neutralization of toxins?
(d) What is the role of antibodies in the opsonization of pathogens?
UNIT 1

Degenerate Genetic Code and Promoter

Elaborate the terms: transduction, attenuation.

Which organelles in a human cell contain DNA?

Which is more stable and why?

Two DNA samples A and B were found to contain 30% and 50% GC content, respectively. Which of these is

What is the role of DNA replication?

English any two differences between B-DNA and Z-DNA.

Compulsory Question

Each unit question No. 1 is compulsory.

Note: Attempt five questions in all, selecting two questions from

Maximum Marks: 40

Time: Three Hours

Paper: VII
(Molecular Biology)
BIOTECHNOLOGY

961

GSW/D-18

Total Pages: 3

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

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[194x88]a P _6 D_
[194x75]E r e'5 0
[194x64]: E=:.
[178x45]'F - -; F * -P
4. **Initiation of transcription:**

Post translation modifications:

5. Discuss any one of the following:

6. (a) Define catabolic repression and explain its mechanism.

(b) Differentiate between induction and repression.

7. **UNIT II**

mechanisms of DNA repair:

4. (a) How is DNA replication initiated in prokaryotes?

(b) How is DNA replication initiated in eukaryotes?

4. Discuss eukaryotes at least two examples.

5. What are point mutations? How are these caused?

The transposable genetic elements of maize:

3. (a) What are transposons? Who discovered these?

Explain

7. Write short notes on any two of the following:

- Gene splicing and generation of mature mRNA
- Initiation of transcription in eukaryotes
- One cycle of elongation of polypeptide chain synthesis
- Homologous recombination

7. Describe the Hershey and Chase experiment to prove
केहि चैनु नेपाल: हेकि ता लाग्ने 
केहि केहि नेपाल: हेकि ता लाग्ने

धातुको नेपाल: हेकि ता लाग्ने
धातुको नेपाल: हेकि ता लाग्ने

1. नेपाल: हेकि ता लाग्ने
2. नेपाल: हेकि ता लाग्ने

मात्रमा नेपाल: हेकि ता लाग्ने
मात्रमा नेपाल: हेकि ता लाग्ने

समय: तिरहुरुण मक्के: 40

संस्कृतिमा (कम्प्युटरीय)

संस्कृतिमा (कम्प्युटरीय)
1. Tööks 

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<th>Description</th>
<th>Code</th>
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<td>4</td>
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<td>CODE 4</td>
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4. Lisaks on teine tähtis tõlgendamine.

2. Tühv lei üksus.

2. Tööks 

<table>
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<tr>
<th>Item</th>
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<tr>
<td>4</td>
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1. Define any eight of the following:

Compulsory Question (All carry equal marks)

All questions carry equal marks.

Note: Question No. 1 is Compulsory. Attempt total five.

Maximum marks: 40

Time allowed: 3 hours

Paper - Course No. 201

NUTRITION CYCLE

GSN/D-18

Printed Pages: 3

Roll No. 1154
Nutritional requirements.

1. What are the various physiological changes taking place during pregnancy?
2. What are the advantages and disadvantages of breastfeeding?
3. What do you think is the best mode of breast feeding?
4. State any two of the following for nutrient requirements:
   - Calcium
   - Iron
5. Write short notes on the following:
   (i) Nutritional intake
   (ii) Nutritional for schoolers
   (iii) Nutritional for adults
   (iv) Nutritional for pregnant woman

6. Define adult nutrition. Give nutritional requirements for heavy, moderate and sedentary worker.

Unit II (12th - I)

(1) Adult man
(2) Adult woman
(3) Sedentary wash
(4) Nutritional
1. Explain briefly the following:

1.1 Define K12.

1.2 Attempt the questions in all sections. All questions carry equal marks. Time allowed: 3 hours. Maximum marks: 40.

II. Paper Course: 202 QPR. II

CONSTRUCTION INTRODUCTION TO CLOTHING

CSM-D-18

Printed Pages: 4

Roll No.
8. Explain the role of principles of design in dress machine in detail.

7. Define clothing. Can life be possible without clothing?

6. What are the effects of improper care?

5. Suggest how the life of sewing machine can be increased and

4. Write about the common faults of sewing machine, their causes and remedies in detail.

3. Draw a well-labelled diagram of sewing machine and explain its parts.

2. With the help of diagram explain about the components used in

(1) Unit-I (9th-11th)
1. Answer the following in 3-5 sentences.

Complimentary Question (เลือก 4 ข้อ)

From each unit Question No. 1 is compulsory. All questions carry equal marks. Answer the questions in all by selecting two questions.

Time allowed: 3 hours

Maximum marks: 40

**PAPER-COURSE NO. 203**

**FAMILY DYNAMICS**

**CSM / D-18**

Printed Pages: 3

Roll No.
UNIT II (Parágrafo)  

6. Why Family Planning is Important? Describe various factors affecting it.

7. Explain the idea and main purposes of New Economic Policy.

8. What is Population Policy of India? Describe its main features.

9. What do you understand by "Media Boom"? Describe its purpose and advantages.

3. Define marriage. Discuss various functions of marriage in detail.

2. Define family. Explain various types of families.

1. What is the role of women in India?

(3)
1. Answer the following questions (all at 2 marks)

**Compulsory Question**

1. 

All questions carry equal marks.

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

**Maximum marks:** 40

**Time allowed: 3 hours**

**PAPER-Course No. 204**

**PROTECTION**

**HOUSEHOLD EQUIPMENT AND CONSUMER**

**GSM/D-18**

**Roll No.**
Unit II (Figs-11)

5. Discuss the advantages and disadvantages of electronic equipment over hand operated equipment.

6. What is the role of government of India for the welfare of consumers?

7. What do you mean by standardization? Discuss various standards.

8. What is consumer protection? Discuss the agencies for consumer protection.

(2)
6. Explain various causes of poverty in our country.

7. Describe the meaning of family. Classify family on the basis of characteristics.

8. What do you understand by social system? Describe his

9. Write notes on following:

(1) Functions of District

(2) Evacuation of SNP

(b) Objectives of ERP

(e) Poverty measurement

(f) Nutrition and health

7. a. Explain the objectives and functions of DIS

b. Discuss the aims of ERP, benefits, advantages and

c. Feed back of ERP programming.
3. Write short note on following:
(a) Explain_builtin
16
(b) Explain inline Function.
8
(c) Procedure Oriented Programming.
8
(d) Explain Inline Function?
8
(e) Procedure Oriented Programming.
8
(f) Explain builtin
8
(g) Procedure Oriented Programming.

Unit-2

1. (a) Differentiate between Call by Value & Call by
   – Parameter.
   16
   (b) Differentiate between Call by Value & Call by
   – Parameter.
   16
   (c) Explain Default Constructor.
   16
   (d) Explain Inline Function.
   16
   (e) Procedure Oriented Programming.
   16
   (f) Explain builtin
   16
   (g) Procedure Oriented Programming.
   16

Compulsory Question

Compulsory Question No. 1.

Time allowed: 3 hours

Maximum marks: 80

Paper-BCA-231

Using C++

Object Oriented Programming

BCA / D-18

Page 1
8. Explain new operator with example.

7. (a) What is a pointer? Illustrate with example.

6. Explain the following:

Unit III

5. (a) Explain the formatted I/O operations.

4. Explain constructor overloading and constructor with default arguments by giving example.

Unit II

3. (d) Nested Class

2. (e) Static Data Members

1. (f) Class and Objects
Section B

(a) Explain the differences between a linked list and an array.
(b) Write a C program to reverse a linked list.
(c) Explain the concept of recursion.
(d) Explain the differences between a stack and a queue.
(e) Explain the concept of a priority queue.
(f) Explain the concept of a binary tree.

Section C

(a) Explain the differences between a binary search tree and a hash table.
(b) Write a C program to implement a hash table.
(c) Explain the concept of a graph.
(d) Explain the concept of a directed acyclic graph.
(e) Write a C program to find the shortest path in a graph.
(f) Explain the concept of a context-free grammar.

Section D

(a) Explain the concept of an automated teller machine.
(b) Write a C program to simulate an automated teller machine.
(c) Explain the concept of a web service.
(d) Explain the concept of a cloud computing.
(e) Write a C program to implement a cloud-based application.
(f) Explain the concept of a blockchain.

Section E

(a) Explain the concept of a virtual machine.
(b) Write a C program to simulate a virtual machine.
(c) Explain the concept of a distributed computing.
(d) Explain the concept of a fog computing.
(e) Write a C program to implement a distributed application.
(f) Explain the concept of a quantum computing.

Note: A candidate will be required to answer five questions in Section A and four questions in Section B.
8. What is Queue? How is it represented in Memory?

Unit-IV

8. What is Queue? Write an algorithm to delete an element in the queue for finding the factorial of a number N.

7. (a) What is recursion? Write the recursive and iterative algorithm for finding the factorial of a number N.

6. (a) Evaluate the following postfix expression

E = 8, 7, 20, *, 15, 3, +

(b) Write an algorithm for reversing a linked list.

Unit-III

16. Example: Write an algorithm for reversing a linked list.

5. What is linked list? How it represents in memory with columns i.e., M[1:10;1:10].

8. (b) M is a two-dimensional array with 10 rows and 10 columns with examples.

4. (a) How a two-dimensional array represents in memory?
4. What do you mean by micro operations? Explain various types of instruction set architecture.

3. Explain various components of the control unit of basic instruction of your choice.

2. Explain rich and execute operation for a direct type instruction of your choice.

1. Explain various approaches of control unit design and implementation.

(b) Explain the concept of virtual memory and hardware implementation.

9. (a) Write down the address of auxiliary memory.

8. Describe various data transfer techniques.

Unit-IV

c. Explain bus organization for various CPU registers using addition of two binary numbers.

7. (a) Write assembly language code for 1's and 2's complement of a binary number.

6. (a) What do you mean by stack? Explain various operations and examples of different types of instructions forms with suitable instruction format. Describe.

5. (b) What do you mean by instruction format? Describe.

4. (c) Explain the principle of hardware control?

3. (a) Describe the advantages and disadvantages of microprogrammed control.

2. (a) Describe various types of CPU registers.

1. (a) Each unit question No. 1 is compulsory.

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

Maximum marks: 80

Time allowed: 3 hours

Paper-BCA-233

COMPUTER ARCHITECTURE

BCA/D-18

Principal Paper: 2

Roll No. 1231
2. Discuss different phases in SDLC model. Explain with

Unite 1

(b) What do you understand by software crisis? While a
discuss characteristics of software and hardware.

3. (a) What is Software Engineering? Discuss different
diagram prototype and spiral models in detail.

1. State any two factors of quality assurance.

(c) What is the importance of software project planning?

(d) Distinguish between implementation and maintenance.

(e) What is software metric?

(f) List the symbols used in PFD.

8x2=16

Exercise

Note: Question No. 1 is compulsory. Attempt any four other

Paper-BCA-234
SOFTWARE ENGINEERING
BCA/D-18

50; 2

Time allowed: 3 hours
(a) Independent if $P(A \cup B) = P(A) + P(B)$.

(b) Let $A$ and $B$ be events and associated with a random experiment. Prove that the events $A$ and $B$ are expected to have been mutually exclusive if $P(A \cap B) = 0$.

In a ball production, which is the defective ball is drawn from the total production and found to be 1% defective. A ball is drawn at random from the total production, and found to be 2% defective. What is the probability that the problem is solved?

A problem in Mathematics is given to three students whose chances of solving the problem are $\frac{2}{5}$, $\frac{1}{5}$ and $\frac{1}{5}$ respectively. Each student, given a problem at random, will appear in a single throw of two dice. Find the probability that neither a doublet nor a total of 9 will appear.

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

Time allowed: 3 hours

Maximum marks: 40

Paper: BIST-301

INFORMATION TECHNOLOGY-III

MATHEMATICAL FOUNDATION OF

BIST I/D-18

Printed Pages: 3

Roll No.
Determine the nodal current for a given network diagram.

1. (a) Define the current at the input node.
   (b) Define the impedance of a two-port network.

2. (a) Common emitter configuration is most widely used.
   (b) Common emitter configuration is most widely used.

3. (a) Common emitter configuration is most widely used.
   (b) Common emitter configuration is most widely used.

4. (a) Common emitter configuration is most widely used.
   (b) Common emitter configuration is most widely used.

5. (a) Common emitter configuration is most widely used.
   (b) Common emitter configuration is most widely used.

6. (a) Common emitter configuration is most widely used.
   (b) Common emitter configuration is most widely used.

7. (a) Common emitter configuration is most widely used.
   (b) Common emitter configuration is most widely used.

8. (a) Common emitter configuration is most widely used.
   (b) Common emitter configuration is most widely used.

9. (a) Common emitter configuration is most widely used.
   (b) Common emitter configuration is most widely used.

10. (a) Common emitter configuration is most widely used.
     (b) Common emitter configuration is most widely used.

11. (a) Common emitter configuration is most widely used.
     (b) Common emitter configuration is most widely used.

12. (a) Common emitter configuration is most widely used.
     (b) Common emitter configuration is most widely used.

13. (a) Common emitter configuration is most widely used.
     (b) Common emitter configuration is most widely used.

14. (a) Common emitter configuration is most widely used.
     (b) Common emitter configuration is most widely used.

15. (a) Common emitter configuration is most widely used.
     (b) Common emitter configuration is most widely used.

16. (a) Common emitter configuration is most widely used.
     (b) Common emitter configuration is most widely used.

17. (a) Common emitter configuration is most widely used.
     (b) Common emitter configuration is most widely used.

18. (a) Common emitter configuration is most widely used.
     (b) Common emitter configuration is most widely used.

19. (a) Common emitter configuration is most widely used.
     (b) Common emitter configuration is most widely used.

20. (a) Common emitter configuration is most widely used.
     (b) Common emitter configuration is most widely used.
UNIT-I

4. Differentiate between Time division and Crossbar switch.

UNIT-II

4. Differentiate between PDM and VDM.

UNIT-

3. (a) What is modem? What is its use in Telecommunication?
2. (a) Describe structure of Telephone System.

UNIT-

6. What are LNI and NNI in ATM?
5. Why are smaller cell preferred in Mobile Phone System?
4. (a) Define Local loop.

Each unit: Question No. 1 is compulsory.

Note: Attempt five questions in all. Select one question from
[Maximum marks: 40]

Time allowed: 3 hours
8. Discuss various ATM layers in detail.

7. What is ANPS? Explain its channels.

6. (a) Discuss various generation of cordless telephone system.

5. Draw ISDN system architecture with PBX. Explain its working.

(b) Explain design goal of ATM.

4. Describe Frame relay and its various layers.


1. Explain the 6-7.

2. Discuss the 5-6.
Turn over

Write a program to subtrack 400 from 655.

(a) of stack pointer in calling a subroutine.
(b) Explain the use
(c) Understand by subroutine
(d) Explain the use

Unit-II

and send the result to Port 1.

P1 in accumulator otherwise load P1 in accumulator.

If the bit is 0, then load

Write a program that can input a byte from Port 2 and

Write the bits in a byte are numbered 7 to 0 (MSB to LSB).

Explain various addressing modes of SAP II

Discussion Architecture of SAP II

Processer

Explain HOLD and HLDA signals of 8085 micro.

Explain role of HL register pair in indirect instruction

Compare SUB and CMP

I. Define STACK and STACK POINTER.

2 I. Question from each unit. Question No. 1 is compulsory.

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

Maximum marks : 40

Time allowed : 3 hours

Paper-BIST-304

AND PROGRAMMING-I

MICROPROCESSOR ARChITECTURE

BIST / P-18

Printed Pages : 2

Roll No. : 12673
12673

What is DMA? Explain with the help of a block diagram

 Explain EI and DI instructions.

 Discuss software interrupts of 8085.

 Explain the difference between software and hardware.

 Explain Denormalizing in bus.

 Explain 10/M, S0 and S1 with reference to 8085.

 Explain XTAL and SHLD of 8085.

 Explain timing and control section of microprocessor.

 Explain XCHG and LDAX instructions.

 Draw and explain pin diagram of 8085.

 In the role of LABITS in Assembly Language?

 the execution of SUB B, A = CFB and B = A1H.

 Will be the contents of accumulator and flags after

 Explain the process of handshaking.
Turn over.

Odd out of any 10 numbers.

Write a program to find whether a Number is Even or

Write a program to multiply

Write a program with example function ( ) and print.<

Sort

Write a program using 1-D Array to perform Bubble-

Unit-I

From 2 to 7

Write a program using Nesting of Loops to print factorial.

What are various Loops in C?

Calculate using 4 functions.

Write a program using Switch statement to make a simple

Difference of Switch and goto using example.

Unit-II

Discuss escape sequences.

While Syntax of Scanf and print with example.

Discuss Data Types available in C.

While Character Set and Keywords in C.

Unit-III

Unit-IV

Write a program to perform linear search.

A MATCH [N, T]  
Write a program to multiply.

Write Syntax with example function ( ) and print.<

Sort

Write a program using 1-D Array to perform Bubble-

one question from each unit.

Note: Attempt the questions. Q.No. 1 is compulsory. Select

Maximum marks: 40

PAPER-BSTL-306

COMPUTER PROGRAMMING WITH C

BSTL - D-18

Printed Pages: 2
OR

by Charles Lamb.

6. Summarize the essay "In Praise of Chimney Sweepers".

Comment on the hero in the novel Emma.

OR

his character look foolish in Emma.

(b) Elaborate the speeches of Mr. Woodhouse which show

Wakefield.

Write a note on the characters of Sir William in "Vicar of

OR

the novel "Vicar of Wakefield".

(a) Why are the stakes so high for Oliver's "education" in

words each:

1. Attempt all three short answer type questions in about 200

UNIT I

Note: All questions are compulsory.

Time: Three Hours

Paper: VI

LITERATURE IN ENGLISH (1750-1830)

16532

BSW/D-18

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

Total Pages: 2
When were the major trends of Gothic Novels?

OR

6. Write a note on the Agricultural Revolution.

OR

Comment on the age of sensibility.

OR

Romantic poets.

5. Write the characteristic features of the Second Generation of

(2×16=32)

4. Highlight the contribution of Charles Lamb as an essayist.

Emma

3. Discuss the relationship of Emma and Knightley in the novel

Wakefield.

2. How does the view change throughout the novel View of

G. 2 to G. 4.

Attempt any two essay type questions out of the given three from

(3×8=24)

Comment on the role of wealth in Lamb's essay "Poor

Relations".
2. \(2\times 8 = 16\)

3. If \(A\) is the point \(B\) is the point

4. \(\text{Maximum Marks} : 80\)

5. Time: Three Hours

6. Paper-VI

VADIKASAHITTHAM

16563

BSND-18

Total Pages: 2
16.

4. Why is Machiavelli called the First Modern Political Thinker?

16

3. Discuss S.L. Augustine's views on State and Government.

2. Critically examine Augustine's views on Slavery.

16

1. Discuss Plato's concept of Ideal State.

marks

Note: Attempt any five questions. All questions carry equal

Time: Three Hours

Maximum Marks: 80

Op. (1)

Paper-I

Westem Political Thinkers-I)

POLITICAL SCIENCE

BSW/D-18

ROLL NO.

Total Pages: 7
The most famous book of Plato is

9. Objective type questions.

8. Explain critically Mill's views about democracy.

7. Critically discuss Bentham's theory of utilitarianism.

6. Explain the main features of Locke's political philosophy.

5. Critically analyze Hobbes's social contract theory of the origin
When justified the revolution of 1688?

(a) Locke
(b) Hobbes
(c) Arisotle
(d) Plato

Who wrote "Machiavelli was the child of Florence and the Renaissance."

(a) Jones
(b) Maxey
(c)ware pap
(d) Dunning

According to Rousseau, population of slave should be

(a) 0.5
(b) 10,000
(c) 11,000
(d) 49,000
(e) 50,000
(viii) 'Utilitarianism' was written by

(a) James Mill
(b) Bentham
(c) J.S. Mill
(d) Spencer.

(vii) Jeremy Bentham was born in

(a) 1748
(b) 1750
(c) 1752
(d) 1770
4. Discuss the domestic determinants of India's foreign policy.

3. Assess the role of Cabinet in India's foreign policy.

2. Discuss the basic principles of India's foreign policy.

1. What is foreign policy? Trace the evolution of India's foreign policy since independence.

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

Maximum Marks: 80

Time: Three Hours

Paper-III

(Indian's Foreign Policy-1)

Political Science

16566

BSW/D-18

Roll No. ..........................
16566/150/KD/1780

1. Who is the External Affairs Minister of India?

Who said, "Like other many things foreign policy starts

(a) Ch. Lal Singh
(b) Sushma Swaraj
(c) Sonia Gandhi
(d) National Model

9. Objective type questions:

(a) China

8. Describe the conflict and cooperation between India and

(a) K. R. Narayanan
(b) L. N. Dube
(c) P. D. Sharma
(d) P. S. Yadav

7. Describe the Kashmir factor in Indo-Pak relations.

(a) "Cross the Rubicon"
(b) "Making of India's Foreign Policy"
(c) C. Rajagopal

6. Discuss the role of the Ministry of External Affairs in the

5. Discuss the external determinants of Indian foreign policy

4. Discuss the role of the Kargil War can

3. Who is the author of the book "Crossing the Rubicon:

2. Who is the External Affairs Minister of India?

1. Who is the External Affairs Minister of India?
(v) Challenges to Indian Foreign Policy in the New Era.

(a) Anupama Nathya
(b) K.C. Pan
(c) R.S. Reddy
(d) D.D. Basu

is written by

(a) India and Bhutan.
(b) India and Pakistan.
(c) India and Nepal.
(d) India and China.

(vii) Indo-Pakistan Treaty was signed by

1962 (a)
1965 (b)
1974 (c)
1980 (d)

1997 (e)
1991 (f)
1999 (g)
1997 (h)