Name: _____

Roll No: _____

DHAKA COACHING CENTRE

IMPORTANT PAPERS
2018-19
XI Sc

DHAKA COACHING CENTRE

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IMPORTANT QUESTIONS 2019

Subject: English

CLASS: XI

PROSE SECTION

1. Why does the writer apply the word "terrible" to the first year of Pakistan's history as an independent state?
2. Why did the meeting between Gandhi and Jinnah not yield any final settlement?
3. What would probably have happened if there had been a panic?
4. Describe a heroic action that took place after the Birkenhead went down. Or what sacrifice was given by the commander of the British Army during the tragic incident of the Birkenhead ship?
5. How did the Birkenhead come to be wrecked? Was any member of her crew to blame?
6. What is the difference between scientific and unscientific work?
7. What are the limitations of science in regard to the service for the society?
8. What are the four contributions made by science to the welfare of society? Answer with the reference to the lesson "Science and Society"
9. Why was Manning certain of Charlton's guilt after peering closely into his face?
10. Why did Manning never believe that King was the murderer?
11. What crime had been committed in New Castle that afternoon?
12. Why was there a roar of laughter when the author left the bank?
13. The author, Stephen Leacock, was a respectful university teacher and highly successful writer. Do you think this is a true story?
14. What is the moral of the story "My Bank Account"?
15. Explain the meaning of the clerk's question 'How will you have it'?
16. What did the Baroness think the legend was?
17. What reason did the Baroness give for the legend to be false?
18. What was the actual story attached to the castle of the Cernogratz family?
19. What was the rational explanation for these strange events given by the banker's wife?
20. How successful has the United Nations Organization been so far in preventing local wars?
21. What is the function of the International Bank?
22. What are the differences between the General Assembly and the Security Council?
23. What is the main goal of UNESCO, UNICEF and WHO?
24. Why did Kashmir not join Pakistan?
25. Why was the life accommodation for only 180 people after the collision with the rock?

POETRY SECTION

1. What is the moral/central idea of the poem, "Under the Greenwood Tree"?
2. What is the message conveyed in the poem, "The Character of a Happy Life"?
3. What, according to Sir Henry Wotton, is the most essential factor in a man's life that ensures his happiness?
4. What does Henry Wotton's happy man feel about, name, fame and needs of the society?
5. What do you think is the message of the poem "The Abbot of Canterbury"?
6. What were the answers given by the shepherd?
7. What were the three questions asked by King John?
8. What does the Oliver Goldsmith condemn in the poem "The Deserted Village"?
9. What is a ballad? Give an example of ballad from your book.
10. What is the message conveyed in the poem 'Lucy Gray'?
11. What is the moral of "Lines from the Deserted Village"?
12. Who was Lucy Gray? What happened to her on her way to the town?

13. What is the famous legend about Lucy Gray?

14. What do you think is the message of the poem, "Sonnet Composed upon West minister Bridge"?

15. What is a sonnet? What inspired William Wordworth to write the Sonnet Composed upon West Minister Bridge?

16. what is the message conveyed in the poem," Incident of the French Camp"?

17. Why did the messenger hold on to the horse's mane and keep his lips compressed when he stood before Napoleon?

18. What is the message of the poem 'Lay of the Last Minstrel'?

19. What is the main/central idea behind the poem "Abou ben Adhem"?

20. What religious idea does the poem "The Toys" convey to its readers?

21. Why does Coventry Patmore scold his son and what happens afterwards?

TWO ONE ACT PLAY

1. Why did Count of Morcerf betray his country?

2. What was the cause enmity between the two counts?

3. Briefly describe the role played by Morrel or Beauchamp in the play.

4. Why did the countess of Morcerf visit the Count of Monte Cristo's house? What was the outcome of her visit?

5. What is meant by 'Duel'? Define 'Second'

6. What was fixed for the Bois de Vincennes? Describe the happenings.

7. How did Count of Monte Cristo avenge himself?

8. Do you think the end of the play "The Count's Revenge" is justified? Give reasons.

9. Does the physical appearance of Professor Henry Corrie depict his true nature?

10. Who is Charlotte and what role does she play in the "Progress"?

11. What plans does Professor have for his inventions?

12. Who was Eddie? And what happened to him?

13. What did Mrs. Meldon learn about her son on his third death anniversary?

14. What did Mrs. Meldon want her brother to do with his invention? And Why?

15. Do you think that Mrs. Meldon was justified in her action? Refute or Justify.

16. What are the views of Professor Henry Corrie about Women?

17. What is an organized butchery of boys in the eyes of Mrs. Meldon?

18. Why does the duel between Albert and The Count of Monte Cristo averted?

19. What did the Countess of Morcerf do to save Albert's life?

20. Why did Albert not fight the duel with the Count of Monte Cristo.

Important Questions for Section 'C'

LETTERS:
To an editor of a newspaper concerning over (hazard of traffic and accidents and traffic jams in Karachi) or (law and order situation in Karachi) or (the inadequate supply of water in your locality) or (insanitary conditions in your locality)

OR

STORIES:
a) Unity is Strength   b) Pride Hath a Fall   c) Greed is a curse   d) Knowledge is Power
d) God Help Those, Who Help Themselves   e) No Pains, No Gains   f) Might is Right

PARAGRAPGH WRITING:
Natural Disasters
Problems of Big/Mega Cities
Uses and Abuses of Internet
Role/Impact of Media
Traffic Hazards

TRANSLATION
Practice, as directed in the class.

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IMPORTANT QUESTIONS 2019

Subject: Chemistry   **Class: XI**

General Instruction:

Section-A   It consists of 17 Multiple Choice Questions (M.C.Qs) and all of them are to be answered.
Section-B   It consists of 15 Short Answer Questions, of which 10 questions are to be answered.
Section-C   It comprises 03 Descriptive Answer Questions of which 02 questions are to be answered.

SECTION 'A'   (MULTIPLE CHOICE QUESTIONS)

Q1)   Choose the correct answer for each from the given options:

(i)   1 Joule is equal to
(a) 4.184 Calories   (b) 41.84 Calories   (c) 0.239 Calories   (d) None of them

(ii)   Which of the following ions are isoelectronic?
(a) K^+, Mg^{2+}, Al^{3+} (b) Na^+, Ca^{2+}, Al^{3+} (c) Ca^{2+}, Mg^{2+}, Al^{3+} (d) Na^+, Mg^{2+}, Al^{3+}

(iii) $H_2 + Cl_2 \xrightarrow{hv} 2HCl$ is _____ order reaction.
(a) 1st (b) 2nd (c) 3rd (d) Zero

(iv)   In ethene C_2H_4 the number of bonds are
(a) 5 sigma one pi   (b) 2 sigma three pi   (c) 4 sigma one pi   (d) 3 sigma two pi

(v)   A water molecule has _____ lone pairs of electrons on the central oxygen atom.
(a) One   (b) Two   (c) Three   (d) Four

(vi)   The empirical formula of a compound is CH_2 and its molecular mass is 70. Its molecular formula will be.
(a) C_4H_{10} (b) C_6H_6 (c) C_5H_{10} (d) C_4H_8

(vii)   Water has the maximum density at
(a) $-4°C$ (b) $0°C$ (c) $4°C$ (d) $100°C$

(viii)   Intensive properties of the solution depend upon the
(a) Nature of solvent   (b) Nature of solute   (c) Nature of solution   (d) None of these

(ix)   The volume occupied by 8gm of O_2 at S.T.P. is
(a) $11.2dm^3$ (b) $22.4dm^3$ (c) $5.6dm^3$ (d) $2.24dm^3$

(x)   Boiling point of the liquid increases with
(a) Heating   (b) Pressure   (c) Volume   (d) Concentration

(xi)   Standard enthalpies are measured at
(a) 273 K   (b) 298 K   (c) 373 K   (d) 0°C

(xii)   NaF and MgO shows
(a) Isomorphism   (b) Polymorphism   (c) Allotropy   (d) Isotropy

(xiii)   Which of the following reaction is not affected by the change in pressure?
(a) $2SO_2 + O_2 \rightleftharpoons 2SO_3$ (b) $3O_2 \rightleftharpoons 2O_3$ (c) $N_2 + O_2 \rightleftharpoons 2NO$ (d) None of them

(xiv)   Hydrolysis is the reverse of
(a) Hydration   (b) Ionization   (c) Neutralization   (d) Electrolysis

(xv)   Acidity of reaction is measured by
(a) Colorimeter   (b) Calorimeter   (c) Thermometer   (d) pH meter

(xvi) For a reaction its threshold energy is 31 KJ/mol and average energy of reactant is 12 KJ/mol, its activation energy will be.

(a) 43 KJ/mol   (b) 19 KJ/mol   (c) 12 KJ/mol   (d) 372 KJ/mol

(xvii) The law that deals with the conservation of heat is

(a) Hess's law   (b) 1st law of thermodynamics   (c) both of these   (d) none of these

SECTION –B (Short-Answer Questions)   (40 Marks)

Note: Answer any TEN questions from this section. All questions carry equal marks.

Q2.   i)   Define the following

(a) Limiting reactant   (b) Lattice energy   (c) significant figures   (d) enthalpy

OR

State Boyle's law, Charles's law and Avogadro's law.

ii)   A sample of Ammonia gas (NH_3) at S.T.P. has a volume of 1.6 dm^3. Calculate

(a) Mass of the sample   (b) No of molecules of Ammonia   (c) The number of moles of Ammonia

OR

An organic compound contains 40%C and 6.66%H by mass. Its molecular mass is double that of its empirical formula mass. Find its molecular formula.

OR

Simplify $\frac{536 \times 2.462}{31.64}$ according to the rules of significant figures.

iii)   Differentiate between the following (any Two).

(a) Line spectrum and Continuous spectrum   (b) covalent bond and co-ordinate covalent bond
(c) Crystalline solid and Amorphous solid   (d) hydration and hydrolysis
(e) Sigma bond and pi bond   (f) orbit and orbital

iv)   Find out the weight of Barium sulphate($BaSO_4$) precipitated on adding 82grams of each Potassium sulphate and Barium chloride solution.

$$K_2SO_4 + BaCl_2 \longrightarrow BaSO_4 + 2KCl$$

v)   State and explain Dalton's law of partial pressure. OR Graham's Law of diffusion

vi)   A 12.0 dm^3 flask at 30°C contain gaseous mixture of H_2 and He. The total pressure of gaseous mixture is 1520 torr. If 0.198 mole of H_2 and 0.2 moles of He are present. Find out the partial pressure of H_2 and He.

OR

If 1800 cals of heat is added to a system while the system does work equivalent to 2800 cals by expanding against the surrounding, what is the value of ΔE for the system?

OR

If 16 ml of hydrogen diffuse in 30sec, what volume of SO_2 will diffuse in the same time(30sec) under similar conditions?

vii)   Give scientific reasons for the followings: (any four)

(a) Falling drop of liquid is spherical   (b) Food is cooked more quickly in pressure cooker
(c) HF is more polar than HCl   (d) Na$^+$ ion is smaller in size than Na atom
(e) Powdered Zn reacts more vigorously with HCl than chunks of Zn
(f) Milk sours more rapidly in summer than in winter

viii)   Explain William crooke's discharge tube experiment for the discovery of cathode rays also write down their properties

OR

Explain Rutherford atomic model, also write down its limitations

ix)   Explain the origin of X-rays and relationship between their wave length and nuclear charge on the atom.

x)   What is a chemical bond? Explain Ionic bond in Sodium chloride with its stability in terms of energy.

OR

Draw and explain the geometrical shapes of molecules with the following pair of electron

Two bond pairs

Three bond pairs and one lone pairs

Two bond pairs and two lone pairs

xi)   Correct the following electronic configuration, also give the name of following rule or principal

- $1s^2, 2p^2$
- $1s^2, 2s^2, 2px^2, 2py^2.2pz^0$
- $1s^2, 2s^3$

OR

Write electronic configuration of the following

Cr(Z=24)   Mo(Z=42)

OR

Write any four postulates of Arrhenius theory of ionization

xii)   Write short of any ONE of the following:

(a) Hess's Law of heat summation   (b) Pressure volume work equation

(c) Theory of ionization   (d) VSEPR theory
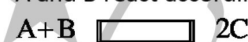
OR

What is meant by electrolysis? Explain the electrolysis of $CuCl_2$ solution giving all the necessary electrode reactions

xiii) What are Reversible and Irreversible reaction? Derive Kc for a given reaction.

$$aA+bB \rightleftharpoons cC +dD$$

xiv)   A and B react according to the equation

$$A+B \rightleftharpoons 2C$$

One mole of A and One mole of B are mixed together in a 4.0 dm³ box. At the temperature of the experiment the value of equilibrium constant is 64. Find the moles of A at equilibrium.

OR

A container of 1.0 dm³ capacity was filled with 1.0 mole of Hydrogen, 1.0 mole of Iodine and 1.0 mole of Hydrogen iodide. If the Kc for the reaction is 0.0156 at 520°C.

$$2HI \rightleftharpoons H_2 +I_2$$
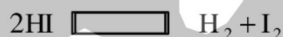
Predict the direction of reaction and give relationship between Kp and Kc.

OR

(a)   Discuss buffer action of Sodium acetate and Acetic acid of a solution (in terms of pH change) on addition of H^+ and OH^- ions.

(b)   Calculate the pH of solution containing 4.0 gram of NaOH in 650cm³ of solution.

xv)   Will $Zn(OH)_2$ precipitate from a solution of 0.02M $ZnCl_2$ at pH 9.0. (Ksp of $Zn(OH)_2$ is 1.8×10^{-13} mole³/dm⁹)

OR

(a)   For the decomposition of Ethyl cholorocarbonate

$$ClCOOC_2H_5 \longrightarrow CO_2 +C_2H_5Cl$$

$K=2.6 \times 10^{-6}$ s⁻¹ at 200°C. What is the initial rate when the initial concentration of $ClCOO_2H_5$ is 0.5M?

(b)   Find out the order of a reaction for following reaction using given data:

$$A+B \longrightarrow Product$$

S.NO.	INITIAL CONCENTRATION		INITIAL RATE
	A	B	
1.	0.1	0.1	3×10^{-3} mole/dm³, s
2.	0.2	0.1	6×10^{-3} mole/dm³, s
3.	0.1	0.2	12×10^{-3} mole/dm³, s

Determine order of reaction from the data given below:

A + B $\longrightarrow$ Product

	[A]	[B]	Rate
(i)	0.1M	0.1M	3×10^{-3} M.Sec^{-1}
(ii)	0.2M	0.1M	6×10^{-3} M.Sec^{-1}
(iii)	0.1M	0.3M	9×10^{-3} M.Sec^{-1}

SECTION 'C' (DETAILED- ANSWER QUESTIONS)   (28 Marks)

Note: Attempt *TWO* questions. *All* questions carry equal marks.

Q.3(a) (i) Write down electronic configuration of the following:

* Z = 24   * Z = 29   * Na^{+1} * Cl^{-1} [4]

(ii) Calculate the wave number for the electron in the Hydrogen atom when it goes from third orbit to the first orbit.(R_H = 109678 / cm)

(b) Explain standard electrode potential of zinc OR copper   [4]

(c) Derive the general gas equation. Calculate the value of "R" in two different units.   [6]

Q.4(a) Calculate the heat of formation of Ethane at 25°C from the following data: [4]

(i) $2C_{(s)} + 3H_{2(g)} \rightarrow C_2H_{6(g)}$ ΔH_F = ?

(ii) $C_{(s)} + O_{2(g)} \rightarrow CO_{2(g)}$ ΔH = -394.00 KJ/mole

(iii) $H_{2(g)} + \frac{1}{2} O_{2(g)} \rightarrow H_2O(\ell)$ ΔH = - 286.0 KJ/mole

(iv) $C_2H_{6(g)} + 7/2 O_{2(g)} \rightarrow 2CO_{2(g)} + 3H_2O(\ell)$ ΔH = -1560.632 KJ/mole

Calculate ΔH for the reaction :

$3Mg + N_2 \longrightarrow Mg_3N_2$ ΔH = ?

$3Mg + 2NH_3 \longrightarrow Mg_3N_2 + 3H_2$ ΔH = -371 KJ

$\frac{1}{2}N_2 + \frac{3}{2}H_2 \longrightarrow NH_3$ ΔH = -46 KJ

(b) Discuss the shapes of the following molecules on the basis of Hybrid orbital model or Electron pair repulsion theory.   [4]

(i) $BeCl_2$ (ii) BF_3 (iii) NH_3 (iv) CH_4

(c) (i) State Le-chatelier principle. What will be the effect of the addition of   [6]

(a) $CaCO_3$ (b) CO_2 (c) rise of temperature in the following system at equilibrium

$CaCO_3 \rightleftharpoons CaO + CO_2$ $\Delta H = +176$ KJ / mole

4.0 g NaOH is dissolved in 2.5 dm3 solution. Find its molarity and pH

(ii) K_c for the following reaction is 10^{55} at 25°C. Predict the extent of a reaction.

$2O_3 \rightleftharpoons 3O_2$

Should AgCl precipitates from a solution prepared by mixing 400 ml of 0.1 M NaCl and 600 ml of 0.03 M AgNO$_3$? (K_{SP} of AgCl = 1.6 x 10^{-6} mol^2/dm^6)

Q.5(a) Discuss the effect of any two of the following factors on the rate of reaction: [4]

(i) Concentration of reactant   (ii) Radiation   (iii) Temperature

(b) Explain the main postulates of Bohr's atomic theory. Drive the expression for the radius of nth Orbit. or frequency and wave number of energy emitted when electron jumps from higher energy state(E_2) to lower energy state(E_1)   [6]

(c) (i) Find the oxidation number of Chromium in the following.   [4]

Cr in K_2CrO_4, $K_2Cr_2O_7$, $Cr_2O_2Cl_2$.

(ii) Balance any one of the following equation by Ion-electron method.

(a) $Zn + Cr_2O_7^{-2} + H^+ \rightarrow Zn^{2+} + Cr^{3+} + H_2O$ (Acidic medium)

(b) $Cr(OH)_3 + SO_4^{-2} \rightarrow CrO_4^{-2} + SO_3^{-2}$ (Basic medium)

[At.wt: Ba= 137, O=16, S=32 , K=39, Cl=35.5]

IMPORTANT QUESTIONS 2019

Subject: Physics   **CLASS: XI**

SECTION – A
MULTIPLE CHOICE QUESTIONS- (M.C.Qs)

Q1)   **Select the suitable answers.**   **(17)**

i)   The dimension of angular momentum is:
    * [ML^2T]   * [MLT]   * [MLT^{-2}]   * [M^2LT]

ii)   The pioneers of decimal system were the people of:
    * China   * Tigris valley   * Indus valley   * Greek

iii)   If A . B = 0; and A x B = 0 ; then we can say:
    * angle between vectors is 0°   * angle between vectors is 90°
    * A is a null vectors   * either of the two vectors is null vector

iv)   Two vectors of 30N and 40N are perpendicular the magnitude of resultant vector will be:
    * 70N   * 10N   * 12.5N   * 25N

v)   Gradient of velocity – time graph is called:
    * Displacement   * Acceleration   * Work   * Force

vi)   If an object slides down on an inclined plane making angle of 30° with horizontal then acceleration produced in it is:
    * 4.9 m/s^2 * 9.8 m/s^2 * 19.6 m/s^2 * zero

vii)   For maximum height gained by projectile launch angle will be:
    * Zero   * 90°   * 45°   * 60°

viii)   The angle between centripetal and tangential accelerations always equal to:
    * Zero   * 90°   * 45°   * 180°

ix)   If a particle covers angular displacement of 0.5rad on a circular track of radius 1m the distance covered on circumference will be:
    * 1m   * 2m   * 0.5m   * 0.25m

x)   Newton's ring illustrates the phenomenon of :
    * Diffraction   * Polarization   * Dispersion   * Interferrence

xi)   The mass of an object at the surface of Earth is 50Kg, the mass of same object at Earth's centre will be:
    * 50Kg   * Zero   * 5Kg   * 500Kg

xii)   Two convex lenses of focal length 20cm each are placed in contact, the net focal length of lens combination will be:
    * 40cm   * 0.1cm   * 10cm   * 30cm

xiii)   In thin film interference the positions of constructive and destructive interference are interchanged due to:
    * phase coherence   * phase reversal
    * interference   * diffraction

xiv)   The length of Galilean telescope when focused for infinity is:
    * f_o / f_e * f_e / f_o * $f_o - f_e$ * $f_e - f_o$

xv)   The distance between two consecutive antinodes is:
    * λ * 2λ * $\lambda/2$ * $\lambda/4$

xvi)   In terrestrial telescope, the middle lens is used to
    * erect the image   * magnify image
    * diminishes image   * increase image clarity

xvii)   The centre of mass of a body:
    * always coincides with centre of gravity   * never coincides the centre of gravity
    * coincides the centre of gravity only in uniform field   * is lower than centre of gravity.

xviii) The number of signification zeros in 0.00011 are _____.

a) 2   b) 3   c) 4   d) 0

xix) _____ wrote the book "Al Qanoon-Al Masoodi".

a) Ibn-e-sina   b) Al Kharzmi   c) Al-Beruni   d) IbnulHaitham

xx) The cross product of vector F with itself (i.e. F x F) is equal to

a) F   b) 2F   c) I   d) Zero

xxi) If two non-zero vectors A and B are parallel to each other, then A.B is equal to

a) Zero   b) AB   c) A+B   d) A-B

xxii) The shortest possible distance between two position is termed as:

a) Distance   b) Displacement   c) Speed   d) Path

xxiii) The S.I. unit of velocity is:

a) $m.s^{-1}$ b) $m.s$ c) $m.s^2$ d) $m.s^{-2}$

xxiv) A trolley runs down a smooth frictionless sloping runway with an angle q, acceleration of trolley will be _____

a) ½ h   b) g   c) g Sinq   d) g Cosq

xxv) The property of body that opposes any change in its state of motion or rest is

a) Weight   b) Torque   c) Momentum   d) Inertia

xxvi) The angle subtended at the centre of a circle by an arc of length equal to its radius is equal to

a) One rotation   b) Half rotation   c) One degree   d) One radian

xxvii) A body moving only under the action of force gravity only is called:

a) Rocket   b) Airship   c) Projectile   d) Bullet

xxviii) In a uniform circular motion the _____ of the velocity does not change

a) Direction   b) Magnitude   c) Time   d) Distance

xxix) A car moving with a uniform speed of 2 m/s in a circle of radius 0.4 m. Its angular speed in rad/sec is:

a) 0.8   b) 1.6   c) 4   d) 5

xxx) A javelin is thrown at an angle q with the horizon such that horizontal range is equal to the maximum height than the value of Tanq:

a) 1   b) 2   c) 3   d) 4

xxxi) The theory of relativity was introduced (in 1905) by

a) Planck   b) Einstein   c) Maxwell   d) Rutherford

xxxii) If two non-zero vectors are perpendicular to each other than their scalar product is equal to:

a) 1   b) 0   c) 2   d) Constant

xxxiii) The gradient of distance time graph determine the

a) Acceleration   b) Average speed   c) Velocity   d) Instantaneous velocity

xxxiv) A spaceship is traveling from our galaxy into deep space where gravitational field due to surrounding galaxies is zero, if the drive motors are off then ship must be:

a) Stationary   b) Decrease in speed

c) Increase in speed   d) Maintaining present speed

SECTION – B
(SHORT- ANSWER QUESTIONS) (40 MARKS)

Note: **Attempt any 10 questions from this section. All questions carry equal marks.**

Q.2 i) Show that following equations are dimensionally correct,

a) $2aS = V_f^2 - V_i^2$ b) $g = 4\pi^2 \dfrac{L}{T^2}$

<div align="center">OR</div>

What is equilibrium describe conditions of equilibrium?

 ii) Prove the following laws:

a) Associative law for vector addition

b) Distributive law for dot product.

<div align="center">OR</div>

Determine unit vector perpendicular to the plane of

$\vec{A} = 3i + 4j - k$ and $\vec{B} = 4i + 3j - 2k$

 iii) Two sides of a triangle are formed by the vector $\vec{A} = 3i + 6j - 2k$; and vector $\vec{B} = 4i - j + 3k$. Determine the area of the triangle.

<div align="center">OR</div>

Prove that $|A \times B|^2 + (A . B)^2 = A^2 B^2$

 iv) A car starts from rest and moves with a constant acceleration. During the 5th second of its motion, it covers a distance of 36; Calculate :

a) Acceleration of car   b) Distance covered by car during this time.

<div align="center">OR</div>

A cyclist weighing 1000N is going up a slope of 30° with the speed of 3.5m/s². If he stops pedalling how much distance will he move before coming to rest? Assuming;

a) Friction is negligible   b) Frictional force is 100N

 v) Prove that trajectory of a projectile is parabolic in shape.

<div align="center">OR</div>

Tarzan swings on the wine of length 5m in a vertical circle under the influence of gravity. When vine makes an angle of 30° with vertical, Tarzan has a speed of 3m/s².

Find a) Centripetal acceleration at this instant. b) his tangential acceleration

 vi) Derive an expression for law of conservation of angular momentum of a particle.

<div align="center">OR</div>

Why there are two angle of projections for same range of projectile

 vii) Discuss the concept of weightlessness in the motion of space crafts.

<div align="center">OR</div>

Derive an expression for variation of g with depth.

 viii) A rocket of mass 0.2 Kg is launched from rest. It reaches at a height of 30 m above Earth's surface from starting point. In the process 425 J of work is done on the rocket by burning chemical propellant. Ignoring air resistance and amount of mass lost due to burning chemical propellant , find speed V_f of the rocket at given height?

<div align="center">OR</div>

Why value of g is not uniformly decreasing with depth?

 ix) Rate of change in momentum is called force. Prove this statement.

<div align="center">OR</div>

What is simple pendulum? Prove that motion of the bob of simple pendulum is simple harmonic.

 x) A standing wave is established in a 120 cm long string fixed at both ends. The string vibrates in four segments when driven at 120 Hz. Determine,

a) Wavelength   b) Fundamental frequency

<div align="center">OR</div>

A wooden block having 10Kg mass is suspended by long cord, that can swing as pendulum. A 50g bullet is fired which lodges itself into the block. Due to the impact, the centre of gravity rises by 10cm. What was the initial speed of the bullet?

xi) In a double slit experiment the separation of the slit is 1.9 mm and the fringe spacing is 0.31 mm at a distance of 1m from the slits. Find the wavelength of light?

OR

Why it is difficult to observe stable interference pattern of light?

xii) What is the difference between astronomical telescope and terrestrial telescope?

OR

Derive an expression for thin lens formula for virtual image formed by concave lense.

OR

Numerical related with Michelson's interferometer

xiii) Two converging lenses are 25 cm apart. Focal length of each is 10 cm. An object is placed in front of one lens at 50cm. Find the distance between the objects and final image?

OR

What are the differences between astronomical telescope and Galilean telescope?

xiv) A convex lens of 4 diopters is in close combination with a concave lens of 2 diopters. Find the resultant power and focal length of the combined lens system.

OR

What is Weber- Fechner law? On what factor quality of sound depends?

xv) A sonometer wire of 1m length is plucked at the centre. Calculate the wavelength and speed of wave in the wire when frequency of vibration is 250 Hz.

OR

A parallel beam of X – ray is diffracted by a crystal. The first order maximum is obtained when the glancing angle of incidence is 6.5°. If the distance between atomic planes of the crystal is 2.8 A°. Calculate the wavelength of the radiation.

SECTION – C
(DETAILED – ANSWER QUESTION)(28 MARKS)

Note: Attempt any 2 questions from this section. All questions carry equal marks.

Q.3 a) Derive an expression for quantization of frequencies in case of standing waves produced in spring whose both ends are fixed.

OR

Derive expressions for magnitude and direction of resultant of two vectors A_1 & A_2 making angles θ_1 & θ_2 respectively with respect to horizontal axis.

b) Explain Young's double slit experiment, derive expressions i) wavelength of monochromatic light & ii) fringe spacing

Q.4 a) What is Doppler's effect? Derive expression for frequency heard by listener if:
   i) Both listener and sound source are moving towards each other.
   ii) Listener is moving away from stationary source.
   iii) Source is moving towards stationary listener.

b) Derive expression for final velocities of two objects of masses m_1 & m_2 moving with initial velocities of u_1 & u_2 when collides with elastically.

Q.5 a) Derive an expression for absolute gravitational potential energy at the surface of Earth

b) Derive an expression for centripetal acceleration in terms of angular velocity.

OR

What are thin films? Why conditions of constructive and destructive interference are reversed as compare to Young's double slit interference.

OR

Describe construction and working of Michelson's interferometer and derive a relevant expression.

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IMPORTANT QUESTIONS 2019

Subject: Mathematics   CLASS: XI

CH#01

MCQS I) If A and B are any two sets then $\left(A \cap B\right)'$ is

* $\left(A \cup B\right)'$ * $A' \cap B'$ * $\left(A \cap B\right)'$ * $A' \cup B'$

II) If A and B are any two sets then $\left(A \cup B\right)'$ is

* $\left(A \cup B\right)'$ * $A' \cap B'$ * $\left(A \cap B\right)'$ * $A' \cap B'$

III) If A = {2, 3}, B = {1, 2} then A − B = _____ .

* {1, 1}   * {0, 3}   * {3}   * {2}

IV) If (x+3,3)=(-5,3) , then value of x is :

*-7   *-2   * -8   * -5

V) If A = {0,1}, B ={1,2} and C = {2,3} then $A \times \left(B \cap C\right) =$:

* ϕ * $\{(1,3),(0,1)\}$ * $\{(0,2),(1,2)\}$ * $\{(2,3),(1,1)\}$

vi) If A is any set then $A \cap A' = ?$

* A' * ϕ * A   * U

vii) If A is any set then $A \cup A' = ?$

* A' * ϕ * A   * U

CH#02

Q1. Solve the complex equation

i) $(x, y) \cdot (2, 3) = (-4, 7)$.   II) $(x + 2y\,i)^2 = xi$

Q2. Separate into real and imaginary parts.

i) $\dfrac{(2+i)^2}{3-4i}$ ii) $(1-i)^4$

Q3. If $z = (x, y)$, then show that $z \cdot \bar{z} = |z|^2$

Q4. If $z = \dfrac{1+i}{1-i}$, then show that $z \cdot \bar{z} = |z|^2$

MCQS

i) The real part of (2i-3)i is :

* 2   * -2   * -3   * 3

ii) The multiplicative inverse of (-3,8) is:

* (3,-8)   * $(-\frac{1}{3}, \frac{1}{8})$ * $(\frac{1}{3}, -\frac{1}{8})$ * $(-\frac{3}{73}, --\frac{8}{73})$

iii) The multiplicative inverse of (1,0) is

*(0,1)   * (-1,0)   * (1,0)   * (0,0)

iv) If a complex number z= x+iy is added to its conjugate ,the result is

* purely real   * purely imaginary   * real or imaginary   * none of these

v) The multiplicative inverse of (a, b) is:

* a-ιb   * - a+ιb   * - a-ιb $*\left(\dfrac{a}{a^2+b^2},\dfrac{-b}{a^2+b^2}\right)$

vi) z= -3i+4 then $\bar{z}=$

*-3i-4   * -3i +4   * 3i+4 $*\dfrac{1}{-3i+4}$

vii) Magnitude of 3-4i is :

* 25   *1   * 9   * 5

viii) The real and imaginary parts of the complex number 1+i are respectively

*0   *1,1   * 0 and 1   * 0 and i

ix) $\iota^3=$

*$-\iota$ * 1   * -1   * ι

x) (a,b). (c,d) =?

* (ac-bd, ad+bc)   * (ac,bd)   * (ac+bd, ad − bc)   * (ad, bc)

xi) The real and imaginary parts respectively of i ((2-3i) are:

* -3 & 2   * 3 & 2   * 2 & 3   * -2 & -3

xii) If z = a + ib then $|z|=$?

$*\sqrt{a-b}$ $*\sqrt{a^2-b^2}$ $*\sqrt{a^2+b^2}$ $*\sqrt{a+b}$

xiii) If z=a+ιb is a complex number then $z^{-1}=$

* a-ιb   * - a+ιb   * - a-ιb $*\left(\dfrac{a}{a^2+b^2},\dfrac{-b}{a^2+b^2}\right)$

xiv) The conjugate of complex number a+ιb=

*- a-ιb   * a+b   * a-ιb $*\dfrac{1}{a-\iota b}$

xv) The real and imaginary parts of i (3 − 2i) are respectively:

* -2 & 3   * 2 & -3   * 2 & 3   * -3 & -2

xvi) The conjugate of complex number a+ιb=

*- a-ιb   * a+b   * a-ιb $*\dfrac{a+ib}{ba}$

xvii) If $z=\dfrac{5+i}{2}$,then its real part is :

$*\dfrac{5}{2}$ $*\dfrac{1}{2}$ $*\dfrac{1}{2}\iota$ *5

xviii) The multiplicative inverse of (c, d) is:

$*\left(\dfrac{c}{d},\dfrac{d}{c}\right)$ $*\left(\dfrac{1}{c},\dfrac{1}{d}\right)$ $*\left(\dfrac{c}{c^2+d^2},\dfrac{-d}{c^2+d^2}\right)$ $*\left(\dfrac{1}{c^2}-\dfrac{1}{d^2}\right)$

xix) The conjugate of a complex number (a, b) is:

* (-a, -b)   *(a, -b)   * (-a, b) $*\left(\dfrac{a}{b},\dfrac{b}{a}\right)$

CH#03

Q1. For what value of *k* will $x+5$ be a factor of $2x^3+kx^2-2x+15$?

Q2. If $\{1, \omega, \omega^2\}$ are the cube roots of unity, prove that $\left(2+\omega^2\right)=\dfrac{3}{\left(2+\omega\right)}$

Q3. Show that $\omega^{155}+\omega^{247}+i^{360}=0$ where ω is the cube root of unity and

Q4a) Show that: $\left(\dfrac{-1+\sqrt{-3}}{2}\right)^7+\left(\dfrac{-1-\sqrt{-3}}{2}\right)^7+1=0$ (b) $(1-\omega-\omega^2)^5=32$

Q5. Solve the equation

i) $\sqrt{3x^2 + 1} = 5 - \dfrac{4}{\sqrt{3x^2 + 1}}$

ii) $(x+6)(x+1)(x+3)(x-2) + 56 = 0$ **

iii) $\left(x - \dfrac{1}{x}\right)^2 + 3\left(x + \dfrac{1}{x}\right) = 0$ **

iv) $\sqrt{2x+7} + \sqrt{x+3} = 1$ **

v) $4.2^{2x+1} - 9.2^x + 1 = 0$ - **

Q6 Determine the value of *k* for which the roots of the equation of the following equation are equal:

i) $(k+1)x^2 + 2(k+3)x + 2k + 3 = 0$

ii) $x^2 - 2(1+3k)x + 7(3+2k) = 0$

Q7 If α and β are the roots of the equation $pt^2 + qt + q = 0, q \neq 0$ prove that

$$\sqrt{\dfrac{q}{p}} + \sqrt{\dfrac{\alpha}{\beta}} + \sqrt{\dfrac{\beta}{\alpha}} =$$

Q8 If α and β are the roots of $px^2 + qx + r = 0, p \neq o$ Find the equation whose roots are

i) α^3, β^3.   ii) $2\alpha + \dfrac{1}{\beta}, 2\beta + \dfrac{1}{\alpha}$

Q.9 If α, β are the roots of the equation $x^2 - 3x + 2 = 0$ from an equation whose roots are $(\alpha + \beta)^2$ and $(\alpha - \beta)^2$

Q10 Find '*k*' if root of $4y^2 - 7ky + k + 4 = 0$ is zero.

Q11 Find the condition that one root of $px^2 + qx + r = 0, \ p = 0$ may be double the other.

Q12 Solve the system of equations

i) $x + y = 5, \dfrac{3}{x} + \dfrac{2}{y} = 2$ **

ii) $xy + 15 = 0$ **
$x^2 + y^2 = 34$

iii) $x^2 + y^2 = 25$
$(4x - 3y)(x - y - 5) = 0$

iv) $2x + 3y = 7$ **
$2x^2 - 3y^2 = -25$

v) $12x^2 - 25xy + 12y^2 = 0$ **
$x^2 + y^2 = 25$

vi) $x^2 + y^2 = 169$ **
$x - y - 13 = 0$

MCQS

i) If roots of a quadratic equation are 2 and -2,then the equation is:

$*x^2$-4=0 $* \ x^2$+4=0 $* \ x^2$+2=0 $* \ x^2$+2=0

ii) $(i)^{-8} + \omega^8 =$

*2   *1+ω *1+ω^2 * None of these

iii) The roots of quadratic equation are equal if:

$*b^2 - 4ac > 0$ $* b^2 - 4ac < 0$ $* b^2 - 4ac = 0$ $* b^2 - 4ac$ is a perfect square

iv) If $\acute{\omega}$ is complex cube root of unity then $(1 + \omega + \omega^2)^2$ is equal to
* 0   * 1   * 4 $*\omega^2$

v) In $ax^2 + bx + c = 0$, if $b^2 - 4ac > 0$ then roots of the equation are
*Imaginary   * Real   * Equal   * Rational

vi) If $\acute{\omega}$ is complex cube root of unity then $\omega + \omega^3$ is equal to
* -1   * -$\acute{\omega}$ $*-\omega^2$ * 0

vii) The quadratic equation whose roots are -2 and -3, is
$*x^2 + 6x - 5 = 0$ $*x^2 + 5x + 6 = 0$ $* x^2 - 5x + 6 = 0$ $*x^2 - 6x + 5 = 0$

viii) If the roots of the equation $ax^2 + bx + c = 0$ are equal then $b^2 - 4ac$ is:
* less than zero   * equal to zero   * greater than zero   * equal to one

ix) If -4 and 8 are the roots of quadratic equation then the equation is
$*x^2 - 4x - 32 = 0$ $*x^2 + 4x - 32 = 0$ $* x^2 - 4x + 32 = 0$ $* x^2 + 4x + 32 = 0$

x) The sum of the roots of the equation $12x^2 - 16x + 4 = 0$
$* \dfrac{-4}{3}$ $* \dfrac{1}{3}$ $* \dfrac{4}{3}$ $* -\dfrac{1}{3}$

xi) If 3 is one real root of $x^3 = 27$, then the other two complex roots are
$*-3\omega, -3\omega^2$ $* 3\omega, 3\omega^2$ $* -3\omega, 3\omega^2$ $* \omega, \omega^2$

xii) If $4^{x+1} = 64$, then x=
*2   *3   * 4   * -2

xiii) $\omega + \omega^2 =$
$*\acute{\omega}$ *1   *-1   *0

xiv) The roots of the equation $ax^2 + bx + c = 0$ are real and distinct, if $b^2 - 4ac$ is:
* 0   * +ve   * -ve   * non zero

xv) The product of the roots of the equation $3x^2 - 5x + 2 = 0$ is:
$* \dfrac{3}{5}$ $* \dfrac{2}{3}$ $* \dfrac{3}{2}$ $* \dfrac{5}{3}$

xvi) If ω is a complex cube root of unity then $\omega^{16} =$:
* 0 $* \omega^2$ $* \omega$ * 1

xvii) If $2^{2x+3} = 32$ then x =:
* 0 $* \omega^2$ $* \omega$ * 1

xviii) If ω is a complex cube root of unity then $\omega^{37} =$:
* 0 $* \omega^2$ $* \omega$ * 1

xix) If 3 and 4 are the roots of quadratic equation then the equation is
$*x^2 + 7x + 12 = 0$ $* x^2 + 7x - 12 = 0$
$* x^2 - 7x + 12 = 0$ $* x^2 - 7x - 1 = 0$

xx) If roots of the equation $ax^2 + bx + c = 0$ are complex then $b^2 - 4ac$
* -ve   * +ve   * 0   * 1

xxi) If ω is the cube root of unity, then ω^{64}
* ω * 0 $* \omega^2$ * 1

xxii) For the equation $px^2 + qx + r = 0$, the sum of the root is:
$* -\dfrac{q}{p}$ $* \dfrac{q}{p}$ $* \dfrac{p}{q}$ $* -\dfrac{p}{q}$

xxiii) If ω is a cube root of unity, then $\omega^{21} =$
* 0 $* \omega^2$ * ω * 1

xxiv) The product of the roots of the equation $2y^2 - 7y + 8 = 0$ is:
* -7   * 8   * -2   * 4

xxv) If ω is a cube root of unity, then $\omega^{32} =$

XXVI)   If the roots of the equation $ax^2 + bx + c = 0$ are reeal and unequal then $b^2 - 4ac$ is:

     * less than zero   * equal to zero   * greater than zero   * equal to i

CH#04

Q1   Find x,y,z and v so that $\begin{bmatrix} 4 & x+y \\ z+v & 3 \end{bmatrix} = 3\begin{bmatrix} x & y \\ z & v \end{bmatrix} + \begin{bmatrix} x & 6 \\ -1 & 2v \end{bmatrix}$

Q2   Verify that:

$$\begin{bmatrix} \sin\theta & -\cos\theta \\ \cos\theta & \sin\theta \end{bmatrix}\begin{bmatrix} \sin\theta & \cos\theta \\ -\cos\theta & \sin\theta \end{bmatrix} = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$$

Q3.   Solve for x:

$$\begin{bmatrix} -2 & 3 \\ 4 & -1 \end{bmatrix}\begin{bmatrix} 1 & x & 5 \\ 2 & 4 & x \end{bmatrix}\begin{bmatrix} -3 \\ 1 \\ 0 \end{bmatrix} = \begin{bmatrix} 2 & -14 \end{bmatrix}^t$$

Q4   If possible, find the matrix X such that $\begin{bmatrix} 2 & -3 \\ 0 & 1 \end{bmatrix} \cdot X = \begin{bmatrix} -2 & 5 \\ 8 & -7 \end{bmatrix}$.

Q5   Perform the matrix multiplication:

$$\begin{bmatrix} a & b & c \end{bmatrix}\begin{bmatrix} x & f & g \\ f & y & h \\ g & h & z \end{bmatrix}\begin{bmatrix} a \\ b \\ c \end{bmatrix}.$$

DETERMINANTS & INVERSE MATRICES

Q1   Using the properties of determinants, prove that

$$\begin{vmatrix} a+b+2c & b & a \\ c & c+a+2b & a \\ c & b & b+c+2a \end{vmatrix} = -2(a+b+c)^3$$

Q2   By using the properties of determinants, prove that

$$2(x^3+y^3) = \begin{vmatrix} x+y & x & y \\ y & x+y & x \\ x & y & x+y \end{vmatrix}$$

Q3   Prove the following by using the properties of determinants:

$$\begin{vmatrix} 1 & 1 & 1 \\ x & y & z \\ yz & zx & xy \end{vmatrix} = (x-y)(y-z)(z-x)$$

Q4   Using the properties of determinants, show that:

$$\begin{vmatrix} 1 & x & x^2 \\ 1 & y & y^2 \\ 1 & z & z^2 \end{vmatrix} = (x-y)(y-z)(z-x)$$

Q5   Using the properties of the determinants, evaluate the following:

$$\begin{vmatrix} a+1 & a+3 & a+5 \\ a+4 & a+6 & a+8 \\ a+7 & a+9 & a+11 \end{vmatrix}$$

Q6 Solve the following equation:

$$\begin{vmatrix} 1 & a & b \\ 1 & a & x \\ 1 & x & c \end{vmatrix} = 0$$

Q7 Define a singular matrix. Find the value of λ for which the following matrix

become singular: $A = \begin{bmatrix} \lambda & 1 & 0 \\ 1 & \lambda & 2 \\ 0 & 2 & \lambda \end{bmatrix}$

Q8 Solve the following system of equations by using Crammer rule.

$y + z = 7$
$z + x = 6$
$x + y = 5$

MCQS

i) If order of matrices A and B respectively are 2x3 and 3x4 then order of AB:

   *2x2   *3x3   * 2x4   *4x2

ii) If $\begin{bmatrix} 4 & 2 \\ 3 & \lambda \end{bmatrix}$ is a singular matrix then λ = :

   *6   * ± 5 * $\dfrac{3}{2}$ * $\dfrac{2}{3}$

iii) $\begin{vmatrix} 2 & 1 \\ 1 & 3 \end{vmatrix}\begin{bmatrix} 3 & 4 \\ -1 & 2 \end{bmatrix} =$

   * $\begin{vmatrix} 5 & 10 \\ 0 & 10 \end{vmatrix}$ * $\begin{bmatrix} 5 & 10 \\ 0 & 10 \end{bmatrix}$ * $\begin{bmatrix} 15 & 20 \\ -5 & 10 \end{bmatrix}$ *None of these

iv) The matrix $\begin{bmatrix} 2 & 0 \\ 0 & -2 \end{bmatrix}$ is :

   *Diagonal   * Scalar   * Unit   * Null

v) If $\begin{bmatrix} 1 & 0 & 0 \\ 0 & 5 & k \\ -1 & 1 & 2 \end{bmatrix}$ is a singular matrix ,then the value of k is

   *10   * 5   * 2   *1

vi) A matrix in which the number of rows is equal to the number of columns, is called:

   *Identity matrix   * Diagonal matrix   * square matrix   * Scalar matrix

vii) If A= $\begin{bmatrix} 1 & 0 & 0 \\ 0 & \omega & 0 \\ 0 & 0 & \omega^2 \end{bmatrix}$ then $|A|$

   * 1   * ω * ω^2 * -1

viii) If matrix $\begin{bmatrix} 7 & 3 \\ \lambda & 6 \end{bmatrix}$ is singular then λ is equal to :

   *14   * 13   * 12   * 11

ix) For a non-singular matrix A, we have A^{-1} =:

   * $\dfrac{AdjA}{A}$ * $\dfrac{AdjA}{|A|}$ * $|Adj\,A|$ * $|A|$

x) The matrix $\begin{bmatrix} \sqrt{3} & 0 & 0 \\ 0 & \sqrt{3} & 0 \\ 0 & 0 & \sqrt{3} \end{bmatrix}$ is a

  * Diogonal matrix   * Scalar matrix * Unit matrix   * Null matrix

xi) If $\begin{bmatrix} \lambda & 3 \\ 2 & 4 \end{bmatrix}$ is a singular matrix then value of λ is:

  * $\dfrac{2}{3}$ * $\dfrac{4}{3}$ * $\dfrac{3}{2}$ * $\dfrac{-3}{2}$

xii) A square matrix A is said to be singular if:

  * A = 0   * $|A| = 0$ * $|A| = 1$ *None of these

xiii) The value of determinant $\begin{vmatrix} a & 0 & 0 \\ 0 & a & 0 \\ 0 & 0 & a \end{vmatrix}$ is :

  * a^3 * 2a   * 3a   * 0

xiv) If $\begin{bmatrix} 2\lambda & 3 \\ 4 & 2 \end{bmatrix}$ is a singular matrix then value of λ is:

  *3   * 2   * $\dfrac{1}{2}$ * 4

xv) If order of matrix A is 4x3 and order of matrix B is 3x2 then order matrix AB is
  *3x4   *2x3   * 2x4   *4x2

xvi) If A is a non-singular matrix then A^{-1} =:

  * $\dfrac{AdjA}{A}$ * $\dfrac{AdjA}{|A|}$ * $\dfrac{|AdjA|}{|A|}$ * $|A|AdjA$

xvii) If matrix $\begin{bmatrix} 1 & 2 \\ 3 & \lambda \end{bmatrix}$ is singular, the value of λ is;

  * $\dfrac{1}{6}$ * 6   * -6   * 5

xviii) If A=$\begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \end{bmatrix}$, then A^t =

  * $\begin{bmatrix} 4 & 5 & 6 \\ 1 & 2 & 3 \end{bmatrix}$ * $\begin{bmatrix} 6 & 3 \\ 5 & 2 \\ 4 & 1 \end{bmatrix}$ * $\begin{bmatrix} 2 & 4 \\ 5 & 3 \\ 6 & 1 \end{bmatrix}$ * $\begin{bmatrix} 1 & 4 \\ 2 & 5 \\ 3 & 6 \end{bmatrix}$

xIX) If A=$\begin{bmatrix} \sin\theta & \cos\theta \\ -\cos\theta & \sin\theta \end{bmatrix}$,then $|A|$ =
  *$\sin^2\theta$ * 1   * $\cos\theta$ * 0

xx) what is the order of matrix A=$\begin{bmatrix} 4 \\ 1 \\ 0 \end{bmatrix}$

  *3x1   * 3   * 1x3   *9

xxi) If the order of two matrices A and B are m x n and n x l respectively, then the order of AB is:
  *m x p   * p x n   * n x p   * p x m

xxii) A square matrix A is said to be singular if

  * A = 0   * $|A| = 0$ * $|A| = 1$ *A = 1

CH#05

Q1 Using the multiplication table show that multiplication is a binary operation on $S = \{1, -1, i, -i\}$. Also show that ($\cdot$) is commutative.

Q2 Define the binary operation $*$ in Q by $a*b = 4ab$, $*$ represents ordinarymultiplication. Also show that
(a) $*$ is commutative (b) $*$ is associative (c) $\dfrac{1}{4}$ is the identity element under $*$ (d) $\dfrac{1}{12}$ is the inverse

element of $\dfrac{3}{4}$ under

Q3   Let $S = \{1, \omega, \omega^2\}$, ω being a complex cube root of unity. Construct a composition table with respect to multiplication and show that:

         a) Associate law holds in 'S'

         b) 1 is identity element in 'S'

         c) Each element of 'S' has its inverse in 'S'

MCQS

i)   A grouped $\left(S^*\right)$ is called a semi group if * is:

   * Associative   * Commutative   * Closure   * None of these

ii)   A group $\left(G^*\right)$ is said to be an abelian group if * is commutative on 'G' i.e. if:

   * $g*h = h*g$ * $g - h = h - g$ * $g^2 = *h^2$ * $g*h = g*h$

iii)   Let $a*b = \sqrt{a^2 + b^2}, \forall a, b \in R$, then identity in R. w.r.t. * is:

   * 1   * 2   * 0   * -1

iv) $T = \{1, -1\}$ is a binary operation w.r.t. _____

   * Addition   * Subtraction   * Multiplication   * None of these

v)   Let S be a set with a binary operation * having an identity element e. An eleme $b \in S$ is said to be an inverse of $a \in S$ w.r.t. * if:

   * $a*b = b*a = e$ * $a*a = b*b = e$ * $a*e = e*a = e$ * None of these

vi)   Let 'S' be a set with a binary operation * An element $e \in S$ is said to be an identity element of S w.r.t. * if:

   * $a*e = e*a = a$ * $a*a = e*e = a$ * $a*a' = a'*a = e$ *None of these

vii)   On the set of all integers if Θ is defined by $a \Theta b = a + b + 2$ than identity element is:

   * -2   * 0   * 1   * ½

viii)   On the set of all rationals if * is defined by $a*b = 4ab$ then identity element is:

   * 0   * 1   * 1/4   * ½

CH#06

A.P

Q1   Find the three numbers in A.P whose sum is 12 and product is 28.

Q2   If sum of four terms of an A.P is 64 and sum of 19 terms is 361, find the 9th term of A.P

Q3   The sum of four terms of an A.P is 4. The sum of the products of the first and the last terms and of the two middle terms is -38. Find the numbers

Q4   Find the sum of 20 terms of an A.P whose 4th term is 7 and 7th term is 13.

Q5   Show that the sum of the $(p+q)$th term and $(p-q)$th term of an A.P is equal to twice the pth term

Q7   Find the sum of an A.P of 17 terms whose middle term is 5.

Q8   Find the sum of all natural numbers between 250 and 1000, which are exactly divisible by 7

Q9   The sum of first n term of two A.P's are as $3n + 1 : 13 - 7n$, find the ratio of their second term.

Q10   How many terms of the sequence $-9, -6, -3, \ldots\ldots$ must be taken for the sum of the terms to be 66?

Q11   Find the first six terms of the series in A.P of which the sum to 'n' terms is $\dfrac{n}{2}(7n - 1)$

G.P

Q1   Which term of the sequence 18, 12, 8,…… is $\dfrac{512}{729}$

Q2   If the nth term of G,P 1,2,4,8,……is same as that of 256,128,64,……,find n

Q3   Express the value of the recurring decimal 0.423 as a common fraction.

Q4 If a rubber ball is dropped on the floor from a height of 27 meters, it always rebounds to two third of the distance of the previous fall; find the distance it will have travelled before hitting the ground for the seventh time

H.P

Q1 Insert four Harmonic Means between 12 and $\dfrac{48}{5}$.

Q2 If the pth term of an H.P is q the qth term is p, prove that the $(p+q)$th term is $\dfrac{pq}{p+q}$.

Q3 12th term of an H.P is $\dfrac{1}{5}$ and 19th term is $\dfrac{3}{22}$ find the 4th term.

Q4 The pth term of an H.P is q and the qth term is p, find $(p+q)$ the term and $(p \cdot q)$th term.

Q5 If the 3rd, 6th and the last terms of an H.P are respectively $\dfrac{1}{3}$, $\dfrac{1}{5}$ and $\dfrac{3}{203}$, Find the number of terms of H.P

Q6 Prove that a, b, c are in the either A.P or G.P or H.P according as $\dfrac{a \cdot (b-c)}{a-b} = a$ or b or c.

Q7 Find the 17th term of an H.P, whose first two terms are 6 and 8

Q8 If a,b.c are in H.P, prove that $\dfrac{b+a}{b-a} + \dfrac{b+c}{b-c} = 2$

MCQS

i) If H is the Harmonic mean between a & b then H =:
   * $\dfrac{2(a+b)}{ab}$ * $\dfrac{a+b}{2ab}$ * $\dfrac{2ab}{a+b}$ * $\dfrac{ab}{a+b}$

ii) If 4, a, 16 are in G.P. the value of 'a' is:
   * 64   * ± 8 * $\sqrt{8}$ * $\pm\sqrt{8}$

iii) The H.M. between p & q is:
   * $\dfrac{p+q}{2}$ * $\dfrac{p+q}{pq}$ * $\dfrac{2pq}{p+q}$ * $\dfrac{p}{p+q}$

iv) If A, G, H are respectively the A.M., G.M. and H.M. between a and b then:
   * $A^2 = G.H$ * $G = \dfrac{A}{H}$ * $G = \dfrac{A+H}{2}$ * $G^2 = AH$

v) The H.M b/w 2 & 5
   * $\dfrac{7}{2}$ * $\pm\sqrt{10}$ * 0   * $\dfrac{20}{7}$

vi) The Arithmetic mean b/W 5 and 10 is
   * 5.5   * 6.5   * 7.5   * 8.5

vii) The nth term of the sequence 2,4,6,8,......,n is
   * n   * $\dfrac{n}{n+1}$ * 2n+1   * 2n

viii) If H is the Harmonic mean between a & b then H =:
   * $\sqrt{ab}$ * $\dfrac{a+b}{2}$ * $\dfrac{ab}{a+b}$ * $\dfrac{2ab}{a+b}$

ix) A single harmonic mean b/w a & b is :
   * $\dfrac{a+b}{2}$ * $\dfrac{2ab}{a+b}$ * $\dfrac{a+b}{2ab}$ * $\dfrac{\sqrt{ab}}{a+b}$

x) In a geometric progression $s_{n=}$
   * ar^{n-1} * $a(r^n-1)$ * $\dfrac{r^n-1}{r-1}$ * $\dfrac{a(r^n-1)}{r-1}$

xi) $\forall$ n$\in$ N, 1+2+3+.........+n=

$*\left(\dfrac{n(n+1)}{2}\right)^2$ $*\dfrac{n(n+1)(2n+1)}{6}$ $*\dfrac{n+1}{2}$ $*\dfrac{n(n+1)}{2}$

xii)   If H is the Harmonic mean between a & b then H =:

$*\dfrac{2(a+b)}{ab}$ $*\dfrac{a+b}{2ab}$ $*\dfrac{2ab}{a+b}$ $*\dfrac{ab}{a+b}$

xiii)   nth term of G.P is :(F)

$*ar^{n-1}$ $*ar$ $*ar^{n+1}$ $*ar^{n}$

xiv)   If 4, a, 16 are in G.P. the value of 'a' is:

$*$ 64 $*\pm8$ $*\sqrt{8}$ $*\pm\sqrt{8}$

xv)   The H.M. between p & q is:

$*\dfrac{p+q}{2}$ $*\dfrac{p+q}{pq}$ $*\dfrac{2pq}{p+q}$ $*\dfrac{p}{p+q}$

xvi)   If A, G, H are respectively the A.M., G.M. and H.M. between a and b then:

$*$ $A^2 = G.H$ $* G = \dfrac{A}{H}$ $*G = \dfrac{A+H}{2}$ $*G^2 = AH$

CH#07
Permutation

Q1   If $^nP_3 = 12.^{\frac{n}{2}}P_3$, find n.

Q2   In how many distinct ways can the letters of the word INTELLIGENCE be arranged?

Q3   In how many ways can 3 English, 3 Sindhi and 2 Urdu books be arranged on a shelf so as to have all the books in the same language together?

Q4   Find 'n' if 'r' if ^nP_r = 240 and ^nC_r = 120

Combination

Q1   A father has 8 children. He taken them, three at a time, to a zoo without taking the same 3 children more than once, how often will he go and how often does each child get the chance to go?

Q2   A party of 7 member is to be chosen form a group of 6 gents and 5 ladies in how many ways can the party be formed if it is to contain:
(i) exactly 4 ladies   (ii) at least 4 ladies   (iii) at most 4 ladies

PROBABILITY
Coin problem

Q1   A fair coin is tossed 3 times, find the probability of getting (i) at least on3 head and (ii) at most two heads.

Q2   A coin is tossed twice, find the probability of (i) at least one head (ii) exactly one tail.

Q3   A coin was tossed three times: find the probability of getting
(i) at least one head,(ii) no tail, (iii) exactly two tails, (iv) at the most two tails.

Dice problem

Q4   If a dice is rolled twice, what is the probability that: (i) the sum of the points on it is 9? (ii) there is at least one 5?

Q5   Two dice are rolled once. Find the probability of getting a multiple of 3 or a sum of 10.

Miscellaneous

Q6   A word consist of 5 consonants and 4 vowels. Three letters are chosen at random. What is the probability that more than one vowels will be selected?

Q7   A room has three lamps from a collection of 12 light bulbs of which 8 are no good, a person selects three at random and put them in the sockets. What is the probability that he will have light?

MCQS

i) The value of $^8P_2$ is:
* 66   * 76   * 56   * 86

ii) $\binom{5}{3}_2=$
*8   * 9   * 10   * 20

iii) $\frac{n!}{(n+1)!}$ is equal to
* n   * n+1   * $\frac{1}{n}$ * $\frac{1}{n+1}$

iv) The value of $\frac{(n-1)!}{(n+1)!}$ is:
* $\frac{1}{n+1}$ * $\frac{1}{n(n+1)}$ * $\frac{(n-1)}{(n+1)}$ * none of these

v) The value of $\binom{5}{2}_2$ is=
*60   * 50   * 40   * 30

vi) $\frac{(n+1)}{n!}$ is equal to
* $\frac{n+1}{n}$ * n+1   * n(n+1)   * (n+1)!

vii) The value of $11C_2$ is:
*110   *55   * 60   *$\frac{11}{2}$

viii) The value of $^5P_3$ is:
* 120   * 60   * 20   * 80

ix) The value of $\frac{(n+1)!}{(n-1)!}$ is equal to :
* n(n+1)   * (n+1)!   * (n-1)   * $\frac{n+1}{n-1}$

x) n!
*n(n-1)!   * n!(n-1)!   *n(n-1)   *(n-1)!

xii) $^nP_n =$:
*n!   * n   * 1   * 0

xiii) $^nC_r =$:
* $\frac{n!}{r!(n-r)!}$ * $\frac{n!}{(n-r)!}$ * $\frac{n!}{r!}$ * $\frac{(n-r)!}{r!}$

xiv) The value of $\frac{(n+1)!}{(n-1)!}$ is equal to :
* n(n+1)   * (n+1)!   * n!   * $\frac{n+1}{n-1}$

xv) The value of $3C_2$ is:
*2   *3   * 1   *0

xvi) The value of $\frac{(n+1)!}{(n-1)!}$ is:
* n(n + 1)   * (n + 1)!   * n(n + 1)!   * $\frac{(n+1)}{(n-1)}$

xvii) The value of $^{13}C_{11}$ is:
* 77   * 11!   * 13!   *78

xviii) The value of $^5P_3$ is: (F)

* 10	* 3	* 20	* $\frac{5}{2}$

xix) The value of 0! is:

* 0	* 1	* ∞	* None of them

xx) The value of $^5P_3$ is:

* 120	* 60	* 20	* 80

xxi) $\dfrac{(n+1)!}{(n-1)!} =$

* n(n + 1)	*n	* n(n + 1)!	* n-1

PROBABILITY

i) If a balanced die is rolled then the probability of getting 3 is:

* $\frac{1}{2}$	* $\frac{1}{3}$	* $\frac{1}{6}$	* $\frac{2}{5}$

ii) The chance of drawing 5or 4 in a throw of a die whose faces are numbered from 1 to 6

* $\frac{1}{2}$	* $\frac{1}{3}$	* $\frac{1}{6}$	* $\frac{2}{5}$

iii) If a die is rolled once , the probability of getting a number 4 is:

* $\frac{1}{2}$	* $\frac{1}{3}$	* $\frac{1}{6}$	* $\frac{2}{3}$

iv) The probability of getting tail in a single toss of a coin is:

* 1	* ½	* ⅔	*2

v) The probability of getting a head in a single toss of a coin is:

* 0	* ½	*1	*2

vi) If a balanced die is rolled then the probability of getting 2 or 5 is

* $\frac{1}{2}$	* $\frac{1}{3}$	* $\frac{1}{6}$	* $\frac{2}{5}$

CH#08

MATHEMATICAL INDUCTION

Q1 Prove the following proposition by the principle of Mathematical Induction:

$2+6+12+......+n(n+1) = \frac{1}{3}n(n+1)(n+2)$, $\forall\, n \in N$.

Q2 Prove by mathematical induction that:

$1^2 + 2^2 + 3^2 +......+n^2 = \dfrac{n(n+1)(2n+1)}{6}$, $\forall\, n \in N$

Q3 Prove by mathematical induction that

$2+5+8+...........+(3n-1)=\frac{n}{2}(3n+1)$ $\forall\, n \in N$

Q4 Prove by Mathematical Induction $\dfrac{1}{1.2} + \dfrac{1}{2.3} + \dfrac{1}{3.4} + \cdots \ldots . + \dfrac{1}{n(n+1)} = \dfrac{n}{n+1}$

Q5 Prove by Mathematical Induction:

$1^2 + 3^2 + 5^2 + ...+(2n-1)^2 = \frac{1}{3}n(2n-1)(2n+1)$

Q6 $1.3 + 2.4 + 3.5 +......+n(n+2) = \dfrac{1}{6n}(n+1)(2n+7)$

Q7 Prove that: $a + ar + ar^2 + ar^3 + ...ar^{n-1} = \dfrac{a(1-r^n)}{(1-r)}$ where $r \neq 1$

Q8 Prove by mathematical induction that $10^n + 3.4^{n+2} + 5$ is divisible by 9 for all $n \in N$

Q9 Using principle of Mathematical Induction, prove that:

$\left(a^{2n} - b^{2n}\right)$ is divided by a-b for all $n \in N$

THE BINOMIAL THEOREM

Q1 Write the term independent of *x* in the expansion of $\left(2x + \frac{1}{3x^2}\right)^9$

Q2 Find the term independent of *x* in the binomial expansion of $\left(x - \frac{1}{x^2}\right)^{15}$

Q3 Using the general term fomula ,find the term independent of *x* in the binomial expansion of $\left(\sqrt{x} + \frac{3}{x^2}\right)^{10}$

Q4 Using the general term of the binomial theorem, find the coefficient of x^{-2} in the expansion of $\left(x + \frac{b^3}{x^2}\right)^{10}$

Q5 Write in simplified form the term involving x^{10} in the expansion of $\left(x^2 - \frac{1}{x^3}\right)^{10}$

Q6 Find the 6th term in the expansion of $\left(2x - \frac{x^2}{4}\right)^9$ using Binomial theorem

Q7 Find the first negative term in the expansion of $(1 + 2x)^{\frac{7}{2}}$, using the formula for general term

Q8 Prove that$(1+x+x^2 + \cdots \ldots \ldots)(1 + 2x + 3x^2 + \ldots \ldots) = \frac{1}{2}(1.2 + 2.3x + 3.4x^2 \ldots \ldots)$

Q9 Expand to four term $(1 - x^2)^{\frac{-1}{3}}$, $|x| > 1$

Q10 If $|x| < 1$, prove that $\frac{\sqrt{1+x} + 3\sqrt{(1-x)^2}}{1 + x + \sqrt{1+x}} = \left(1 - \frac{5}{6}x\right)$ nearly.(F)

Q11 Identify the series $1 + \frac{4}{6} + \frac{4.5}{6.9} + \cdots \ldots \ldots \ldots$ as a binomial expansion and find its sum.

Q12 Show that $\sqrt{3} = 1 + \frac{1}{3} + \frac{1.3}{3^2.2!} + \frac{1.3.5}{3^2.3!} + \ldots\ldots$

Q13 Identify the following series as binomial expansion and find the sum:

$1 + \frac{3}{4} + \frac{3.5}{4.8} + \frac{3.5.7}{4.8.12} + \ldots\ldots$

Q14 Show that $\sqrt{2} = 1 + \frac{1}{2^2} + \frac{1.3}{2!.2^4} + \frac{1.3.5}{3!2^6} + \cdots \ldots \ldots \ldots$

Q15 If $y = \frac{3}{4} + \frac{3.5}{4.8} + \frac{3.5.7}{4.8.12} + \ldots\ldots$, prove that $y^2 + 2y - 7 = 0$.

MCQS

i) The total number of terms in the binomial expansion of $\left(y^2 + \frac{b^2}{y^2}\right)^n$ is:

*n   *n+1   * n-1   *2n

ii) If $|x| < 1, 1 + 2x + 3x^2 + 4x^3 + \cdots \ldots \ldots$ is equal to

• $(1-x)^{-2}$ *$(1+x)^{-2}$ * $(1-x)^{-1}$ * $(1+x)^{-1}$

iii) The middle term in expansion of $\left(X - \frac{1}{x}\right)^{20}$ is:

*9th * 10th * 11th * 12th

iv) The coefficient of 1st term in the Binomial expansion of $(x + a)^8$ is:

*$8c_0$ * $1c_8$ *$8c_8$ *$1c_1$

v) In $(a + b)^{2n+4} \Delta n \in N$, the middle term is:

* $(2n+1)^{th}$ term   * $(n+3)^{th}$ term   * $(n +1)^{th}$ term   * $(n+2)^{th}$

vi) The middle term in expansion of $\left(X - \frac{1}{x}\right)^{2n}$ is:

* (2n+1)th term   * (n+2)th term   * (n +1)th term   * (2n+2)th

vii) The middle term in expansion of $(a + b)^{2n}$ is:

* nth term   * (n+1)th term   * (n -1)th term   * (2n+1)th

viii) Total number of terms in the binomial expansion of $\left(\frac{1}{x} + x\right)^{n+1}$

*n   *n+1   *n+2   *n+3

ix) If n is a natural number ,the middle term in expansion of $(a + b)^{2n}$ is

* $\left(\frac{n}{2}\right) th\ term$ * $\left(\frac{n+2}{2}\right) th\ term$ * $\left(\frac{2n-1}{2}\right) th\ term$ * (n+1)th term

x) The term independent of x in the expansion of $\left(\frac{1}{x} + x\right)^2$ is   (F)

* 1   * 2   * 0   *-1

xi) The middle term in expansion of $(a + b)^{2n}$ is:

* nth term   * (n+1)th term   * (2n -1)th term   * (2n+1)th term

xii) The number of terms in expansion of $(a + b)^{12}$ is:

*10   * 13   * 16   * 12

xiii) $1+2x + 3x^2 + 4x^3 + \cdots \ldots \ldots$is equal to   (F)

*$(1 - x)^{-2}$ *$(1+x)^{-2}$ * $(1 - x)^{-1}$ * $(1 + x)^{-1}$

xiv) The number of terms in the binomial expansion of $(3x + 2y)^9$ is:

* 9   * 10   * 11   * 8

xv) The number of terms in expansion of $(a + b)^{10}$ is:(F)

*11   *10   * 20   * 9

xvi) The middle term in expansion of $(a + b)^{16}$ is:

*3rd term   * 7th term   * 9th term   * 8th term

xvii) The middle term in the expansion of $(a + b)^{2n}$ is:

* nth term   * (2n +1)th term   * (n+1)th term   * (2n -1)th term

MATHEMATICAL INDUCTION

i) $\sum n^3 =$:

* $\frac{n^2(n+1)^2}{4}$ * $\frac{n^3(n+1)^3}{8}$ * $\frac{n(n+1)}{2}$ * none of these

CH# 09

Q1   If a point on the rim of a 21 cm diameter fly wheel travels 5040 meters in a minute, through how many radians does the fly wheel turn in one second?

Q2   A belt 36 meter long passes over a 1.6 cm diameter pulley. As the belt makes two complete revolutions in a minute, how many radians does the wheel turn in 2.5 second?

Q3   How far does a boy on a bicycle travel in 10 revolutions if the diameter of the wheels of his bicycle is each equal to 56 cm?

Q4   A car is running on a circular path of radius equal to half the arc of the circle travelled by the car . Find the angle subtended by the arc at the Centre of the circular path

Q5   If $\cos\theta = \frac{-2}{3}$ and $\rho(\theta)$ is not in the 2nd quadrant, find the remaining trigonometric functions using the definition of radian function $x^2 + y^2 = 1$.

Q6   If $\operatorname{cosec}\theta = \frac{-3}{2}$ and $\rho(\theta)$ is in 4th quadrant, find the remaining trigonometric functions using the definition of radian function $x^2 + y^2 = 1$

Q7   Using definition of radian function find the remaining trigonometric functions

if $sin\theta = \frac{4}{5}$ and $\rho(\theta)$ is not in 1st quadrant

Q8   If $\tan\theta = -\frac{1}{3}$ and $\sin\theta$ is negative, find the remaining trigonometric function using the definition of radian function.

Q9   If $\cot\theta = \frac{-4}{3}$ and $\rho(\theta)$ is not in 4th quadrant, use radian function to find the remaining trigonometric functions

MCQS

i)   The value of $\tan\theta$ is positive in:
    * 1st and 4th quadrant   * 1st and 3rd quadrant
    *2nd and 3rd quadrant   * 3rd and 4th quadrant   *

ii)   The angle of $\frac{\pi}{3}$ radians is equal to:
    * 120º   * 150º   * 60º   * 30º

iii) If $sin\theta > 0$ and $sec\theta < 0$, then $p(\theta)$ lies in the:
    * 1st quadrant   * 2nd quadrant   * 3rd quadrant   * 4th

iv) $cos(-\theta) =$
    *$-sin\theta$ * $cos\theta$ *$\frac{1}{cos\theta}$ *$cos^{-1}\theta$

v)   If $sec\theta < 0$ and $cosec\theta < 0$, then $p(\theta)$ lies in the:
    * 1st quadrant   * 2nd quadrant   * 3rd quadrant   * 4th quadrant

vi)   The greatest value of $sin\theta$ is:
    *-1   * 1   * ∞ * 0

vii) If $cos\theta > 0$ and $sin\theta < 0$, then $p(\theta)$ lies in the:
    * 1st quadrant   * 2nd quadrant   * 3rd quadrant   * 4th quadrant

viii) 150º in radians is
    *$\frac{5\pi}{6}$ *150π *$\frac{2\pi}{3}$ *$\frac{\pi}{4}$

ix) $\frac{\pi}{180}$ radians =:
    * 1º   * 90º   * 2º   * 1

x) $cot(-\theta) =:$
    *$-cot\theta$ *$-tan\theta$ *$\frac{1}{tan\theta}$ *$\frac{1}{tan\theta}$

xi)   If $\tan\theta = \frac{-3}{4}$ and $\sin\theta$ is −ve ten $p(\theta)$ lies in:
    * 1st quadrant   * 2nd quadrant   * 3rd quadrant   *4th quadrant

xii) $\frac{2\pi}{3}$ radians in degrees is equal to:
    * 90^{0} * 120^{0} * 60^{0} * 150^{0}

xiii) $\frac{5\pi}{2}$ radian=::
    * 200^{0} * 150^{0} * 300^{0} * 450^{0}

xiv) If $\sin\theta = \frac{\sqrt{3}}{2}$ and $\cos\theta = \frac{-1}{2}$ then $p(\theta)$ lies in:
    * 1st quadrant   * 2nd quadrant   * 3rd quadrant   *4th quadrant

xv)   If $\tan\theta = -\frac{1}{3}$ and $sin\theta$ is negative, $p(\theta)$ lies in this quadrant:
    * 3rd quadrant   * 1st quadrant   * 4th quadrant   * 2nd quadrant

xvi) $tan(-\theta)=$

$*\dfrac{1}{tan\theta}$	$*\quad tan\theta$	$*\quad -cot\theta$	$*\dfrac{1}{cot\theta}$

xvii) If $tan\theta > 0$ and $cos\theta < 0$,then $p(\theta)$ lies in the:

1st quadrant   *   2nd quadrant   *   3rd quadrant   *   4th quadrant

xviii) The angle 330º in radians is:

$*\dfrac{5\pi}{6}$	$*\dfrac{7\pi}{6}$	$*\dfrac{11\pi}{6}$	$*\dfrac{13\pi}{6}$

xix) The angle of $\dfrac{\pi}{90}$ radians is equal to:

* 90º   * 2º   * 1º   * 180º

xx) The area of a circle of radius r is:

* 2πr $*\dfrac{1}{2}\pi r^{2}$ * πr^{2} *2πr^{2}

CH#10

Q1   Prove the following:

i) $(cosec\theta - cot\theta)^{2} = \dfrac{1-cos\theta}{1+cos\theta}$,$cos\theta \neq -1$ ii) $\dfrac{1+sec\theta}{1-sec\theta} = \dfrac{tan\theta + sin\theta}{sin\theta - tan\theta}$

iii) $sin^{6}\theta + cos^{6}\theta = 1 - 3sin^{2}\theta cos^{2}\theta$ iv) $\dfrac{tan\theta + sin\theta}{cosec\theta + cot\theta} = tan\theta.sin\theta$

v) $\sqrt{\dfrac{1-cos\theta}{1+cos\theta}} = cosec\theta - cot\theta$ vi) $\dfrac{cos\theta}{1-tan\theta} + \dfrac{sin\theta}{1-cot\theta} - sin\theta + cos\theta$

vii) $\dfrac{sin(\theta+\phi)}{cos\theta cos\phi} = tan\theta + tan\phi$ viii) $sin(\alpha+\beta)\cdot sin(\alpha-\beta) = sin^{2}\alpha - sin^{2}\beta$

ix) $cos(\alpha+\beta)cos(\alpha-\beta) = cos^{2}\alpha - sin^{2}\beta$ x) $\dfrac{sin2\theta}{sin\theta} - \dfrac{cos2\theta}{cos\theta} = sec\theta$

xi) $sin5\theta - sin3\theta + sin2\theta = 4sin\theta cos\theta\dfrac{3\theta}{2}cos\dfrac{5\theta}{2}$

xii) $cos4\theta = 8cos^{4}\theta - 8cos^{2}\theta + 1$

xiii) $sin3\theta = 3sin\theta - 4sin^{3}\theta$ xiv) $1 + cos2\theta = \dfrac{2}{1+tan^{2}\theta}$

Q2   Express all trigonometric function in terms of i) cosec θ,ii) $cot\theta$.

MCQS

i)   tan(180-θ) =:

*tanθ *-cotθ * cotθ * -tanθ

ii)   cos(90-α)=:

*sinα   * cosα   * -cosα   * -sinα

iii) $\dfrac{1}{1+tan^{2}\theta}$ =:

*-sec$^{2}\theta$ * cos$^{2}\theta$ * sec$^{2}\theta$ * cot$^{2}\theta$

iv)   1+cosθ =

*2sin$^{2}\dfrac{\theta}{2}$ *2cos$^{2}\theta$ *2sin$^{2}\theta$ * 2cos$^{2}\dfrac{\theta}{2}$

v)   tan$\theta.cos\theta$ =:

* cosθ * sinθ *secθ * cosecθ

vi)   cosu - cosv =:

* $\cos\dfrac{u+v}{2}\cos\dfrac{u-v}{2}$ * $2\cos\dfrac{u+v}{2}\sin\dfrac{u-v}{2}$

* $2\cos\dfrac{u+v}{2}\cos\dfrac{u-v}{2}$ * $-2\sin\dfrac{u+v}{2}\sin\dfrac{u-v}{2}$

vii) $sec^2\theta - tan^2\theta =:$

    * $2sec^2\theta$ * 0   *-1   * 1

viii) cosu + cosv =:

    * $\cos\dfrac{u+v}{2}\cos\dfrac{u-v}{2}$ * $2\cos\dfrac{u+v}{2}\sin\dfrac{u-v}{2}$

    * $2\cos\dfrac{u+v}{2}\cos\dfrac{u-v}{2}$ * $2\sin\dfrac{u+v}{2}\cos\dfrac{u-v}{2}$

ix) tan (-θ)

    * $\dfrac{1}{\tan\theta}$ * $-\tan\theta$ * $-\cot\theta$ * $\dfrac{1}{\cot\theta}$

x) The distance between (1, 1) and (4, 5) is:

    * 4   * 3   * 5   * 2

xi) $sin2\theta =$

    *$2sin\theta cos\theta$ *$2sin\theta$ *$sin\theta$ * $1+cos\theta$

xii) sin60°cos30° −cos60°sin30=

    *sin60°   * cos60°   * sin30°   * cos30°

CH#11

Q1   Draw the graph of

    i) $\sin\theta$ when $-\pi \le x \le \pi$., from the graph find $\sin 140°$

    ii) $\cos 2\theta$, when $-180° \le \theta \le 180°$.

MCQS

i)   The period of tan x is:

    * $\dfrac{3\pi}{2}$ * $\dfrac{\pi}{2}$ * π * none of these

ii)   The period of cosθ is:

    * $3\pi/2$ *4π * 2π * π

iii)   The greatest value of sinθ is

    *-1   * 1   * ∞ * 0

iv)   The period of Sinθ is:

    *0   * $\pi/2$ * 2π *

v)   The lowest value of sinθ is

    *-1   * 1   * ∞ * 0

CH# 12

Q1   Derive

        i)   law of sine

        ii)   Law of tangent

        iii) $r = \dfrac{\Delta}{s}$

        iv) $sin\dfrac{\alpha}{2} = \sqrt{\dfrac{(s-b)(s-c)}{bc}}$

Q2 Prove that in any triangle ABC

i) $\dfrac{1}{r^2}+\dfrac{1}{r_1^{\,2}}+\dfrac{1}{r_2^{\,2}}+\dfrac{1}{r_3^{\,2}}=\dfrac{a^2+b^2+c^2}{\Delta^2}$

ii) $r_1 r_2 r_3 = rs^2$

iii) $\Delta = 4Rr\cos\dfrac{\alpha}{2}\cos\dfrac{\beta}{2}\cos\dfrac{\gamma}{2}$

v) $r_1 = 4R\sin\dfrac{\alpha}{2}\cos\dfrac{\beta}{2}\cos\dfrac{\gamma}{2}$

vi) $\Delta = r^2\cot\dfrac{\alpha}{2}\cot\dfrac{\beta}{2}\cot\dfrac{\gamma}{2}$

vii) $r^1 = (s-c)\cot\dfrac{\beta}{2} = 4R\sin\dfrac{\alpha}{2}\cdot\cos\dfrac{\beta}{2}\cdot\cos\dfrac{\gamma}{2}$

viii) $\dfrac{1}{r_1}+\dfrac{1}{r_2}+\dfrac{1}{r_3}=\dfrac{1}{r}$

Q3 If $a=b=c$, prove that $r_1:R:r=3:2:1$, where r_1, R and r have their usual meanings.

Q4 A piece of plastic strip 1 meter long is bent to form an isosceles triangle with 95° as its largest angle. find the length of the sides.

Q5. If one side of a triangle is y units in length, another side is 3 times as long as the first one, and the angle between them .

Q6. A hiker walks due east at 4.5 km per hour and a second hiker starting from the same point walking 55° north – east at the rate of 5.5 km per hour. How far apart will they be after 4 hours

Q7 Find the length of the third side of a triangular building that faces 13.6 m along one street and 13.0 m along another street. The angle of intersection of the two streets is 72°.

Q8 A man is standing on the bank of the river. He observes that the measure of the angle of elevation subtended by the tree on the opposite bank is 65°. When he retreats 35 meters from the bank, he finds the measure of the angle to be 35°; find the height of the tree and the width of the river.

Q9 An aero plane is flying at a height of 9000 meters. If the angle of depression of the field maker is 29°, find the aerial distance.

Q10 Find the measure of the largest angle in the triangle ABC with a=4cm, b=2cm, c=2.5cm

Q11 Solve the triangle in which
i) $a = 5$ cm, $b = 10$ cm, $c = 13$ cm.   ii) $\alpha=30°, \beta=40°, a = 10$cm
iii) $a = b = c$.
and also find area of the triangle.

Q12 Find the area of triangle ABC
i) when $\alpha = 70°4', \gamma = 60°5', C = 39.1cm$
ii) whose all sides are equal

MCQS

i) In a triangle ABC, a=b=c=x, then $\Delta =$:

$*\dfrac{\sqrt{3}}{4}x^2$ $*\dfrac{\sqrt{3}}{3}x^2$ $*\dfrac{\sqrt{3}}{2}x^2$ $*\dfrac{\sqrt{3}}{6}x^2$

ii) The area of triangle ABC is:

$*\dfrac{1}{2}bc\sin\alpha$ $*\dfrac{1}{2}bc\cos\alpha$ $*\dfrac{1}{2}abc\sin\alpha$ $*\dfrac{1}{2}abc\cos\alpha$

iii) The Circum –radius of triangle ABC is:

     $* \dfrac{\Delta}{s}$ $* \dfrac{\Delta}{s-c}$ $* \dfrac{abc}{4\Delta}$ $* \dfrac{4\Delta}{abc}$

iv) If the sides of the triangle are 5, 6,7 units then 2S =:

     * 9   * 6   * 18   * 27

v) If a,b,c are the length of sides of a triangle ABC then $\cos\dfrac{\alpha}{2}$ =:

     $* \sqrt{\dfrac{s(s-c)}{ab}}$ $* \sqrt{\dfrac{(s-a)(s-b)}{ab}}$ $* \sqrt{\dfrac{s(s-a)}{bc}}$ $* \sqrt{\dfrac{(s-b)(s-c)}{bc}}$

vi) If a circle is inscribed in a triangle ABC then its radius "r" is :

     $* \dfrac{abc}{4}$ $* \dfrac{4\Delta}{abc}$ $* \dfrac{\Delta}{s}$ $* \dfrac{abc}{4\Delta}$

vii) If the sides of the triangle are 3, 4, 5 units then s =:

     * 4   * 12   * 5   * 6

viii) If R is the circumradius of a circumcircle then R =

     $* \dfrac{\Delta}{s}$ $* \dfrac{\Delta}{s-c}$ $* \dfrac{abc}{4\Delta}$ $* \dfrac{4\Delta}{abc}$

ix) $\dfrac{a}{\sin\alpha} = \dfrac{b}{\sin\beta} = \dfrac{c}{\sin\gamma}$ is called

     *Law of Sines   * Law of Cosines   * Law of Tangents   *None of these

x) $\cos\dfrac{\alpha}{2}$ =:

     $* \sqrt{\dfrac{s(s-c)}{ab}}$ $* \sqrt{\dfrac{s(s-b)}{ac}}$ $* \sqrt{\dfrac{s(s-a)}{bc}}$ $* \dfrac{s(s-a)}{bc}$

xi) If a, b, c are the sides of a triangle ABC, then 'r' is:

     $* \dfrac{abc}{4}$ $* \dfrac{4\Delta}{abc}$ $* \dfrac{\Delta}{s}$ $* \dfrac{abc}{4\Delta}$

xii) The law of cosine when $\angle B$ is in the standard position is

     $* \; a^2 = b^2 + c^2 - 2bc\cos\alpha$ $* \; b^2 = c^2 + a^2 - 2ac\cos\beta$

     $* \; c^2 = a^2 + b^2 - 2ac\cos\gamma$ $* \; \cos\beta = a^2 + c^2 - b + 2ac$

CH#13

Q1   without using calculator, prove that

i) $\tan^{-1}\dfrac{1}{13} + \tan^{-1}\dfrac{1}{4} = \tan^{-1}\dfrac{1}{3}$ ii) $\tan^{-1}\dfrac{1}{3} + \dfrac{1}{2}\tan^{-1}\dfrac{1}{7} = \dfrac{\pi}{8}$.

iii) $\sin^{-1}\theta + \cos^{-1}\theta = \dfrac{\pi}{2}$ iv) $\arccos\theta + \arcsin\theta = \dfrac{\pi}{2}$.

v) (Taking principal values only) $\arcsin\dfrac{3}{5} + \arcsin\dfrac{4}{5} = \dfrac{\pi}{2}$.

vi) $\tan^{-1}\theta + \cot^{-1}\theta = \dfrac{\pi}{2}$.

Q2   Solve the equation

i) $\tan 2\theta \cot\theta = 3$ ii) $\sin\theta + \cos\theta = 1$

iii) $\sqrt{3}.\sin x - \cos x = 1$ iv) $\cos\theta + \cos 2\theta + 1 = 0$.

v) $2\sin^2\theta - 3\sin\theta - 2 = 0$ vi) $\sqrt{3}\cos\theta + \sin\theta = 2$.

vii) $2\sin^2\theta + 2\sqrt{2}\sin\theta - 3 = 0$ viii) $4\sin^2\theta\tan\theta + 4\sin^2\theta - 3\tan\theta - 3 = 0$.

ix) $\sqrt{3}\tan x - \sec x - 1 = 0$ xii) $\tan^2\theta + \tan\theta = 2$.

IMPORTANT QUESTIONS 2019

Paper: Computer   CLASS: XI

(Short Ques/Answer)

Note: Answer any Twelve questions in this section. All question carry equal marks. Answer should not exceed 3-4 lines

Q2

i)   What is the function of Cache?
ii)   For what purpose Barcode Reader designed?
iii)   Why is ROM called non-volatile memory?
iv)   Why are secondary required? How can you increase storage capacity?
v)   How does a network topology affect your decision to design LAN?
vi)   Why is Star topology more efficient than other topologies? Give any three reasons.
vii)   What Protocol can be applied when you want to transfer a file from source to destination?
viii)   In which Scenario is satellite used? Defend your answer by giving three reasons.
ix)   How can you manage a network using a Router?
x)   Why is MoDem necessary in dialup network?
xi)   What are the impacts of computer in our life?
xii)   How is e-commerce beneficial in business?
xiii)   Draw a block diagram of digital computer.
xiv)   What is a function of Accumulator Register?
xv)   What are PUSH and POP functions in stacks?
xvi)   Distinguish between Serial port and Parallel port
xvii)   Write Full form of
        a) IEEE   b) TCP/IP c) LED d) BIOS   e) HTML f) ATM
xviii) How can a system be protected from viruses?

(Detailed Ques/Answer)

Note: Answer any two questions from this section. All questions carry equal marks.

Q3a)   What are the functions of Scanner?

Q3b)   Describe the important features of an Operating System

Q3c)   What is the impact of using computer in college education? Give three reason.

Q4a)   Draw the diagram of OSI model layer. Discuss the physical layer.

Q4b)   Explain any two communication media in data communication.

Q4c)   Discuss the Hybrid Topology

Q5a)   Explain the different types of buses in computer?

Q5b)   What is fetch cycle? Explain with diagram

Q5c)   What is computer crime? How can we protect our system from it.

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IMPORTANT QUESTIONS 2019

Subject: Biology   **CLASS: XI**

ZOOLOGY SECTION

1: Difference of DNA and RNA. (short zoology)
2: RNA as a carrier of information. (short zoology)
3: DNA is an evidence of heredity material. (short zoology)
4: Lipids and Protein (For Long Questions Zoology).
5: Carbohydrate (For short Zoology Questions).
6: Feedback inhibition.
7: Factors affecting activity of Enzyme (For Long Questions Zoology).
8: Types of Enzyme (Definition).
9: Life cycle of malaria (For Zoology Long practice its diagram too).
10: Animal classes of protoctista.(For Zoology specially suctoria).
11: Phylum Cnidaria and Annelida (For Long Zoology Questions and also For Reason Based Questions).
12: Classes aves, mammals, platyhelmintheis (For Short Question Zoology).
13: Flight adaptations of birds, amphibians are unsuccessful land vertebrates and reptiles are successful land vertebrates. (For Zoology short and Reason based Questions).
14: Glycolysis and Citric acid cycle (For Botany short Questions).
15: dark reactions (For Botany short and long Questions).
16: Role of light and water(For Botany Short Questions).
17: CAM plants C4 plants(For Botany Short Questions).
18: Mineral Deficiencies in Plants(For Botany Short Questions).
19: Nutrition in hydra and Cockroach (For Zoology question also for reasoning questions).
20: Digestion in human(For Zoology reason based questions).
21: Digestive disorders (For Zoology long questions).
22: Human respiratory system (For Zoology long and reason based questions).
23: Role of hameoglobin and myoglobin (For zoology short and reason based questions).
24: Gaseous exchange in birds and fish(For Zoology short and reason based questions).
25: Respiration in cockroach and frog (For zoology short question and reason based questions).
26: Human circulatory system and diagram of heart (For long Zoology Questions and for reason based question).
27: Human immune system (For long Zoology questions).
28: Blood pressure, Lymphatic system, artery, vein, CVD'S and Cardiac Cycle (For Zoology Short and reason based questions).
29: Definitions of thalassemia and leukemia.(Zoology).
30: Difference b/w single and double circuit , open and close type of circulatory system (For Zoology questions).
31: Diagram to be Practice:
- Structure of amino acid
- Linkage of peptide linkage
- Malaria life cycle
- Respiratory system And Human Heart

Q32 parasitic adaptations of platyhelmintheis, annelids and arthopods?
Q33difference b/w ratiate and craniate, difference b/w chondrichthyes and osteichthyes.

BOTANY SECTION

1: Definition of hydroponics, cloning and antibiotics.
2: biological properties of water. (For short botany)
3: Membrane bound structures (For Long Questions Botany).
4: Non – Membrane bound structures (For Long Questions Botany).
5: Difference b/w prokaryote and eukaryote (Botany).
6: Types of virus on the basis of morphology.
7: AIDS and Hepatitis.
8: Classification of bacteria according to shape, nutrition, flagella and respiration. (For Botany)
9: Nostoc and spirogyra.
10: Phythophora infestant (For short Botany).
11: Slime mold and water mold (For botany).
12: Alternation of generation in ulva , Euglena and Chlorela (For short Note Botany).
13: Ascomycota(For Botany Long).
14: Deuteromycota And Advantage of Fungi (For Botany short).
15: Feature which enable fungi to live almost to every condition (For Botany Short).
16: Life cycle of Pinus (For Botany Long).
17: Life cycle of Fern (For Botany Long).
18: Evolution of seed and leaf (For Botany short).
19: Adaptation of plants to live on land (For Botany Short).
20: Fabaceae ,Poaceae and Rosaceae (For Long Botany Questions).
21: Glycolysis and Citric acid cycle (For Botany short Questions).
22: dark reactions (For Botany short and long Questions).
23: Role of light and water(For Botany Short Questions).
24: CAM plants C4 plants(For Botany Short Questions).
25: Mineral Deficiencies in Plants(For Botany Short Questions).
26: Photorespiration (For botany Questions).
27: Ascent of Sap (For Botany Long Questions).
28: Translocation (For Botany Long Questions).
29: Diagram to be Practice:
   - Mitochondria, endoplasmic reticulum, Plastids, Golgi body
   - Structure of Virus And Bacteria
   - Life cycle of bacteriophage
   - Life cycle of zygomycota and basidiomycota

Q30 Define following:- (Botany Questions).
   - Saprotophic plants
   - Protonema
   - Water potential
   - Osmosis
   - Osmotic potential
   - Solute potential
   - Plasmodesmata
   - Casparian strip
   - Symplast and apoplast pathway
   - Lysosomal storage diseases
   - Sporopollenin
   - Double Fertilization
   - Akinetes and hormogonia

Q31 adaptation of plants on land habitat.(For Botany Short Question).
Q32 Life cycle of moss, evolution of leaf and seed. (For Botany Short Question).
Q33 disadvantages of fungi..(For Botany Short Question).
Q34 Lichens and mychorrihizae.(For Botany Short Question).
Q35 Life cycle of bacteriophage lytic and lysogenic..(For Botany Short Question).

اہم ضروری سوالات برائے امتحان ۲۰۱۹ء

پرچہ: اردو   جماعت: گیارہویں

سوال نمبر ا: کثیرالانتخابی سوالات: منتخب شدہ خالی جگہیں

۱۔ ٹھیلے والے شہزادے کا نام <u>ظفر سلطان</u> تھا۔

۲۔ جدید اردو نثر کے مورثِ اعلیٰ <u>سر سید</u> ہیں۔

۳۔ میبل اور میں <u>پطرس بخاری</u> کا مضمون ہے۔

۴۔ اردو کا پہلا نقاد <u>حالی</u> کو کہا جاتا ہے۔

۵۔ نظم روح ارضی آدم کا استقبال کرتی ہے <u>بال جبرائیل</u> سے منتخب کی گئی ہے۔

۶۔ مرثیہ کے سب سے بڑے شاعر میر انیس کی نظم کا نام <u>آمدِ صبح</u> ہے۔

۷۔ اردو کا عظیم نعت گو شاعر <u>مولانا ظفر علی خان</u> کو کہا جاتا ہے۔

۸۔ سبق آزادی کی راہ میں خدیجہ مستور کے ناول <u>آنگن</u> سے لیا گیا ہے۔

۹۔ ایک شام ماضی کی محرابوں میں کے مصنف <u>ابنِ انشاء</u> ہیں۔

۱۰۔ مراۃ العروس کے خالق <u>ڈپٹی نذیر احمد</u> ہیں۔

۱۱۔ سبق تشکیل پاکستان کے مصنف <u>میاں بشیر احمد</u> ہیں۔

۱۲۔ مسدس مدوجزر اسلام <u>حالی</u> کی تخلیق ہے۔

۱۳۔ بیگمات کے آنسو <u>خواجہ حسن نظامی</u> کی تصنیف ہے۔

۱۴۔ اردو کے پہلے صوفی شاعر <u>خواجہ میر درد</u> ہیں۔

۱۵۔ نصاب میں شامل جوش ملیح آبادی کی نظم کا عنوان <u>سورۂ رحمٰن</u> ہے۔

۱۶۔ سبق روزمرہ اور محاورہ کے مصنف <u>حالی</u> ہیں۔

۱۷۔ سبق بردبار اور دانشمند کے مصنف <u>شفیق الرحمٰن</u> ہیں، اس سبق میں <u>اُلو</u> کا ذکر ہے۔

۱۸۔ نیرنگ خیال اور آب حیات <u>محمد حسین آزاد</u> کی تصنیف ہے۔

۱۹۔ سبق سچ اور جھوٹ کا رزم نامہ <u>محمد حسین آزاد</u> کا تحریر کردہ ہے۔

۲۰۔ <u>شبلی نعمانی</u> نے تاریخ کو فلسفہ سے روشناس کرایا۔

۲۱۔ اسلامی تاریخ پر مبنی ناولوں کی ابتداء <u>عبدالحلیم شرر</u> نے کی۔

۲۲۔ اردو کا بے مثل تمثیل نگار <u>محمد حسین آزاد</u> کو کہا جاتا ہے۔

۲۳۔ اردو <u>ترکی</u> زبان کا لفظ ہے جس کے معنی لشکر ہیں۔

۲۴۔ اردو کے پہلے افسانہ نگار <u>منشی پریم چند</u> ہیں۔

۲۵۔   اردو کے پہلے عوامی شاعر <u>نظیر اکبر آبادی</u> ہیں۔

سوال نمبر۲: اقتباس کی تشریحات: منتخب شدہ پیراگراف

رسم ورواج کی پابندی کے نقصانات:

☆ جو امر کہ پسندیدہ اور تسلیم کے قابل ہے وہ یہ ہے کہ۔۔۔۔۔۔۔ نہ یہ کہ اندھوں کی طرح یا ایک کل کی مانند ہمیشہ اسی سے لپٹے رہیں۔ (صفحہ نمبر۲)

☆ تو تاریخ سے ثابت ہے کہ ایک قوم کسی قدر عرصے تک ۔۔۔۔۔۔۔ اور ٹھیک ٹھیک مسلمانوں کا اس زمانے میں یہی حال ہے۔ (صفحہ نمبر۵)

☆ یہ بات خیال کی جاتی ہے کہ رسومات کی پابندی نہ ۔۔۔۔۔۔۔ ویسے ہی ان کے روکنے کی بھی قوتیں اور جذبے ہیں (صفحہ نمبر۲)

خطوط غالب:

☆ یہ ایک شیوہ فرسودہ آبنائے روزگار کا ہے۔ تعزیت یوں ۔۔۔۔۔۔۔ امر میں بتائی جاتی، دعا کو دخل نہیں، دوا کا لگاؤ نہیں۔ (صفحہ نمبر۸۲)

☆ اہلِ خطہ کا حال از روئے تفصیل، ۔۔۔۔۔۔۔ اب ایک ہندوستانی کے خون کا قصاص کون لے لگا۔ (صفحہ نمبر۸۲)

مسلمانوں کا قدیم طرزِ تعلیم:

☆ اعلیٰ تعلیم کیلئے دور دراز مسافتوں کا طے کرنا اور متعدد داخل ۔۔۔۔۔۔۔ اس زمانے کے لوگ ہمیشہ اس کو حیرت کی نگاہ سے دیکھتے تھے۔ (صفحہ نمبر۹)

☆ اگرچہ متواتر انقلابات، تخت گاہوں کی بربادی کے ۔۔۔۔۔۔۔ ماہرین و مجتہدین فن کا نشان دے سکتے ہیں۔ (صفحہ نمبر۸)

تشکیل پاکستان:

☆ اس نا گفتہ بہ حالت میں ایک دور اندیشن ہمدردِ ملت ۔۔۔۔۔۔۔ ہاتھوں سے گیا ملت کی آنکھیں کھل گئیں۔ (صفحہ نمبر۳۱)

☆ ان مساعی کا نتیجہ یہ ہوا کہ مذہب سے بیگانگی ۔۔۔۔۔۔۔ اس کی اصلاح ضروری ہوگئی۔ (صفحہ نمبر۳۳)

☆ مسلمانوں کا نصب العین، اسلام ہے، ۔۔۔۔۔۔۔ عہد میں مسلمانوں کی زندگیوں میں نظر آتا ہے۔ (صفحہ نمبر۳۸)
وہ اسلام نہیں،

جدید سائنس اور عصری تقاضے:

☆ بیماروں کیلئے یہ آبِ شفا ہے۔ کسانوں کیلئے خوشحالی۔ ۔۔۔۔۔۔۔ آبادی کی کفالت کی ضمانت ہے۔ (صفحہ نمبر۴۳)

سوال نمبر۳: اشعار کی تشریحات:

خواجہ میر درد غزل نمبر۱:

دنیا میں کون کون نہ نیک و بد ہو گیا	پر منہ پھر اس طرف نہ کیا اس نے جو گیا
طوفانِ نوح نے تو ڈبوئی زمیں میں فقط	میں ننگ خلق ساری خدائی ڈبو گیا
واعظ کسے ڈراوے ہے یومِ حساب سے	گر یہ میرا تو نامہ اعمال دھو گیا
پھولے لگا اس کی زباں میں گلزارِ معرفت	یاں میں زمیں میں شعر میں ختم ہو گیا

میر تقی میر غزل نمبر۱:

الٹی ہوگئیں سب تدبیریں کچھ نہ دوا نے کام کیا	دیکھا اس بیماری دل نے آخر کام تمام کیا
عہدِ جوانی رو رو کاٹا پیری میں لیں آنکھیں موند	یعنی رات بہت تھے جاگے صبح ہوئی آرام کیا
ناحق ہم مجبوروں پر یہ تہمت ہے مختاری کی	چاہتے ہیں سو آپ کریں ہیں، ہم کو عبث بدنام کیا
سرزد ہم سے بے ادبی تو وحشت میں بھی کم ہوئی	کوسوں اس کی اور گئے پر سجدہ ہر ہر گام کیا
یاں کے سپید و سیاہ میں ہم کو دخل جو ہے سو اتنا ہے	رات کو رو رو صبح کیا یا دن کو جوں توں شام کیا

خواجہ حیدر علی آتش غزل نمبر۱:

میری طرح سے مہ و مہر بھی ہیں آوارہ	کسی حبیب کی یہ بھی ہیں جستجو کرتے

خواجہ حیدر علی آتش غزل نمبر۲:

عدم کے کوچ کی لازم ہے فکر ہستی میں	نہ کوئی شہر، نہ کوئی دیار راہ میں ہے
نہ بدرقہ ہے نہ کوئی رفیق ساتھ اپنے	فقط عنایتِ پروردگار راہ میں ہے
سفر ہے شرط مسافر نواز بہتیرے	ہزار ہا شجر سایہ دار راہ میں ہے

مرزا غالب غزل نمبر۱:

موت کا ایک دن معین ہے	نیند کیوں رات بھر نہیں آتی
ہم وہاں ہیں جہاں سے ہم کو بھی	کچھ ہماری خبر نہیں آتی

مرزا غالب غزل نمبر۲:

سب کہاں کچھ لالہ و گل میں نمایاں ہو گئیں
خاک میں کیا صورتیں ہوں گی کہ پنہاں ہو گئیں

سب رقیبوں سے ہوں ناخوش پر زنانِ مصر سے
ہے زلیخا خوش کہ محوِ ماہِ کنعاں ہو گئیں

رنج سے خوگر ہوا انساں تو مٹ جاتا ہے رنج
مشکلیں اتنی پڑیں مجھ پر کہ آساں ہو گئیں

فیض احمد فیض غزل نمبر۱:

ہم پرورشِ لوح و قلم کرتے رہیں گے
جو دل پہ گزرتی ہے رقم کرتے رہیں گے

ہاں تلخیِ ایام ابھی اور بڑھے گی
ہاں اہلِ ستم مشقِ ستم کرتے رہیں گے

اک طرزِ تغافل ہے سو وہ ان کو مبارک
اک عرضِ تمنا ہے سو ہم کرتے رہیں گے

سوال نمبر۴ (الف)   مندرجہ ذیل میں سے کسی ایک جز کی تشریح کریں۔
(ب)   تشریح کردہ جز کی نظم کا نام تحریر کریں۔   (ج)   تشریح کردہ جز کے شاعر کا نام تحریر کریں۔

(۱)   آمدِ آفتاب کی وہ صبح کا سماں
تھا وہ جس کی ضو سے وجد میں طاؤسِ آساں

ذروں کی روشنی پہ ستاروں کا تھا گماں
نہرِ فرات نیچ میں تھی مثلِ کہکشاں

ہر نخل پر ضیائے سحر کہ سو کہ طور تھی
گویا فلک سے بارشِ باراں نور تھی

(۲)   آمدِ آفتاب کی وہ صبح کا سماں
کہ بازو سے اپنے کرو تم کمائی

خبر کا کہ لواس سے اپنی پرائی
نہ کرنی پڑے تم کو دردِ گدائی

طلب سے ہے دنیا کی گریاں بہ نیت
تو چمکو گے واں ماہِ کامل کی صورت

یا

(الف)   مندرجہ ذیل میں سے کسی ایک نظم کا مرکزی خیال تحریر کریں۔
(ب)   منتخب کردہ نظم کے شاعر کا نام تحریر کریں۔
(ج)   منتخب کردہ نظم کے شاعر کا مختصر تعارف تحریر کریں۔

(۱) روحِ ارضی آدم کا استقبال کرتی ہے   (۲) ٹیپو سلطان کی وصیت   (۳) آمدِ صبح   (۴) سورہ رحمٰن

سوال نمبر۵ (الف)   مندرجہ ذیل میں سے کسی ایک کا خلاصہ تحریر کریں۔
(ب)   منتخب کردہ مضمون کے مصنف کا نام تحریر کریں۔
(ج)   منتخب کردہ مضمون کے مصنف کا مختصر تعارف تحریر کریں۔

ماما عظمت ،   میبل اور میں،   آزادی کی راہ میں،   نوجوان سپہ سالار کا عزم و حوصلہ

سوال نمبر۶: نثر نگار کی خصوصیات: (۱) سر سید احمد خان   (۲) محمد حسین آزاد   (۳) ڈپٹی نذیر احمد   (۴) مولانا شبلی نعمانی

سوال نمبر۷: مندرجہ ذیل میں سے کسی ایک کی شاعری پر تبصرہ کریں۔
(۱) میر تقی میر   (۲) مرزا غالب   (۳) علامہ اقبال   (۴) خواجہ میر درد

سوال نمبر۸: شعری اصلاحات کی تعریف

مقطع ،   تضاد ،   تلمیح ،   مطلع ،   تشبیہ ،   استعارہ ،   قافیہ

اہم ضروری سوالات برائے امتحان 2019ء

پرچہ: اسلامیات   جماعت: گیارہویں

بیانیہ سوالات

١۔   عقیدہ آخرت سے کیا مراد ہے؟ انسانی زندگی پر اسکے اثرات بیان کریں؟

٢۔   عقیدہ رسالت کی وضاحت کرتے ہوئے انبیائے کرام کی خصوصیات بیان کریں۔   یا

     رسالت محمدی کی خصوصیات بیان کریں۔

٣۔   حقوق العباد سے کیا مراد ہے؟ زوجین یا اولاد کے حقوق وفرائض بیان کریں؟

٤۔   اخوت سے کیا مراد ہے؟ قرآن وحدیث کی روشنی میں اخوت کی اہمیت بیان کریں؟

٥۔   ارکان اسلام سے کیا مراد ہے؟ روز دیا جج کی اہمیت قرآن وحدیث کی روشنی میں بیان کریں۔

٦۔   زکوٰۃ کی اہمیت اور اس کے معاشی و معاشرتی فوائد بیان کریں؟

مختصر سوالات

١۔   پڑوسیوں کی کتنی اقسام ہیں؟   ٢۔   قرآن مجید کے چھ اسمائے مبارکہ تحریر کریں؟

٣۔   چار آسمانی کتابوں کے نام تحریر کریں؟ اور یہ کن رسولوں پر نازل ہوئی؟

٤۔   وحی سے کیا مراد ہے اور اس کی اقسام تحریر کریں؟   ٥۔   کوئی پانچ مصارف زکوٰۃ تحریر کریں؟

٦۔   صحاح ستہ سے کیا مراد ہے؟   ٧۔   حدیث مبارکہ سے کیا مراد ہے اور اس کی اقسام تحریر کریں؟

٨۔   قترۃ الوحی سے کیا مراد ہے؟   ٩۔   اسلام کے بنیادی عقائد بیان کریں؟

١٠۔ شرک سے کیا مراد ہے اور اس کی اقسام تحریر کریں؟   ١١۔ نصاب زکوٰۃ کی وضاحت کریں؟

١٢۔ غیبت اور تہمت سے کیا مراد ہے؟   ١٣۔ نبی کریم ﷺ نے منافق کی کیا نشانیاں بتائی ہیں؟

١٤۔ قبیلہ دوس کے نافرمانوں کے لیے آپ ﷺ نے کیا دعا فرمائی؟   ١٥۔ طائف کے نافرمانوں کیلئے کیا دعا فرمائی؟

١٦۔ آخرت سے کیا مراد ہے؟   ١٧۔ جنگ اور جہاد میں کیا فرق ہے؟

١٨۔ قرآن کے لیے بنائی گئی کمیٹی کی وضاحت کریں؟