

STEPHENS INTERNATIONAL PUBLIC SCHOOL

Holidays Homework for Class – 12th - A (Science) – 2018-19

SUBJECT : ENGLISH

WRITING

- Q:1. Write articles on the following topics:-
(a) A language as a means of suppression (refer the last lesson)
(b) 'God couldn't be everywhere, so he made mothers'.
- Q:2. Water is precious and each one of us must stop wastage. Prepare a poster in not more than 50 words urging people to employ various methods of rainwater harvesting in their colonies.
- Q:3. The recent rain caused great havoc in the city. Many buildings collapsed and several trees got uprooted blocking traffic at several places. Write a report to be published in a national daily.

LITERATURE

- Q:4. Why it is important to keep one's language alive? What are the reasons behind extinction of many languages?
- Q:5. Explain how politician exploit the poverty of the rag pickers of Seemapuri.
- Q:6. Comment on the beginning of the story – The Tiger King.

Revise chapters

- | | | |
|------------|----|-----------------|
| Flamingo – | 1. | The Last Lesson |
| | 2. | Lost Spring |
| Vistas – | 1. | The Tiger King |
| | 2. | The Enemy |
-

SUBJECT : PHYSICS

Concepts Based Questions

- Q:1. What kind of charge developed on wool when rubbed with ebonite?
- Q:2. What does $q_1 + q_2 = 0$ signifies?
- Q:3. When a body A repel body B and body A attracts body C. What would be the charge on the bodies B & C?
- Q:4. A body carries two electrons & two protons. Find the net charge on the body?
- Q:5. A body has charge 2×10^{-7} C moves with the speed of light. How the charge on the body be affected?
- Q:6. The mass of a body when it moves with the velocity of light is _____.
- Q:7. Positron is the antiparticle of _____ carries charge _____.
- Q:8. A conducting sphere having charge +Q is touched with identical neutral sphere. Find the charge on the each sphere.
- Q:9. The charge on the neutron is _____.
- Q:10. Which one is bigger charge of an electron or Coulomb?
- Q:11. The concept of charges is given by _____.
- Q:12. 1 Coulomb = _____ stat Coulomb.
- Q:13. A body has 20 excess electrons. The charge on the body will be
(a) 0.8×10^{-19} C (b) -3.2×10^{-19} C
(c) -3.2×10^{-18} C (d) 3.2×10^{-18} C
- Q:14. A static charge will produced:
(a) Electric field only (b) magnetic field only
(c) Both (a) & (b) (d) none of them
- Q:15. Static electricity is produced by:
(a) Friction (b) Conduction
(c) Induction (d) None of these
- Q:16. The existence of -ve charge on a body means, it has
(a) excess of electrons (b) shortage of electrons
(c) it expands (d) it contracts

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- Q:17. When charge is given to a soap bubble, it
- (a) expands (b) contracts
(c) neither expands nor contracts (d) none of these
- Q:18. Five balls number 1 to 5 are suspended by using threads. Pairs (1, 2); (2, 4); (4, 1) show attraction while pair (2, 3) & (4, 5) show repulsion. Then ball 1 will be
- (a) +vely charged (b) –vely charged
(c) neutral (d) none of these
- Q:19. The minimum charge that can exists on a body is:
- (a) 9.1×10^{-31} C (b) -6.25×10^{-19} C
(c) 6.25×10^{18} C (d) 1.6×10^{-19} C
- Q:20. S.I. unit of electrical permittivity is
- (a) $C^2N^{-1}m^{-2}$ (b) Nm^2C^{-2}
(c) NC^2m^{-2} (d) NC^{-1}
- Q:21. Number of electrons in one Coulomb charge will be
- (a) 0.8×10^{-19} (b) -6.25×10^{-19}
(c) 6.25×10^{18} (d) 1.6×10^{-19}
- Q:22. S.I. unit of permittivity is
- (a) Nm^2C^{-2} (b) $Nm^{-2}C^{-1}$
(c) $C^2N^{-1}m^{-2}$ (d) Am^{-1}
- Q:23. Two point charges of $+3\mu C$ and $-8\mu C$ attracts each other with a force of 1N. A charge of $+5\mu C$ is added to each of them, now the force will be:
- (a) 1N, attractive (b) 1N, repulsive
(c) Zero (d) Cannot be found
- Q:24. A soap bubble is given –ve charge its radius will:
- (a) increases (b) decreases
(c) remain same (d) becomes zero
- Q:25. A charge q is placed at the centre of the line joining two equal +ve charges Q. The system of the three charges will be in equilibrium if q is equal to:
- (a) $-Q/2$ (b) $-Q/4$
(c) $+Q/4$ (d) $+Q/2$
- Q:26. A point charge q rotates around a charge Q in a circle of radius r, then work done will be
- (a) $2\pi r q$ (b) $2\pi q Q/r$
(c) Zero (d) $\frac{1}{4\pi \epsilon_0} \frac{Qq}{r^2}$
- Q:27. The dielectric constant of a metal is:
- (a) zero (b) greater than 1
(c) less than 1 (d) infinity
- Q:28. The ratio of electric forces between electrons and two protons separated by the same distance in air is
- (a) 10^0 (b) 10^6
(c) 10^4 (d) none of these
- Q:29. There are two charges $1\mu C$ and $4\mu C$. The ratio of the forces acting them will be
- (a) 1 : 1 (b) 1 : 2
(c) 1 : 4 (d) 1 : 16
- Q:30. Coulomb's law is given by $F = KqQr^n$. Here n is
- (a) 1 (b) $\frac{1}{2}$
(c) 2 (d) -2

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- Q:31. Electric lines of force can pass through _____ & cannot pass through _____.
- Q:32. The direction of electric dipole moment is _____.
- Q:33. An electric dipole placed in the uniform electric field has minimum energy, then it is in _____ equilibrium. (stable / unstable)
- Q:34. The unit of electric field intensity is _____.
- Q:35. A dipole placed in the uniform electric field will (experiences / not experiences) force.
- Q:36. Torque is a _____ quantity. (scalar / vector)
- Q:37. Debye is the unit of _____.
- Q:38. Concept of electric field lines was given by _____.
- Q:39. Electric field intensity at a point r distance from a point charge depends upon
- (a) r (b) $\frac{1}{r}$
- (c) $\frac{1}{r^2}$ (d) $\frac{1}{r^3}$
- Q:40. Electric field intensity at a point 20 cm distance from a point charge $3\mu\text{C}$ is
- (a) $7 \times 10^5 \text{ N/C}$ (b) $7 \times 10^{-5} \text{ N/C}$
- (c) $6 \times 10^{10} \text{ N/C}$ (d) 0
- Q:41. Electric field intensity at a point r distance on the axial line from the centre of a dipole depends upon
- (a) r (b) $\frac{1}{r}$
- (c) $\frac{1}{r^2}$ (d) $\frac{1}{r^3}$
- Q:42. Find the ratio of E_{axial} & E_{equ} at a point same distance from the centre of the dipole is
- (a) 2 : 1 (b) 2 : 1
- (c) 4 : 1 (d) 1 : 4
- Q:43. The electric field inside a spherical conductor of uniform surface charge density is
- (a) zero
- (b) constant
- (c) proportional to distance from the centre
- (d) none of them
- Q:44. The angle between the direction of dipole moment and electric field strength at a point on the axial line is
- (a) 0° (b) 90°
- (c) 180° (d) none of them
- Q:45. The angle between the direction of dipole moment and electric field strength at a point on the equatorial line is
- (a) 0° (b) 90°
- (c) 180° (d) none of them
- Q:46. The ratio $\frac{Ke^2}{GMm}$ has the dimension of
- (a) mass (b) energy
- (c) charge (d) dimensionless
- Q:47. Two conducting spheres of radii r_1 & r_2 have same potential. The ratio of their charge is
- (a) r_2 / r_1 (b) r_1 / r_2
- (c) 1 : 1 (d) 2 : 1

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- Q:48. An alpha particle is accelerated through a P.D. of 10^6 eV. Its kinetic energy will be
(a) 1 MeV (b) 2 MeV
(c) 4 MeV (d) 8 MeV
- Q:49. The middle point of a conductor is earthed and its two ends are maintained at a potential difference of 20 V then potential at the two ends will be:
(a) 220 V (b) 0
(c) 50 V (d) 110 V
- Q:50. 50 J work is required to move a charge 2C from a point A to point B, then $V_B - V_A$ will be:
(a) 25 V (b) 100 V
(c) 50 V (d) 0
- Q:51. Work done in moving a charge $2 \mu\text{C}$ from corner A to the corner B of the square enclosing charge 2C at its centre will be:
(a) zero (b) $4 \mu\text{C}$
(c) 4 J (d) 4 C
- Q:52. An electric field of 20 N/C exists along X-axis in space. Calculate the P.D. $V_B - V_A$, where A(0, 0) & B(4m, 2m). **Ans. -80 V**

Numerical Problems

- Q:1. What is the force between two charged spheres having charges 2×10^{-7} C & 3×10^{-7} C placed 30 cm in air?
Ans. 6×10^{-3} N
- Q:2. Find the coulomb force between two α -particles separated by a distance of 3.2×10^{-15} m in air.
Ans. 90 N
- Q:3. Calculate the Coulomb's force between a proton and an electron separated by 8×10^{-14} m.
Ans. 3.6×10^{-2} N
- Q:4. Two point charges $10 \mu\text{C}$ & $20 \mu\text{C}$ are separated by a distance r in air. If an additional charge of $-8 \mu\text{C}$ is charges changes?
Ans. $F' = \frac{3}{25} F$
- Q:5. Calculate the Coulomb's force between two charged spheres of charges $0.2 \mu\text{C}$ & $0.3 \mu\text{C}$ placed at 30 cm apart in air.
Ans. 6×10^{-3} N
- Q:6. Two charges 10^{-6} C & 10^{-6} C exert 4000 N on each other. Calculate the distance between them.
Ans. 1.5×10^{-3} m
- Q:7. What is the force between two small charged sphere having charges of 2×10^{-7} C and 3×10^{-7} C placed 30 cm apart in air?
Ans. 6×10^{-3} N
- Q:8. How far apart should two electrons be if the force between them is equal to the weight of the electron?
Ans. 5.05 m
- Q:9. Three charges $+2 \mu\text{C}$, $+3 \mu\text{C}$ and $+4 \mu\text{C}$ are placed at the corners of an equilateral triangle having each side 0.2m. Find the net force acting on the charge $+4 \mu\text{C}$.
- Q:10. If the distance between two equal charges is doubled and their individual charges are also doubled. What would happen to the force between them?
Ans. Remains unaffected
- Q:11. Force between two charges placed at r distance apart is F. Find the distance between them in the same medium, when the force between them is F/3.
Ans. $d = \sqrt{3} r$

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Q:12. Two charges +Q each are placed along a line. A third charge –q is placed between them. At what position and value of q will the system be in equilibrium?

Ans. $q = Q/4$

Q:13. A charge Q is divided into two parts q and Q – q. If the charges have maximum force of repulsion on each other. Find the ratio of Q/q.

Ans. (2 : 1)

Q:14. Two fixed charges +4Q & +Q are separated by a distance d .Where should be the third charge placed for it to be in equilibrium.

Ans. $x = 2/3d$

Q:15. Two point charges 4Q and Q are separated by 1m in air, at what point on the line joining the charges is the electric field intensity zero?

Ans. $x = 2/3m$

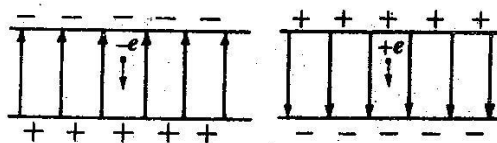
Q:16. Four charges +4, –3, +2 and +3C are placed at the corners of a square of each side 1m. Find the electric field at the centre of the square.

Ans. $1.138 \times 10^{11} \text{NC}^{-1}$

Q:17. Two charges of +10 μC and +40 μC respectively are placed 12cm apart. Find the position of the point, where electric field is zero.

Ans. 0.04 m

Q:18. An electron falls through a distance of 1.5 cm in a uniform electric field of magnitude $2 \times 10^4 \text{ N/C}$ the direction of the field is reversed keeping its magnitude unchanged and a proton falls through the same distance Find the time of fall in each case Given mass of electron = $9.1 \times 10^{-31} \text{ kg}$ & mass of proton $1.67 \times 10^{-27} \text{ kg}$.



Ans. $2.92 \times 10^{-9} \text{ sec}$ and $1.25 \times 10^{-7} \text{ sec}$

Q:19. An electric dipole, when held at 30° with respect to a uniform electric field of 10^4 N C^{-1} experiences a torque of $9 \times 10^{-26} \text{ Nm}$. Calculate dipole moment of the dipole.

Ans. $1.8 \times 10^{-29} \text{ cm}$

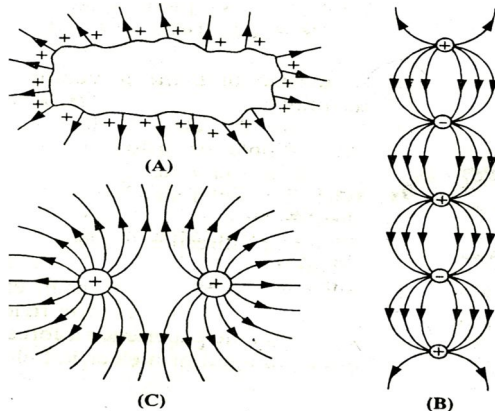
Q:20. Determine the magnitude of an electric field that will balance the weight of an electron.

Ans. $5.57 \times 10^{-11} \text{ N/C}$

Q:21. A system has two charges $q_A = 2.5 \times 10^{-7} \text{ C}$ and $q_B = -2.5 \times 10^{-7} \text{ C}$ located at the points A(0, 0, –15cm) and B(0, 0 + 15cm). What is the total charge and electric dipole moment?

Ans. $7.5 \times 10^{-8} \text{ C m}$

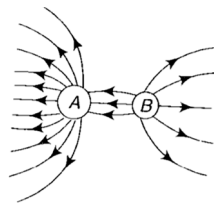
Q:22. Which of the given figures cannot possible represent electric field lines?



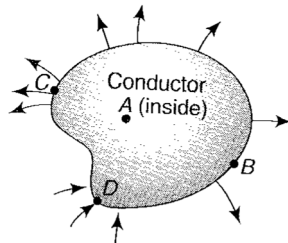
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- Q:23. The electric lines of force for two conducting spheres A & B are shown in the figure. What is the sign of charge on each sphere? Find the magnitude of the charges on the spheres?



- Q:24. In the given figure, at which of the four points has strong field & at which point has –ve charge?



- Q:25. Two identical spheres A & B each having charge $+4Q$ & $-10Q$ are separated by a certain distance apart. A third uncharged sphere C of same size is brought in contact with the A, then brought in contact with the B & then A & B are

- Q:26. Eight water droplets each of radius 1 mm and charge 10^{-9} C combine to form a bigger drop. Calculate the potential of the bigger drop.

Ans. 3.6×10^4 V

- Q:27. Calculate the electric potential at the surface a gold nucleus. Given radius of the nucleus = 6.6×10^{-15} m and atomic no. of gold is 79.

Ans. 1.7×10^7 V

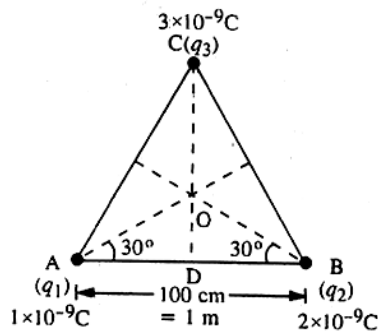
- Q:28. Calculate the work done in bringing a charge of 2×10^{-9} C from infinity to a point 0.009 m from the source charge.

Ans. 4×10^4 V

- Q:29. Calculate the potential at the centre of a square ABCD of each side $\sqrt{2}$ m due to charges $2\mu\text{C}$, $-2\mu\text{C}$, $-3\mu\text{C}$ & $6\mu\text{C}$ at four corners of it.

Ans. 2.7×10^4 V

- Q:30. Three charges are placed at the corners of an equilateral triangle of side 100 cm. Calculate the potential at the centre of the triangle.



Ans. $V = 93.6$ Volt

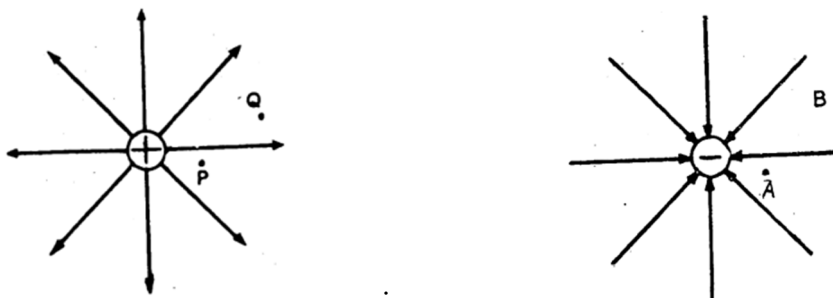
- Q:31. A charge 8mC is located at the origin. Calculate the work done in taking a small charge of -2×10^{-9} C from a point P(0,0,3cm) to a point Q(0,4cm,0) via a point R(0,6cm,8cm).

Ans. 12×10^{-3} J

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Q:32. Figure shows the field lines of +ve charge & -ve charge.



- (a) Give the sign of the P.D. $V_P - V_Q$ & $V_B - V_A$
- (b) Give the sign of potential energy difference of small -ve charge between B & A and P & Q.
- (c) Give the sign of work done in moving a +ve charge from Q to P.
- (d) Does kinetic energy of the -ve charge increase or decrease in going from B to A.

Q:33. A uniform electric field of 20N/C exists in the vertically downward direction. Find the rise electric potential at 100 m above the field.

Q:34. The electric potential at any point is given by $V = 4x^2$ V. Find electric intensity at a point (1, 0, 2).

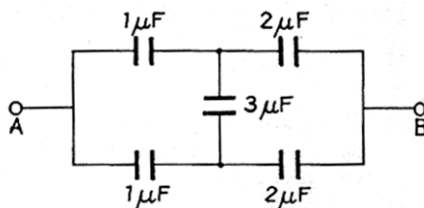
Ans. -8 Vm^{-1} (along -ve X axis)

Q:35. If the potential in a region is given by $V = 10x^2 + 5y^2 - 3z^2$. Find the components of electric field at the point (-1, 2, 3).

Ans. 20 V ; -20 V & 18 V

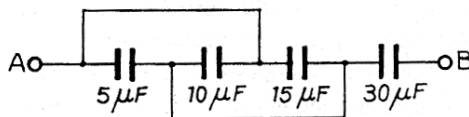
Q:36. Calculate the capacitance of a parallel plate capacitor of two plates 100cm × 100cm each separated by 2mm thick glass sheet of $K = 4$.

Q:37. Calculate the net capacitance between the points A & B



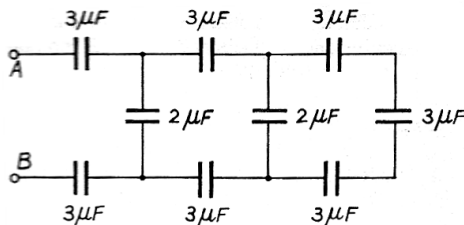
Ans. $\frac{4}{3} \mu\text{F}$

Q:38. Find the net capacitance between the points A & B.



Ans. 15μF

Q:39. Find the net capacitance between the points A & B.

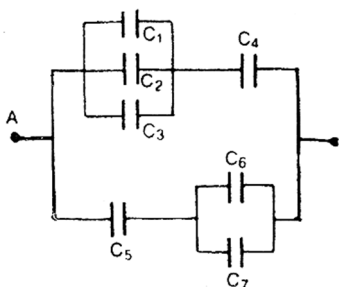


Ans. 1μF

Q:40. In the given figure $C_1 = C_5 = 3\mu\text{F}$, $C_2 = C_3 = C_4 = C_6 = 4\mu\text{F}$ and $C_7 = 2\mu\text{F}$. What is the equivalent capacitance between the points A & B.

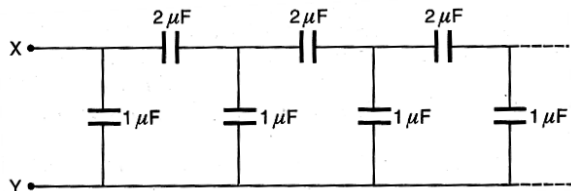
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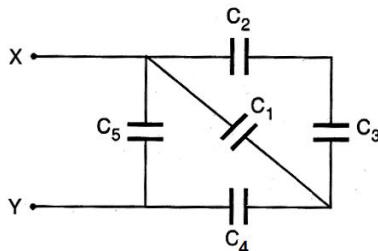
Ans. $5\mu\text{F}$

Q:41. Find the capacitance of this infinite ladder between the points X & Y.



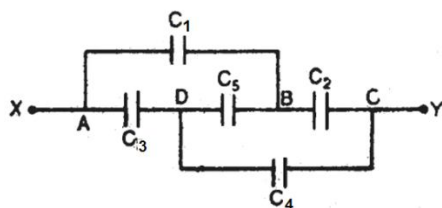
Ans. $2\mu\text{F}$

Q:42. Find the net capacitance of the circuit. Here $C_1 = C_5 = 1\mu\text{F}$ & $C_2 = C_3 = C_4 = 2\mu\text{F}$



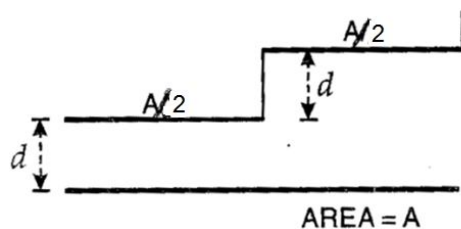
Ans. $2\mu\text{F}$

Q:43. In the network below, find the net capacitance between the points X & Y. Here $C_1 = C_2 = C_3 = C_4 = 4\mu\text{F}$ & $C_5 = 5\mu\text{F}$



Ans. $4\mu\text{F}$

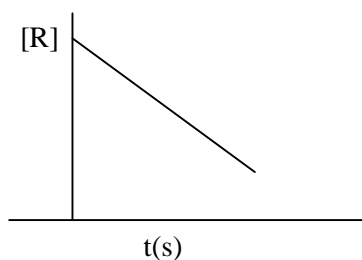
Q:44. Find the net capacitance of this arrangement of capacitors.



Ans. $\frac{3\epsilon_0 A}{4d}$

SUBJECT : CHEMISTRY**CHAPTER : CHEMICAL KINETICS****1 marks questions**

- Q:1. How will you prove that a chemical reaction is of first order?
- Q:2. The reaction $A + B \longrightarrow C$ has zero order. What is the rate equation?
- Q:3. What is meant by elementary step in a reaction?
- Q:4. Express the rate of the following reaction in terms of disappearance of hydrogen in the reaction.
- $$3\text{H}_2(\text{g}) + \text{N}_2(\text{g}) \longrightarrow 2\text{NH}_3(\text{g})$$
- Q:5. Define the order of reaction.
- Q:6. What is the order of reaction in following reaction? $\text{Rate} = k[\text{A}]^{1/2} [\text{B}]^{3/2}$
- Q:7. For a chemical reaction, what is the effect of catalyst on the rate of the reaction?
- Q:8. Why does the rate of reaction not remain constant throughout the reaction process?
- Q:9. Identify the order of reaction from the following rate constant: $k = 2.3 \times 10^{-5} \text{ L mol}^{-1} \text{ s}^{-1}$.
- Q:10. If the half life period of a first order reaction is X and $3/4^{\text{th}}$ life period of the same reaction is Y, how are X and Y related each other.
- Q:11. What is the activation energy?
- Q:12. For a chemical reaction, what is the effect of a catalyst on activation energy of a reaction?
- Q:13. For a chemical reaction $R \longrightarrow P$, the variation in the concentration (R) vs time (t) plot is given as. What is the slope of the curve?



- Q:14. Express the relation between the half life period of a reaction and initial concentration of reaction of second order.
- Q:15. What is molecularity?

2 marks questions

- Q:16. Define rate law. Give example.
- Q:17. At 300 K the thermal dissociation of HI is found to be 20%. What will be the equilibrium concentration of H_2 and I_2 in the system $\text{H}_2 + \text{I}_2 \longrightarrow 2\text{HI}$ at this temperature if the equilibrium concentration of HI in it be 0.96 mol L^{-1} ?
- Q:18. Define zero order reaction. Give its unit.
- Q:19. Distinguish between molecularity and order of reaction.
- Q:20. A reaction is of second order with respect to a reactant. Now, is its rate affected if the concentration of reactant is (a) doubled, (b) reduced to half
- Q:21. Explain the term:
- Rate determining step of a reaction
 - Pseudo first order reaction
- Q:22. Explain the differences between the average rate and instantaneous rate of a chemical reaction.

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- Q:23. State the role of activated complex in a reaction and state its relation with activation energy.
- Q:24. With the help of a diagram, explain the physical significance of energy of activation (E_a) in chemical reaction.
- Q:25. Distinguish between rate expression and rate constant of a reaction.
- Q:26. Calculate the half life of first order reaction whose rate constant is 200s^{-1} .
- Q:27. Derive the general form of expression of the half life of the first order reaction.
- Q:28. The rate constant for a zero order reaction is $0.0039\text{ mol L}^{-1}\text{ s}^{-1}$. How long will it take for the initial concentration of reactant A fall from 0.10 M to 0.075 M ?

3 marks questions

- Q:29. The data given below is for the reaction, $2\text{N}_2\text{O}_5(\text{g}) \longrightarrow 4\text{NO}_2(\text{g}) + \text{O}_2$

S. No.	N_2O_5 (mol L^{-1})	Rate of disappearance of N_2O_5 (mol $\text{L}^{-1}\text{ min}^{-1}$)
1	1.13×10^{-2}	34×10^{-5}
2	0.84×10^{-2}	25×10^{-5}
3	0.62×10^{-2}	18×10^{-5}

Determine for this reaction,

- (a) Order of reaction
- (b) Rate law
- (c) Rate constant
- Q:30. The following results have been obtained during kinetic studies of the reaction: $2\text{A} + \text{B} \longrightarrow \text{C} + \text{D}$

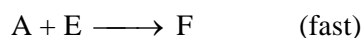
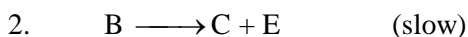
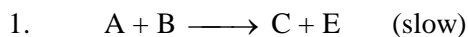
Exp. No.	[A]/M	[B]/M	Initial rate of formation of D
1	0.1	0.1	6.0×10^{-3}
2	0.3	0.2	7.2×10^{-3}
3	0.3	0.4	2.88×10^{-3}
4	0.4	0.1	2.40×10^{-3}

Determine rate law and the rate constant for the reaction.

- Q:31. Consider the reaction $2\text{A} + \text{B} \longrightarrow \text{C} + \text{D}$, following results were obtained in experiments designed to study the rate of reaction:

Exp No.	[A]	[B]	Initial rate of formation of D
1	0.10	0.10	1.5×10^{-3}
2	0.20	0.10	3.0×10^{-3}
3	0.20	0.40	6.0×10^{-3}

- (a) Write the rate law for this reaction.
- (b) Calculate the value of rate constant for the reaction.
- (c) Which of the following possible reaction mechanism is consistent with the rate law?



- Q:32. A first order reaction is 15% complete in 20 minutes. How long will it take to be 60% complete?

- Q:33. Prove that the time required for the completion of $\frac{3}{4}$ of the first order is twice the time required for the completion of half of the reaction.

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- Q:34. Show that in case of first order reaction, the time required for 99.9% of the reaction to complete its 10 times that required for half of the reaction to take place.
- Q:35. The rate constant for a first order reaction is 60s^{-1} . How much time will it take to reduce the concentration of the reactant to $1/10^{\text{th}}$ of its initial value?
- Q:36. The half life for a first order reaction is 5×10^4 s. What percentage of the initial reactant will react in 2 hour?
- Q:37. A first order reaction has a rate constant value of 0.00510 min^{-1} . If we begin with 0.10 M concentration of the reactant, how much of reactant will remain after 3.0 hours?
- Q:38. Hydrogen peroxide, H_2O_2 (aq) decomposes to H_2O and O_2 in a reaction that is of first order in H_2O_2 and has a rate constant, $k = 1.06 \times 10^{-3}\text{ min}^{-1}$.
- How long will it take 15% of a sample of H_2O_2 to decompose?
 - How long will it take 85% of a sample of H_2O_2 to decompose?

5 marks questions

- Q:39. The decomposition of phosphine PH_3 proceeds according to the following equation:
- $$4\text{PH}_3(\text{g}) \longrightarrow \text{P}_4(\text{g}) + 6\text{H}_2(\text{g})$$
- It is found that the reaction follows the following rate equation: $\text{rate} = k[\text{PH}_3]$. The half life of PH_3 is 37.9 at 20°C .
- How much time is required for $3/4^{\text{th}}$ of PH_3 to decompose? PH_3 remains behind after 1 minute?
 - What fraction of the original sample of PH_3 remains behind after 1 minute?
- Q:40. The decomposition of a compound is found to follow at first order rate law. If it takes 15 minutes for 20 percent of original material to react, calculate:
- The rate constant
 - The time at which 10% of the original material remains untreated.
- Q:41. In pseudo first order hydrolysis of ester in water, the following results are obtained:

t (in seconds)	0	30	60	90
[Ester] M	0.55	0.31	0.17	0.085

- Calculate the average rate of reaction between the time interval 30 to 60 s.
 - Calculate the pseudo first order rate constant for the hydrolysis of ester.
- Q:42. (a) Derive the general form of the expression for the half life of a first order reaction.
- (b) Nitrogen pentoxide decomposes according to the equation $2\text{N}_2\text{O}_5(\text{g}) \longrightarrow 4\text{NO}_2(\text{g}) + \text{O}_2(\text{g})$. This first order reaction was allowed to proceed at 40°C and the data given below:

$[\text{N}_2\text{O}_5]$ M	Time (min)
0.400	0.00
0.289	20.0
0.209	40.0
0.151	60.0
0.109	80.0

- Calculate the rate constant. Include units with your answer.
 - What will be the concentration of N_2O_5 after 100 min?
 - Calculate the initial rate of reaction.
- Q:43. (a) What is the significance of negative sign in the rate expression in term of reactant?
- (b) The decomposition of a compound is found to follow a first order rate law. If it takes 15 min. for 20% of original material to react, calculate (1) the specific rate constant, (2) the time at which 10% of the original material remains unreacted, (3) the time it takes for the next 20% the reactant left to react after the first 15 min.

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Q:44. (a) The initial rate of reaction, A + B products, is doubled when the initial concentration of A is doubled and increases eight fold when the initial concentration of both A and B are doubled. State the order of the reaction with respect to A and B. Write the rate equation.

(b) The data given below is for the reaction:

Expt. No.	[N ₂ O ₅]	Rate of disappearance of [N ₂ O ₅]
1	1.13×10^{-2}	34×10^{-5}
2	0.84×10^{-2}	25×10^{-5}
3	0.62×10^{-2}	10×10^{-5}

Determine:

(i) Order of reaction (ii) Rate constant (iii) Rate law

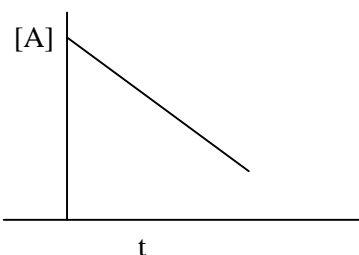
Q:45. The rate of decomposition of ammonia is found upon the concentration of NH₃ according to the equation: -

$$\frac{-d[\text{NH}_3]}{dt} = \frac{k_1[\text{NH}_3]}{1 + k_2[\text{NH}_3]}$$

What will be the order of reaction when:

- (a) Concentration of NH₃ is very high?
(b) Concentration of NH₃ is very low?

Q:46. Consider the reaction A → P. The change in concentration of A with time is shown in the plot.



- (a) Predict the order of the reaction.
(b) Derive the expression for the time required for the completion of the reaction.

Q:47. Give two examples of non-chemical process which obeys the first order kinetics.

Q:48. Prove mathematically that the time required for completion of any fraction of first order kinetics is independent of initial concentration of reactant.

CHAPTER – SOLID STATE

1 marks questions

- Q:1. What is the total number of atoms per unit cell in a face centered cubic (fcc) structure?
Q:2. Which point defect in crystal does not alter the density of relevant solid?
Q:3. Which point defect in its crystal units increases the density of a solid?
Q:4. Name of the element with which silicon can be doped to give an n-type semiconductor.
Q:5. What are the coordination numbers of hcp and ccp?
Q:6. What is the coordination number of the particle present in an octahedral void?
Q:7. What is Schottky defect?
Q:8. What is the number of tetrahedral voids in a unit cell of a cubic close packed structure?
Q:9. Name one solid in which both frenkel and schottky defect occurs.
Q:10. Which element may be added to silicon to make electrons available for the conduction an electric current?
Q:11. At what temperature range do most of the metals become superconductors?
Q:12. Why does Frenkel defect not change the density of AgCl crystal?
Q:13. Name the type of the point defect that occurs in a crystal of zinc sulphide?
Q:14. Name of the non stiochiometric point defect responsible for color in alkali halides.

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- Q:15. What type of substances shows anti ferromagnetism?
- Q:16. Name of the element with which germanium can be doped to produced an *n*-type semiconductor.
- Q:17. What is the coordination number of Na⁺ and Cl⁻ ions in NaCl structure?
- Q:18. Why is frenkel defect not found in metal halides?
- Q:19. How can a material be made amorphous?
- Q:20. Explain the term dislocation in relation is crystals.
- Q:21. What is the number of atoms in a unit cell of a face centered cubic crystal?
- Q:22. Classify the following solids into different categories based on nature of intermolecular forces operating in them: water, silicon, carbide.
- Q:23. What is coordination number of each atom in ccp structure?
- Q:24. What makes the crystal of KCl appear violet sometimes?

2 marks questions

- Q:25. Why does table salt (NaCl) sometimes appears yellow in colour?
- Q:26. Aluminium crystallizes in a cubic close packed structure. Its metallic radius is 125 pm.
- (a) What is the length of side of the of the unit cell.
- (b) How many unit cells are there in 1.00 cm³ of aluminium?
- Q:27. What is meant by ‘doping’ in a semiconductor?
- Q:28. A compound is formed by two elements X and Y. Atoms of the element Y (as anions) make ccp and those of the element X (as cat ions) occupy all the octahedral voids. What is the formula of the compound?
- Q:29. In corundum, oxide ion’s are arranged in hexagonal close packing and aluminum ions occupy two third of the octahedral voids. What is the formula of corundum?
- Q:30. How does the electrical conductivity of semiconductors vary with temperature?
- Q:31. Define superconductivity of a substance?
- Q:32. How does the electrical conductivity of metallic conductor vary with temperature?
- Q:33. Why is window glass of old buildings thick at the bottom?
- Q:34. What is the non-stoichiometric defect in crystal?
- Q:35. Why does the window glass of the old building look milky?
- Q:36. What is the difference in the semiconductors obtained by doping silicon with Al and with P?
- Q:37. What happens when a ferromagnetic substance is heated to high temperature?
- Q:38. How do metallic and ionic substances differ in conducting electricity?
- Q:39. “Crystalline solids are anisotropic in nature”. What does this statement mean?
- Q:40. Write a point of distinction between a metallic solid and an ionic solid other than metallic luster.
- Q:41. What is meant by the term ‘forbidden zone ‘in reference to band theory of solid?
- Q:42. What is meant by an intrinsic semiconductor?
- Q:43. Define paramagnetism with an example.
- Q:44. In an ionic compound the anion (Y⁻) form cubic close type of packing, while the cat ion (X⁺) ions occupy one-third of tetrahedral voids. Deduce the empirical formula of the compound and the coordination number of (X⁺) ions.
- Q:45. What are the types of lattice imperfections found in crystals?
- Q:46. How may the conductivity of an intrinsic semiconductor be increased?
- Q:47. If three elements A, B and C crystallizes in a cubic solid lattice in which atoms of A are at corners, B atoms at the cube centre and C atoms at the centre of faces of the cube, then write the formula of the compound.
- Q:48. Atoms of element B form hcp lattice and those of element A occupy 2/3rd of tetrahedral voids. What is the formula of the compound formed by the elements A and B?

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3 marks questions

- Q:49. The electrical conductivity of a metal decreases with rise in temperature while that of semiconductor increases. Explain why.
- Q:50. An element X with an atomic mass of 60 g mol^{-1} has density of 6.23 g cm^{-3} . If the edge length of its cubic unit cell is 400 pm, identify the type of the cubic unit cell. Calculate the radius of an atom of this element.
- Q:51. The density of KBr is 2.75 g cm^{-3} . The length of edge of the unit cell is 654 pm. Predict the type of cubic lattice to which unit cell of KBr belongs. (At mass of Br = 80, K = 39)
- Q:52. Iron (2) oxide has a cubic structure and each side of the unit cell is 5Å . If density of oxide is 4 g cm^{-3} , calculate the number of Fe^{+2} and O^{-2} ions present in each unit cell.
- Q:53. An element has a body centered cubic structure with a cell edge of 288 pm. The density of the element is 7.2 g cm^{-3} . Calculate the number of atoms present in 208 g of the element.
- Q:54. How would you account for the following?
(a) Schottky defects lower the density of related solids.
(b) Impurity doped silicon is a semiconductor.
- Q:55. A metal (at. mass = 50) has a body centered cubic lattice. The density of the metal is 5.91 g cm^{-3} . Find out the volume of the unit cell.
- Q:56. Niobium crystallizes in body centered cubic structure. If the density is 8.55 g cm^{-3} , calculate atomic radius of niobium. (At mass of niobium = 93u)

5 marks questions

- Q:57. An element crystallizes in bcc lattice. It has density of 10 g cm^{-3} at room temperature. Calculate the atomic radius of the atom of an element. Also, calculate the atomic volume assuming atom to be a hard sphere. (At. mass = 60.2 g mol^{-1})
- Q:58. KCN has a rock salt type structure. What is the distance between K^+ and CN^- in KCN, if the density is 2.32 g cm^{-3} ?
- Q:59. How will you distinguish between the following pair of terms?
(a) Hexagonal close packing and cubic close packing.
(b) Crystal lattice and unit cell.
(c) Tetrahedral void and octahedral void.
- Q:60. The edge length of unit cell of a metal having molecular weight 75 g mol^{-1} is 5 Å which crystallizes in cubic lattice. If the density is 2 g cm^{-3} , then find the radius of metal atom.
- Q:61. Out of NaCl and CsCl, which one is more stable and why?
- Q:62. In a crystal, Frenkel defect is not shown by alkali metal halides but silver halides show. Why?
- Q:63. What are the arrangement of atoms in the lattice structure of diamond and give contribution of each C atom?
- Q:64. Lithium borohydride, LiBH_4 crystallizes in an orthorhombic system with 4 molecules per unit cell. The unit cell dimensions are: $a = 6.81 \text{ Å}$, $b = 4.43 \text{ Å}$ and $c = 7.17 \text{ Å}$. Calculate the density of the crystal. Take atomic mass of Li = 7, B = 11.
- Q:65. If silver iodide crystallizes in a zinc blende structure with I^- ions forming the lattice, then calculate fraction of the tetrahedral voids occupied by Ag^+ ions.
- Q:66. A compound consisting of the monovalent ions A^+ , B^- crystallizes in the body centered cubic lattice.
(i) What is the formula of the compound?
(ii) If one of A^+ ions form the corner is replaced by the monovalent ion C^+ , what would be the simplest formula of the resulting compound?
-

SUBJECT : MATHEMATICS**Chapter – Inverse Trigonometric Functions**

Q:1. Find the principle values of

(i) $\sin^{-1}\left(\frac{1}{\sqrt{2}}\right)$

(ii) $\cot^{-1}\left(\frac{-1}{\sqrt{3}}\right)$

(iii) $\cos^{-1}\left(\cos\frac{2\pi}{3}\right) + \sin^{-1}\left(\sin\frac{2\pi}{3}\right)$

(iv) $\tan^{-1}\left(\tan\frac{2\pi}{3}\right)$

(v) $\cos^{-1}\left(\cos\frac{2\pi}{6}\right)$

Q:2. Prove that: $4(\cot^{-1} 3 + \operatorname{cosec}^{-1} \sqrt{5}) = \pi$ Q:3. Evaluate: (i) $\cos\left[\cos^{-1}\left(\frac{-\sqrt{3}}{2}\right) + \frac{\pi}{6}\right]$

(ii) $\sin\left[\frac{\pi}{2} - \sin^{-1}\left(\frac{-\sqrt{3}}{2}\right)\right]$

(iii) $\cos\left[\cos^{-1}\left(\frac{-\sqrt{3}}{2}\right) + \frac{\pi}{6}\right]$

(iv) $\sin\left[\frac{\pi}{3} - \sin^{-1}\left(\frac{-1}{2}\right)\right]$

Q:4. Find the value of $2\sin^{-1}\frac{1}{2} + \cos^{-1}\left(\frac{-1}{2}\right)$ Q:5. Write $\sin^{-1}\left(2x\sqrt{1-x^2}\right)$, $\frac{-1}{\sqrt{2}} < x < \frac{1}{\sqrt{2}}$ in the simplest form.

Q:6. Simplify the following:-

(i) $\sin^{-1}\left(\frac{\sin x + \cos x}{\sqrt{2}}\right)$, $\frac{-\pi}{4} < x < \frac{\pi}{4}$

(ii) $\cos^{-1}\left(\frac{\sin x + \cos x}{\sqrt{2}}\right)$, $\frac{\pi}{4} < x < \frac{5\pi}{4}$

Q:7. Solve: $\tan^{-1} 2x + \tan^{-1} 3x = \frac{\pi}{4}$ Q:8. Solve for x : $\tan^{-1}(x+1) + \tan^{-1}(x-1) = \tan^{-1}\left(\frac{8}{31}\right)$ Q:9. Express $\tan^{-1}\left(\frac{\cos x}{1-\sin x}\right)$, $\frac{-\pi}{2} < x < \frac{\pi}{2}$ in the simplest form.Q:10. Prove that $\tan^{-1}\left(\frac{1}{4}\right) + \tan^{-1}\left(\frac{2}{9}\right) = \frac{1}{2}\cos^{-1}\left(\frac{3}{5}\right) = \sin^{-1}\left(\frac{1}{\sqrt{5}}\right)$ Q:11. If $(\tan^{-1} x)^2 + (\cos^{-1} x)^2 = \frac{5\pi^2}{8}$, then find x .Q:12. Prove that $2\tan^{-1}\left(\frac{1}{5}\right) + \sec^{-1}\left(\frac{5\sqrt{2}}{7}\right) + 2\tan^{-1}\frac{1}{8} = \frac{\pi}{4}$ Q:13. If $\tan^{-1}\left(\frac{x-2}{x-4}\right) + \tan^{-1}\left(\frac{x+2}{x+4}\right) = \frac{\pi}{4}$, find the value of x .Q:14. If $\sin[(\cot^{-1}(x+1))] = \cos(\tan^{-1} x)$, then find x .Q:15. Show that $\sin^{-1}\frac{12}{13} + \cos^{-1}\frac{4}{5} + \tan^{-1}\frac{63}{16} = \pi$

Q:16. If $3 \tan^{-1} x + \cot^{-1} x = \pi$, then x equals to

- (a) 0 (b) 1 (c) -1 (d) $\frac{1}{2}$

Q:17. For what value of x , $\sin^{-1} x - \cos^{-1} x = \frac{\pi}{6}$

Q:18. If $\sin\left(\sin^{-1} \frac{1}{5} + \cos^{-1} x\right) = 1$, then find the value of x .

Q:19. If $\tan^{-1}\left(\frac{x-1}{x-2}\right) + \tan^{-1}\left(\frac{x+1}{x+2}\right) = \frac{\pi}{4}$, then find the value of x .

Q:20. Write in simplest form:- $\tan^{-1}\left(\sqrt{\frac{1-\cos x}{1+\cos x}}\right)$, $x < \pi$

Q:21. Prove that $\tan^{-1}\left(\frac{x}{\sqrt{a^2-x^2}}\right) = \sin^{-1}\left(\frac{x}{a}\right)$

Chapter – Matrix and Determinant

Q:1. Using properties of determinant, show that $\Delta = \begin{vmatrix} a+b+2c & a & b \\ c & b+c+2a & b \\ c & a & c+a+2b \end{vmatrix} = 2(a+b+c)^3$

Q:2. Using properties of determinant, show that $\Delta = \begin{vmatrix} 1+a & 1 & 1 \\ 1 & 1+b & 1 \\ 1 & 1 & 1+c \end{vmatrix} = abc\left(1 + \frac{1}{a} + \frac{1}{b} + \frac{1}{c}\right)$

Q:3. Using properties of determinant, show that $\Delta = \begin{vmatrix} a^2+1 & ab & ac \\ ab & b^2+1 & bc \\ ca & cb & c^2+1 \end{vmatrix} = \begin{vmatrix} a^2 & b^2 & c^2 \\ a^2 & b^2+ & c^2 \\ a^2 & b^2 & c^2+1 \end{vmatrix}$

Q:4. Using properties of determinant, show that $\Delta = \begin{vmatrix} b+c & c+a & a+b \\ q+r & r+p & p+q \\ y+z & z+x & x+y \end{vmatrix} = 2 \begin{vmatrix} a & b & c \\ p & q & r \\ x & y & z \end{vmatrix}$

Q:5. Using properties of determinant, show that $\Delta = \begin{vmatrix} 1+a^2-b^2 & 2ab & -2b \\ 2ab & 1-a^2+b^2 & 2a \\ 2b & -2a & 1-a^2-b^2 \end{vmatrix} = (1+a^2+b^2)^3$

Q:6. Using properties of determinant, show that $\Delta = \begin{vmatrix} x+a & x & x \\ y & y+b & y \\ z & z & z+c \end{vmatrix} = abc\left(1 + \frac{x}{a} + \frac{y}{b} + \frac{z}{c}\right)$

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Q:7. Using properties of determinant, show that $\Delta = \begin{vmatrix} \frac{a^2+b^2}{c} & c & c \\ a & \frac{b^2+c^2}{a} & a \\ b & \frac{c^2+a^2}{b} & b \end{vmatrix} = 4abc$

Q:8. Using properties of determinant, show that $\Delta = \begin{vmatrix} a+bx & c+dx & p+qx \\ ax+b & cx+d & px+q \\ u & v & w \end{vmatrix} = (1-x^2) \begin{vmatrix} a & c & p \\ b & d & q \\ u & v & w \end{vmatrix}$

Q:9. Using properties of determinant, show that $\Delta = \begin{vmatrix} -bc & b^2+bc & c^2+bc \\ a^2+ac & -ac & c^2+ac \\ a^2+ab & b^2+ab & -ab \end{vmatrix} = (ab+bc+ca)^3$

Q:10. Using properties of determinant, show that $\Delta = \begin{vmatrix} a+b & b+c & c+a \\ b+c & c+a & a+b \\ c+a & a+b & b+c \end{vmatrix} = 2 \begin{vmatrix} a & b & c \\ b & c & a \\ c & a & b \end{vmatrix}$

Q:11. Prove that $\begin{vmatrix} \alpha & \beta & \gamma \\ \alpha^2 & \beta^2 & \gamma^2 \\ \beta+\gamma & \gamma+\alpha & \alpha+\beta \end{vmatrix} = (\alpha-\beta)(\beta-\gamma)(\gamma-\alpha)(\alpha+\beta+\gamma)$

Q:12. Prove that $\begin{vmatrix} 1 & x & x^2 \\ x^2 & 1 & x \\ x & x^2 & 1 \end{vmatrix} = (1-x^3)^2$

Q:13. Find the value of $[f(2x) - f(x)]$ if $f(x) = \begin{vmatrix} a & -1 & 0 \\ ax & a & -1 \\ ax^2 & ax & a \end{vmatrix}$

Q:14. Using properties of determinant solve for x : $\begin{vmatrix} 3x-8 & 3 & 3 \\ 3 & 3x-8 & 3 \\ 3 & 3 & 3x-8 \end{vmatrix} = 0$

Q:15. If $A = \begin{bmatrix} 4 & 1 \\ 5 & 8 \end{bmatrix}$, show that $A - A^T$ is a skew-symmetric matrix where A^T denotes the transverse of A .

Q:16. For what value of x , is the matrix $A = \begin{bmatrix} 0 & 1 & -2 \\ -1 & 0 & 3 \\ x & -3 & 0 \end{bmatrix}$ a skew-symmetric matrix?

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Q:17. Find the inverse of the matrix $A = \begin{bmatrix} 0 & 1 & 2 \\ 1 & 2 & 3 \\ 3 & 1 & 1 \end{bmatrix}$ by using elementary row transformation.

Q:18. If $A = \begin{bmatrix} 2 & 3 \\ 4 & 5 \end{bmatrix}$ show that $A + A'$ is symmetric

Q:19. Find the values of a, b and c if the matrix $A = \begin{bmatrix} 0 & 2b & c \\ a & b & -c \\ a & -b & c \end{bmatrix}$ obeys $A'A = I$

Q:20. If $A = \begin{bmatrix} 0 & 1 & 1 \\ 1 & 0 & 1 \\ 1 & 1 & 0 \end{bmatrix}$ then show that $A^3 - 3A - 2I = 0$ and hence find A^{-1} .

Q:21. If $A = \begin{bmatrix} 3 & -1 \\ -4 & 0 \\ 2 & 1 \end{bmatrix}$, $B = \begin{bmatrix} 2 & -1 \\ -1 & -2 \\ 1 & 1 \end{bmatrix}$ find $(A'B')$

Q:22. Using matrix method solve the system of equations:-

$$\begin{aligned} 2x - 3y + 5z &= 11, \\ 3x + 2y - 4z &= -5, \\ x + y - 2z &= -3 \end{aligned}$$

Q:23. If $A = \begin{bmatrix} 1 & 1 & 1 \\ 1 & 0 & 2 \\ 3 & 1 & 1 \end{bmatrix}$ find A^{-1} and use A^{-1} to solve the system of equations

$$\begin{aligned} x + y + z &= 6 \\ x + 2z &= 7 \\ 3x + y + z &= 12 \end{aligned}$$

Q:24. If $P = \begin{bmatrix} -4 & 4 & 4 \\ -7 & 1 & 3 \\ 5 & -3 & -1 \end{bmatrix}$ and $A = \begin{bmatrix} 1 & -1 & 1 \\ 1 & -2 & -2 \\ 2 & 1 & 3 \end{bmatrix}$, find PA and use to solve the system of equation

$$x - y + z = 4, x - 2y - 2z = 9, 2x + y + 3z = 1$$

Q:25. If A is an invertible matrix of order (2×2) then $\det(A^{-1})$ is equal to

(a) $\det A$ (b) $\frac{1}{\det A}$ (c) 1 (d) 0

Q:26. Using elementary row transformation find A^{-1} if $A = \begin{bmatrix} 2 & -6 \\ 1 & -2 \end{bmatrix}$

Q:27. Find a matrix X so that $X \times \begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \end{bmatrix} = \begin{bmatrix} -7 & -8 & -9 \\ 2 & 4 & 6 \end{bmatrix}$

Q:28. If matrix A is symmetric as well as skew-symmetric, then A is

(a) Diagonal matrix (b) Null matrix (c) Scalar matrix

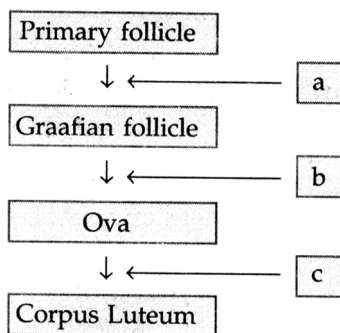
Q:29. For what of x if $\begin{bmatrix} 2(x+1) & 2x \\ x & x-2 \end{bmatrix}$ is a Singular matrix.

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SUBJECT : BIOLOGY

- I. Students to prepare a project file on any related topic to the syllabus for Board Exams.
- II. To revise the complete syllabus taught till date.
- III. Answer the following questions:-
- Q:1. If one can induce parthenocarpy through the application of growth substances, which fruits you would select and why?
- Q:2. List the changes observed in an angiosperm flower subsequent to pollination and fertilization.
- Q:3. Write the characteristics of insect pollinated plants.
- Q:4. Mention two strategies evolved by flowers to prevent self-pollination.
- Q:5. Why do you think the zygote is dormant for sometime in a fertilized ovule?
- Q:6. What is function of trophoblast of blastocyst?
- Q:7. In our society the women are often blamed for giving birth to daughters. Can you explain why this is not correct?
- Q:8. What is foetal ejection reflex? Explain how it leads to parturition?
- Q:9. Given below is a flow chart showing ovarian changes during menstrual cycle. Fill in the spaces giving the name of hormones responsible for the events shown.



- Q:10. Draw a diagrammatic sectional view of human seminiferous tubule and label: sertoli cell, primary spermatogonium and spermatozoa in it.
- Q:11. What is fertilization? How does implantation occur after fertilization in human being?
- Q:12. Even after the gestation period, a pregnant human female feels intermittent labour pains which immediately subside. So the parturition does not take place.
- (a) What may be possible reasons for failure of parturition?
- (b) What are various ways which a doctor may take to induce parturition?
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SUBJECT : PHYSICAL EDUCATION

- Q:1. What do you mean by intramurals? Explain the organization of intramurals.
- Q:2. Being sport's captain of the school, prepare five important committee with their responsibilities to conduct one day Run – for Health Race.
- Q:3. Explain the procedure benefits, precautions and constrain ditions of
- (a) Tadasana (ii) Chakrasana
- Q:4. What is hypertension? What are its types of risk factors?
- Q:5. What do you mean by Bulimia Nervosa? Mention causes.
- Q:6. Comment on the outlook of Indian society towards the participation of women in sports.
- Q:7. What do you understand by eating disorder?
-

SUBJECT : COMPUTER SCIENCE



- * Store Summer holidays homework in a CD {Compact Disc}
- * Pictures can be scan/taken from your computer book OR from Internet sources.
- * Do Holiday Homework individually, not in groups.
- * Submit the CD before **09th July 2018** positively.

- Q:1. Type **ten sentences** on C++ Language and save in a notepad file with the name “MY C++ Knowledge”.
- Q:2. Design a PowerPoint Presentation that shows ‘**OOPs Concept in brief**’ with the help of animation. {*See in your latest syllabi*}
- Q:3. Create a table in MS-word file and type **three access specifiers their description**. {*See in your latest syllabi*}
- Q:4. **WAP in *.cpp file** based on all 5 basic pillars of OOPs Language. {*See in your latest syllabi*}
- Q:5. Draw a Computer in MS Paint file that depicts **how a user switches it on** and save in a file with the name “MY Computer”.
- Q:6. Define a class to represent **a book** in a library. Include the following members: {*Save in MS-Word File*}
- Data Members**
Book Number, Book Name, Author Name, Publisher Name, Price of Book, No. of Copies issued to person.
- Function Members**
- (i) To assign initial values.
 - (ii) To issue a book after checking for its availability.
 - (iii) To return a book.
 - (iv) To display book information.
- Q:7. Define a class to represent **bowlers** in a cricket team. Include the following members: {*Save in MS-Word File*}
- Data Members**
First Name, Last Name, Overs bowled, Number of Maiden overs, Runs given, Wickets taken.
- Function Members**
- (i) To assign the initial values.
 - (ii) To update the information.
 - (iii) To displays’ the bowler information.