

# SUMMER VACATION TASK

## CLASS-XII

### SUB-BIOLOGY

- (1) Draw a labelled diagram of sectional view of a mature embryo sac of an angiosperm.
- (2) (a) Describe the formation of mature female gametophyte within an ovule in angiosperms.  
(b) Describe the structure of cell that guides the pollen tube to enter the embryo sac.
- (3) (a) Draw a diagram of an enlarged view of TS of one microsporangium of an angiosperm and label the following parts.
  - (i) Tapetum
  - (ii) Middle layers
  - (iii) Endothecium
  - (iv) Microspore mother cell(b) Mention the characteristic features and function of tapetum. Explain the following giving reasons
  - (i) Pollen grains are well preserved as fossils.
  - (ii) Pollen tablets are in use of people these days.
- (4) How does the pollen mother cell develop into a mature pollen grain? Illustrate the stages with labelled diagram.
- (5) Draw a labelled diagram of the sectional view of a mature pollen grain in angiosperm. Explain the functions of its two different parts.
- (6) What is pollen-pistil interaction and how is it mediated?
- (7) Differentiate between xenogamy and geitonogamy?
- (8) How do the pollen grains of Vallisneria protect themselves?
- (9) Mention the pollinating agent of an inflorescence of small dull coloured flowers with well exposed stamens and large feathery stigma. Give any one characteristic of pollen grains produced by such flowers.

- (10) Name the type of flower which favours cross-pollination.
- (11) Mention the reasons for difference in ploidy of zygote and primary endosperm nucleus in an angiosperm.
- (12) State one advantage and one disadvantage of cleistogamy.
- (13) Why should a bisexual flower be emasculated and bagged prior to artificial pollination? Explain any two devices by which autogamy are prevented in flowering plants.
- (14) Make a list of any three outbreeding devices that flowering plants have developed and explain how they help to encourage cross pollination.
- (15) Draw a Longitudinal Section (LS) of a post-pollinated pistil showing entry of pollen tube into a mature embryo sac. Label filiform apparatus, chalazal end, hilum, antipodals, male gametes and secondary nucleus.
- (16)(i) Explain the characteristic features of wind pollinated flowers. How are insect pollinated flowers different from them?
- (ii) Explain the mutually rewarding relationship between Yucca plant and species of moth.
- (17)(i) Describe the endosperm development in coconut.
- (ii) Why is tender coconut considered as healthy source of nutrition?
- (iii) How are pea seeds different from castor seeds with respect to endosperm?
- (18) Differentiate between perisperm and endosperm giving one example of each.
- (19) With the help of an example of each explain the following Apomixis, parthenocarpy, polyembryony.
- (20) Give reasons why?
- (i) Most zygotes in angiosperms divide only after certain amount of endosperm is formed.
- (ii) Groundnut seeds are exalbuminous and castor seeds are albuminous.
- (iii) Micropyle remains as a small pore in the seed coat of a seed.
- (iv) Integuments of an ovule harden and the water content is highly reduced as the seed matures.

- (v) Apple and cashew nuts are not called true fruits.
- (21) (a) Where does spermatogenesis occur in human testes? Describe the process of spermatogenesis up to the formation of spermatozoa.
- (b) Trace the path of spermatozoa from the testes upto the ejaculatory duct only.
- (22) Differentiate between spermatogenesis and oogenesis.
- (23) Draw a diagrammatic sectional view of the female reproductive system of human and label the parts,
- (i) Where the secondary oocytes develop?
- (ii) Which helps in collection of ovum after ovulation?
- (iii) Where fertilization occurs?
- (iv) Where implantation of embryo occurs?
- (24) (a) Name the organic material exine of the pollen grain is made up of. How is this material advantageous to pollen grain?
- (b) Still it is observed that it does not form a continuous layer around the pollen grain. Give reason.
- (c) How are 'pollen banks' useful?
- (25) (a) As a senior biology student you have been asked to demonstrate to the students of secondary level in your school, the procedure (s) that shall ensure cross – pollination in a hermaphrodite flower. List the different steps that you would suggest and provide reasons for each of the item.
- (b) Draw a diagram of a section of a megasporangium of an angiosperm and label funiculus, Micropyle, embryosac and nucleus.

## **SUMMER VACATION TASK**

### **CLASS –XII(CHEMISTRY)**

#### **SOLUTION**

1. Components of a binary mixture of two liquids A and B were being separated by distillation. After some time separation of components stopped and composition of vapour phase became same as that of liquid phase. Both the components started coming in the distillate. Explain why this happened.
2. Explain why on addition of 1 mol of NaCl to 1 litre of water, the boiling point of water increases, while addition of 1 mol of methyl alcohol to one litre of water decreases its boiling point.
3. Explain the solubility rule “like dissolves like” in terms of intermolecular forces that exist in solutions.
4. Concentration terms such as mass percentage, ppm, mole fraction and molality are independent of temperature, however molarity is a function of temperature. Explain.
5. What is the significance of Henry’s Law constant  $K_H$  ?
6. Why are aquatic species more comfortable in cold water in comparison to warm water?
7. (a) Explain the following phenomena with the help of Henry’s law.
  - (i) Painful condition known as bends.
  - (ii) Feeling of weakness and discomfort in breathing at high altitude.(b) Why soda water bottle kept at room temperature fizzes on opening?
8. Why is the vapour pressure of an aqueous solution of glucose lower than that of water?
9. How does sprinkling of salt help in clearing the snow covered roads in hilly areas? Explain the phenomenon involved in the process. 45. What is “semi permeable membrane”?
10. Why is it not possible to obtain pure ethanol by fractional distillation? What general name is given to binary mixtures which show deviation from Raoult’s law and whose components cannot be separated by fractional distillation. How many types of such mixtures are there?
11. When kept in water, raisin swells in size. Name and explain the phenomenon involved with the help of a diagram. Give three applications of the phenomenon.
12. Discuss biological and industrial importance of osmosis.
13. How can you remove the hard calcium carbonate layer of the egg without damaging its semipermeable membrane? Can this egg be inserted into a bottle with a narrow neck without distorting its shape? Explain the process involved.
14. Why is the mass determined by measuring a colligative property in case of some solutes abnormal ? Discuss it with the help of Van’t Hoff factor.
15. 15.0 g of an unknown molecular material is dissolved in 450 g of water. The

resulting solution freezes at  $-0.34^{\circ}\text{C}$ . What is molar mass of the material?  
( $K_f$  for the water =  $1.86 \text{ K kg mol}^{-1}$ )

16. 0.6 ml of acetic acid ( $\text{CH}_3\text{COOH}$ ) having density  $1.06 \text{ g ml}^{-1}$  is dissolved in 1l of water. The depression in f.p observed for this strength of acid was  $0.0205^{\circ}\text{C}$  calculate the vant Hoff factor and dissociation constant for acid.
17. A solution prepared by dissolving 8.95mg of a gene fragment in 35.0ml of water has an osmotic pressure of 0.335 torr at  $25^{\circ}\text{C}$ . Assuming that the gene fragment is a non-electrolyte, calculating its molar mass.
18. The reaction,  $\text{N}_2(\text{g}) + \text{O}_2(\text{g}) \rightleftharpoons 2\text{NO}(\text{g})$  contributes to air pollution whenever a fuel is burnt in air at a high temp. at 1500 K, equilibrium constant K for it is  $1.0 \times 10^{-5}$ . Suppose in a case  $[\text{N}_2] = 0.80 \text{ mole L}^{-1}$  and  $[\text{O}_2] = 0.20 \text{ mol L}^{-1}$  before any reaction occurs. Calculate the equilibrium concentrations of the reactants and the products after the mixture has been heated to 1500k.
19. A solution of glucose ( $\text{C}_6\text{H}_{12}\text{O}_6$ ) In water is labeled as 10% weight . What would be the molality of the solution. (molar mass of glucose =  $180 \text{ gmole}^{-1}$ )
20. Two elements A and B form compounds having formulae  $\text{AB}_2$  and  $\text{AB}_4$  when dissolved in 20g of benzene ( $\text{C}_6\text{H}_6$ ) .1g of  $\text{AB}_2$  lowers the freezing point by 2.3K whereas 10g of  $\text{AB}_4$  lowers it by 1.3K. The molal depression constant for benzene is  $5.1 \text{ K kg mole}^{-1}$ . Calculate the atomic masses of A and B
21. A 5% solution by mass of cane sugar in water has a freezing point of  $271\text{K}$ . Calculate the freezing point of 5% glucose in water if freezing point of pure water is  $273.15\text{K}$ .
22. Two liquids X and y on mixing form an ideal solution at  $30^{\circ}\text{C}$ , vapor pressure of solution containing 3 moles of X and 1 mole of Y is  $550 \text{ mm Hg}$ . But when 4 moles of X and 1 mole of Y are mixed, the vapor pressure of solution thus becomes  $560 \text{ mm Hg}$ . What would be the vapor pressure of pure X and Y ?
23. An aqueous solution of 2% non-volatile solute exerts a pressure of 1.004 bar at the boiling point of solution. what is the molecular mass of solute if vapour pressure of  $\text{H}_2\text{O}$  is  $1.013 \text{ bar}$  at  $373\text{K}$ .
24. What type of deviation is shown by a mixture of ethanol and acetone? Give reasons.
25. Henry's law constant for  $\text{CO}_2$  in water is  $1.67 \times 10^8 \text{ Pa}$  at  $298\text{K}$  . Calculate the quantity of  $\text{CO}_2$  in 500 ml of soda water when packed under 2.5 atm  $\text{CO}_2$  packed at  $298\text{K}$ .
26. A solution containing 16g of a substance in 200 gram of diethyl ether boils at  $36.86^{\circ}\text{C}$  whereas pure ether at  $35.5^{\circ}\text{C}$ . Determine the molecular mass of solute (given  $k_b$  for ether =  $2.02 \text{ K kg mole}^{-1}$ )

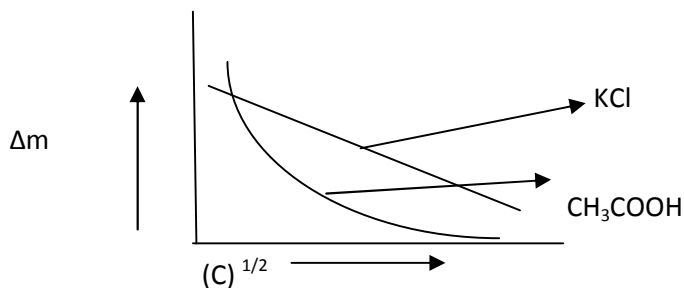
27. Calculate the temp. at which a solution containing 54 grams of glucose,  $C_6H_{12}O_6$  in 250 gms of water will freeze ( $K_f$  for water =  $1.86 \text{ K kg mol}^{-1}$  and F.P of water =  $273.15 \text{ K}$ ).
28. A solution containing 8g of a substance in 100g of diethyl ether boils at  $36.86^\circ\text{C}$ , whereas pure ether boils at  $35.60^\circ\text{C}$ . Determine the molecular mass of the solute. (For ether  $K_b = 2.02 \text{ K kg mol}^{-1}$ )
29. Calculate the temperature at which a solution containing 54g of glucose,  $C_6H_{12}O_6$ , in 250g of water will freeze. ( $k_f$  for water =  $1.86 \text{ K kg mol}^{-1}$ )
30. What mass of NaCl (molar mass =  $58.5 \text{ g mol}^{-1}$ ) must be dissolved in 65g of water to lower the freezing point by  $7.5^\circ\text{C}$ , the freezing point depression constant  $K_f$ , for water is  $1.86 \text{ K kg mol}^{-1}$ . Assume vant Hoff factor for NaCl is 1.87.

## ELECTROCHEMISTRY

1. What does the negative sign in the expression  $Zn^{2+}/Zn \quad E = -0.76 \text{ V}$  mean?
2. Aqueous copper sulphate solution and aqueous silver nitrate solution are electrolysed by 1 ampere current for 10 minutes in separate electrolytic cells. Will the mass of copper and silver deposited on the cathode be same or different? Explain your answer.
3. Depict the galvanic cell in which the cell reaction is  $Cu + 2Ag^+ \rightarrow 2Ag + Cu^{2+}$
4. Value of standard electrode potential for the oxidation of  $Cl^-$  ions is more positive than that of water, even then in the electrolysis of aqueous sodium chloride, why is  $Cl^-$  oxidised at anode instead of water?
5. What is electrode potential?
6. Consider the following diagram in which an electrochemical cell is coupled to an electrolytic cell. What will be the polarity of electrodes 'A' and 'B' in the electrolytic cell?
7. Why is alternating current used for measuring resistance of an electrolytic solution?
8. A galvanic cell has electrical potential of  $1.1 \text{ V}$ . If an opposing potential of  $1.1 \text{ V}$  is applied to this cell, what will happen to the cell reaction and current flowing through the cell?
9. How will the pH of brine (aq. NaCl solution) be affected when it is electrolysed?
10. Unlike dry cell, the mercury cell has a constant cell potential throughout its useful life. Why?
11. Solutions of two electrolytes 'A' and 'B' are diluted. The  $\Lambda_m$  of 'B' increases 1.5 times while that

of A increases 25 times. Which of the two is a strong electrolyte and why?

12. When acidulated water (dil.  $\text{H}_2\text{SO}_4$  solution) is electrolysed, will the pH of the solution be affected? Justify your answer.
13. In an aqueous solution how does specific conductivity of electrolytes change with addition of water?
14. Which reference electrode is used to measure the electrode potential of other electrodes?
15. Consider a cell given below  $\text{Cu} | \text{Cu}^{2+} || \text{Cl}^- | \text{Cl}_2, \text{Pt}$  Write the reactions that occur at anode and cathode
16. Write the Nernst equation for the cell reaction in the Daniel cell. How will the  $E_{\text{Cell}}$  be affected when concentration of  $\text{Zn}^{2+}$  ions is increased?
17. What advantage do the fuel cells have over primary and secondary batteries? 48. Write the cell reaction of a lead storage battery when it is discharged. How does the density of the electrolyte change when the battery is discharged? 49. Why on dilution the  $m\Lambda$  of  $\text{CH}_3\text{COOH}$  increases drastically, while that of  $\text{CH}_3\text{COONa}$  increases gradually?
18. Explain type of cell which was used in Appollo space programme for providing electrical power.
19. The following curve is obtained when molar conductivity is plotted against the square root of concentration  $C^{1/2}$  for two electrolytes A & B.
- a) What can you say about the nature of two electrolytes A & B. b) How do they vary when the concentration of the electrolyte in the solution decreases.
- 20.



21. The electrical resistance of column of 0.05m  $\text{NaOH}$  solution of diameter 1 cm & length 50 cm is  $5.55 \times 10^3 \text{ohm}$ . Calculate its resistivity, conductivity and molar conductivity.
22. a) Calculate the charge in coulombs required for oxidation of two moles of water to oxygen.  
b) A copper-silver cell is set up. The copper ion concentration is 0.10M. The concentration of silver ion is not known. The cell potential when measured was 0.422V. Determine the concentration of silver ions in the cell. ( $E^\circ_{\text{Ag}^+/\text{Ag}} = 0.80\text{V}$ ,  $E^\circ_{\text{Cu}^{2+}/\text{Cu}} = 0.34\text{V}$ )
23. Calculate molality of KI if the density of 20% (w/w) (solution chapter)
24. Two students performed two different experiments on electrolysis. Student A electrolysed 1litre of 1M aq. Solution of  $\text{KMnO}_4$  till after reduction the final solution is 0.1M  $\text{K}_2\text{MnO}_4$ . Student B electrolyzed  $\text{NiSO}_4$  solution by passing 12 ampere current but the efficiency was only 60%. (Atomic mass of  $\text{Ni} = 58.7 \text{gmol}^{-1}$ )

- i) What is the amount of electricity used by student A?  
ii) What is the amount of Ni deposited on cathode per hour in solution used by student B.
25. Resistance of a conductivity cell filled with  $0.1\text{MolL}^{-1}$  KCl solution is 100 ohm .If the resistance of the same cell when filled with  $0.02\text{MolL}^{-1}$  KCl solution is 520ohm.Calculate molar conductivity of  $0.02\text{MolL}^{-1}$  KCl solution.The conductivity of  $0.1\text{Mol L}^{-1}$  KCl solution is  $1.29\text{ Sm}^2\text{mol}^{-1}$ .
- 26 .When a current of 0.75amp. is passed through a  $\text{CuSO}_4$  solution for 25 minutes.o.369g of copper is deposited at the cathode. Calculate the atomic mass of copper.
27. A current of 5amp. is passed for 20 minutes to a solution of  $\text{Ni}(\text{NO}_3)_2$ .What mass of nickel will be deposited.(At.mass of Ni =58.7g/mol)
28. a) A Zinc rod is dipped in 0.1 mol solution of  $\text{ZnSO}_4$ .The salt is 95% dissociated at this dilution at 298K.Calculate the electrode potential(  $E^{\text{OZn}^{2+}/\text{Zn}} = -0.76\text{V}$  )  
b) Predict the electrolysis of the following : i)An aq. Solution of  $\text{AgNO}_3$  with Ag electrode. ii)On aq. Solution of cupric chloride with platinum electrode.
29. Silver is electrodeposited on a metallic vessel of total surface area  $900\text{cm}^2$ by passing a current of 0.5 amp. for two hours. Calculate the thickness of silver deposited. (Density of silver= $10.5\text{gm/cm}^3$ , at.mass of Ag=108u )
30. The resistance of a conductivity cell containing  $0.001\text{MKCl}$  solution at 298K is 1500ohm.What is the cell constant if the conductivity of  $0.001\text{MKCl}$  solution at 298K is  $0.146\text{X}10^{-3}\text{scm}^{-1}$ .



## VACATION TASK CLASS

### XII (PHYSICS)

1. Deduce the expression for electrical energy density of a capacitor.
2. A 800 Pf capacitor is charged by a 100V battery. After some time the battery is disconnected. The capacitor is then connected to another uncharged 800Pf capacitor. Find the loss or gain in energy of the combination.
3. State Gauss theorem in electrostatics. Obtain the expression for electric field at a point due to an infinitely long thin uniformly charged straight wire of linear charge density  $\lambda \text{ Cm}^{-1}$ .
4. Two point charges  $6 \mu\text{C}$  and  $-2 \mu\text{C}$  are separated by a distance 1m in air. Calculate at what point on the line joining the two charges is the electric field zero?
5. A hollow metallic sphere of radius 5cm is charged such that potential at its centre is 20V. What is the potential on its surface?
6. Establish the expression for electric potential due to an electric dipole at any point. Deduce the electric potential at a point on its axial line from it.
7. (i) Explain that the electric dipole experience no translational motion rather it execute rotational motion when placed in a uniform electric field. Derive the expression for torque acts on it.  
(ii) Calculate the amount of work done in rotating a dipole of dipole moment  $3 \times 10^{-8} \text{ Cm}$  from its position of stable equilibrium to the position of unstable equilibrium in a uniform electric field of intensity  $10^4 \text{ N/C}$ .
8. (i) Draw the equipotential surface for a system of charges  $+q$  and  $-q$ .  
(ii) Write two characteristics of equipotential surface.  
(iii) Find the electric potential energy of the system of four charges  $2\text{C}, -3\text{C}, 5\text{C}$  and  $-5\text{C}$  placed at the corners of a square of sides 10cm .
9. Derive the expression for the electric potential at any point along the axial line of an electric dipole ?
10. Using Gauss law, derive an expression for the electric field intensity at any point outside a uniformly charged thin spherical shell of radius  $R$  and charge density  $s \text{ C/m}^2$  . Draw the field lines when the charge density of the sphere is (i) positive, (ii) negative.
11. A uniformly charged conducting sphere of 2.5 m in diameter has a surface charge density of  $100 \text{ mC/m}^2$  . Calculate the (i) charge on the sphere (ii) total electric flux passing through the sphere.
12. Derive an expression for the torque experienced by an electric dipole kept in a uniformly electric field.
13. Calculate the work done to dissociate the system of three charges placed on the vertices of a triangle of side 10cm . Here  $q = 1 \times 10^{-10} \text{ C}$ .
14. A parallel plate capacitor is charged by a battery. After some time the battery is disconnected and a dielectric slab of dielectric constant  $K$  is inserted between the plates. How would (i) the capacitance, (ii) the electric field between the plates and (iii) the energy stored in the capacitor, be affected? Justify your answer.
15. Use Gauss's law to derive the expression for the electric field between two uniformly charged large parallel sheets with surface charge densities  $s$  and  $-s$  respectively.

16. A charge  $+Q$  is placed on a large spherical conducting shell of radius  $R$ . Another small conducting sphere of radius  $r$  carrying charge ' $q$ ' is introduced inside the large shell and is placed at its centre. Find the potential difference between two points, one lying on the sphere and the other on the shell.
17. How would the charge between the two flow if they are connected by a conducting wire? Name the device which works on this fact.
18. Solve the numerical from NCERT from chapter 1 and 2.
19. What is the work done in moving a test charge  $q$  through a distance of 1 cm along the equatorial axis of an electric dipole?
20. What is the electrostatic potential due to an electric dipole at an equatorial point?

# SAINIK SCHOOL BHUBANESHWAR

## CLASS XII MATH

### HOLIDAY HOMEWORK

1. If  $A$  is the set of students of a school then write, which of following relations are. (Universal, Empty or neither of the two).

$$R_1 = \{(a, b) : a, b \text{ are ages of students and } |a - b| > 0\}$$

$$R_2 = \{(a, b) : a, b \text{ are weights of students, and } |a - b| < 0\}$$

$$R_3 = \{(a, b) : a, b \text{ are students studying in same class}\}$$

2. If  $f: \{1, 3\} \rightarrow \{1, 2, 5\}$  and  $g: \{1, 2, 5\} \rightarrow \{1, 2, 3, 4\}$  be given by  $f = \{(1, 2), (3, 5)\}$ ,  $g = \{(1, 3), (2, 3), (5, 1)\}$  Write down  $g \circ f$ .

3. Show that the relation  $R$  defined by  $(a, b) R (c, d) \iff a + d = b + c$  on the set  $N \times N$  is an equivalence relation.

4. Let  $A = \{0, 1, 2, 3\}$  and define a relation  $R$  on  $A$  as follows:

$$R = \{(0, 0), (0, 1), (0, 3), (1, 0), (1, 1), (2, 2), (3, 0), (3, 3)\}. \text{ Is } R \text{ reflexive? symmetric? transitive?}$$

5. For the set  $A = \{1, 2, 3\}$ , define a relation  $R$  in the set  $A$  as follows:  $R = \{(1, 1), (2, 2), (3, 3), (1, 3)\}$ .

Write the ordered pairs to be added to  $R$  to make it the smallest equivalence relation.

6. Let  $R$  be a relation on the set  $N$  of natural numbers defined by  $nRm$  if  $n$  divides  $m$ . Discuss on the nature of  $R$ .

7. Let  $L$  denote the set of all straight lines in a plane. Let a relation  $R$  be defined by  $lRm$  if and only if  $l$  is perpendicular to  $m$   $\forall l, m \in L$ . Then  $R$  is ?

8. Let  $A = \{1, 2, 3, \dots, 9\}$  and  $R$  be the relation in  $A \times A$  defined by  $(a, b) R (c, d)$  if  $a + d = b + c$  for  $(a, b), (c, d)$  in  $A \times A$ . Prove that  $R$  is an equivalence relation. And also obtain the equivalent class  $[(2, 5)]$ .

9. Consider the non-empty set consisting of children in a family and a relation  $R$  defined as  $a R b$  if  $a$  is brother of  $b$ . Then  $R$  is ?

10. Discuss on the empty relation on a non empty set  $A$ .

11. Find the value of  $\sin \left( 2 \cot^{-1} \left( -\frac{5}{12} \right) \right)$ .

12. Evaluate  $\tan (\arcsin (-4))$ .

13. Find value of  $\tan (\cos^{-1} x)$  and hence evaluate  $\tan (\cos^{-1} \frac{8}{17})$

14. Prove that  $\cot^{-1}(7) + \cot^{-1}(8) + \cot^{-1}(18) = \cot^{-1}(3)$

15. Which is greater,  $\tan 1$  or  $\tan^{-1}(1)$ ?

16. Find the values of  $x$  which satisfy the equation  $\sin^{-1}(x) + \sin^{-1}(1-x) = \cos^{-1}(x)$ .

17. Find the domain of  $\sin^{-1} 2x$ .

18. If  $B$  be a  $4 \times 5$  type matrix, then what is the number of elements in the third column.

19. Area of a triangle with vertices  $(k, 0)$ ,  $(1, 1)$  and  $(0, 3)$  is 5 unit. Find the value (s) of  $k$ .

20. If  $A$  is a square matrix of order 3 and  $|A| = -2$ , find the value of  $|-3A|$ .

21. If  $A = 2B$  where  $A$  and  $B$  are square matrices of order  $3 \times 3$  and  $|B| = 5$ , what is  $|A|$ ?

22. What is the number of all possible matrices of order  $2 \times 3$  with each entry 0, 1 or 2.

23. If  $A$  is a non-singular matrix of order 3 and  $|A| = -3$  find  $|\text{adj } A|$ .

24. Given a square matrix  $A$  of order  $3 \times 3$  such that  $|A| = 12$  find the value of  $|A \text{ adj } A|$ .
25. If  $A$  is a square matrix of order 3 such that  $|\text{adj } A| = 8$  find  $|A|$ .
26. Test the consistency of the following system of equations by matrix method :  $3x - y = 5$ ;  $6x - 2y = 3$  .
27. The sum of three numbers is 2. If we subtract the second number from twice the first number, we get 3. By adding double the second number and the third number we get 0. Represent it algebraically and find the numbers using matrix method.
28. Using matrix method, solve the following system of linear equations :  
 $2x - y = 4$ ,  $2y + z = 5$ ,  $z + 2x = 7$ .
29. If  $A$  is a matrix of order  $3 \times 3$ , then number of minors in determinant of  $A$  are ?
30. Show that the product of two non null matrix gives a null matrix .

31. **SETS, RELATIONS AND FUNCTIONS : solve** Questions from NDA GUIDE by Arihant Publishers

## Vacation Task (Summer): XII, English, 2019

### The Last Lesson

- Q1. Why were the villagers seated on the back benches?
- Q2. What was unusual about the school that Franz noticed when he entered the school?
- Q3. Why was it the last lesson? How did Franz react to it?
- Q4. What did M. Hamel say about French language?
- Q5. Why did not M Hamel want the people to forget French?
- Q6. Describe how M Hamel conducted the last lesson.
- Q7. What was the mood in the classroom when M Hamel gave his last French lesson?
- Q8. What happened when the church clock struck twelve?
- Q9. Everybody during the last lesson is filled with regret. Comment. (150Words)
- Q10. The order from Berlin aroused a particular zeal in the school. Comment. (150Words)

### LOST SPRING

- Q1. What does the title "Lost Spring" convey?
- Q2. Do you think Saheb was happy to work at the tea stall? Give reasons.
- Q3. Is it possible for Mukesh to realise his dream? Justify your answer.
- Q4. Why was not Saheb happy on getting a job?
- Q5. Why don't the bangle makers of Firozabad organise themselves?
- Q6. "Saheb is no longer his own master", says the writer. What does she mean?
- Q7. What did garbage mean to the children of Seemapuri and to their parents?
- Q8. Describe the difficulties the bangle makers of Firozabad have to face in their lives. (150Words)
- Q9. "It is his *karam*, his destiny" that made Mukesh's grandfather go blind. How did Mukesh disprove this belief by choosing a new vocation and making his own destiny? (150Words)

### The Tiger King

- Q1. The manner of his (the Tiger King's) death is a matter of extraordinary interest. Comment.
- Q2. How did the Maharaja overcome the difficulty created by a high-ranking British Officer?
- Q3. Even today so many among us believe in superstitions. An astrologer predicted about 'the Tiger King' that he would be killed by a tiger. He 'killed' one hundred tigers yet was himself 'killed' by a tiger. How did the superstitious belief 'prevail'? (150Words)
- Q4. Giving a bribe is an evil practice. How did the Tiger King bribe the British officer to save his kingdom? How do you view this act of his? (150Words)

**CLASS XII**  
**COMPUTER**

**Chapter 1**

Q.1 : Short Answer Questions

Do Q18,Q19,Q20,Q21,Q22,Q23,Q24,Q25,Q26,Q31,Q32

**Chapter 2**

Q.2: Discuss OOP concepts. How are these implemented in software terms in C++?

**Chapter 3**

Q.3: Short Answer Questions

Do Q1,Q4,Q5

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