

NOIDA PUBLIC SR. SEC. SCHOOL, NOIDA  
A-78, Sector-23, noida-201301, g.b.Ngr.u.p  
SUMMER VACATION ASSIGNMENT (2018 -19) Class-XII, SCIENCE

**General Instructions:**

Dear Parents

1. Make sure all syllabus of Unit Test 1 must be revised once in the last week of vacation as it becomes easier for student to retain and adjust after the long break.
2. Kindly make sure that your ward must come to school in neat and clean proper school uniform and proper haircut.
3. Your ward must bring Summer Break Assignment completed by him/her during holidays and positively submit by 2<sup>nd</sup> July 2018 to the class teacher.
4. The school will reopen on 2<sup>nd</sup> July 2018 at its usual timings i.e. 7:30am.
5. Summer Vacation Assignment is also available at [www.noidapublicschool.com](http://www.noidapublicschool.com)

**ENGLISH**

**Q1. Draft the following notices:**

- (a) You are Sanjay / Sangeeta. As President of the Excursion Club you propose to organise an excursion to Kathmandu (Nepal) during the summer vacation for the students of class XII. Write a notice in not more than 50 words informing the students about the proposed excursion and inviting them to join it.
- (b) Prepare an admission notice to be issued by the Principal, St.Mary Public School, Bangalore announcing the admission programme. Include all details.
- (c) You are the Secretary of Yuva Kranti Colony Welfare Association. Write a notice to be circulated to the residents informing them that there will be no water supply in your colony for two days (mention dates) due to necessary repairs and maintenance work.

**Q2. Draft the following advertisements:**

- (a) Glory Public School, Meerut needs a Secretary for the Principal. Draft an advertisement for publication in the classified section of a newspaper.
- (b) You are Mohan/ Mohini of Sant Nischal Singh Public School, Yamuna Nagar. Your school wants teachers for senior classes to teach English and Maths. Write a suitable advertisement to be published in a local newspaper in the column "SITUATION VACANT".
- (c) You want to sell your old car. Write a classified advertisement offering the car for sale. Include all details like overall condition, colour, model, price expected etc.

**Q3. Letters:**

- (a) You have read news about dowry death. You feel strongly about it and decide to write a letter to the Editor to express your anguish that the menace of dowry is still prevalent despite a law enacted in 1961 to ban it. Write your to the editor of 'The Times of India' suggesting ways to eliminate the menace. You are Aradhana /Anjan of 7/2 New India Apartments, New Delhi.

- (b) Write a letter to the Editor of a national daily on the mushrooming of various coaching centres And how extra tuition have become a common feature in a student's life. You are Vineet /Veena.
- (c) Write a letter to the Editor, 'Deccan Times', Bangalore about the inadequate parking facilities in the Commercial Street, M.G. Road, which is causing a lot of inconvenience to the people. Offer your suggestions. You are Anoop/Ritu, 24 Hennis Road, Bangalore.

#### Q4. TEXT BOOK – FLAMINGO:

##### The Last Lesson

1. The School looked totally different on the day Franz went late to school  
How and why was it different?
2. What was the mood in the classroom when M.Hamel gave his last French lesson?
3. What did M.Hamel tell the people in the class about French language?  
What did he ask them to do and why?
4. What was Franz expected to be prepared with for the school that day?
5. What changes did the order from Berlin cause in the school?

##### Lost Spring

1. Garbage to them is gold. Why does the author say so about the ragpickers?
2. Who is Mukesh? What is his dream?
3. Who was Saheb? How did he earn his living?
4. What does the author mean by saying, "Saheb is no longer his own master"?
5. Mention any two hazards of working in the glass bangles industry.

##### My Mother at Sixty –six

1. What thoughts does Kamala Das put away while travelling with her mother in the car?
2. Why has the poet brought in the image of the merry children 'spilling out of their homes'?
3. What do the parting words of the poet and her smile signify?

## MATHEMATICS

### Chapter - Matrices

Q.1 If for any  $2 \times 2$  square matrix A,  $A(\text{adj}A) = \begin{bmatrix} 8 & 0 \\ 0 & 8 \end{bmatrix}$ , then write the value of  $|A|$ .

Q.2 Find matrix A such that  $\begin{bmatrix} 2 & -1 \\ 1 & 0 \\ -3 & 4 \end{bmatrix} A = \begin{bmatrix} -1 & -8 \\ 1 & -2 \\ 9 & 22 \end{bmatrix}$

Q.3 Determine the product  $\begin{bmatrix} -4 & 4 & 4 \\ -7 & 1 & 3 \\ 5 & -3 & -1 \end{bmatrix} \begin{bmatrix} 1 & -1 & 1 \\ 1 & -2 & -2 \\ 2 & 1 & 3 \end{bmatrix}$  and use it to solve the system of equations  $x - y + z = 4$ ,  $x - 2y - 2z = 9$ ,  $2x + y + 3z = 1$ .

Q.4 Obtain the inverse of the following matrix using elementary operations

$$A = \begin{pmatrix} 0 & 1 & 2 \\ 1 & 2 & 3 \\ 3 & 1 & 1 \end{pmatrix}$$

Q.5  $A = \begin{pmatrix} 2 & -3 & 5 \\ 3 & 2 & -4 \\ 1 & 1 & -2 \end{pmatrix}$  find using  $A^{-1}$ , solve the system of the equations.

$$2x-3y+5z = 11, 3x+2y-4z = -5, x+y - 2z = -3$$

Q.6 If  $A = \begin{bmatrix} 2 & 3 \\ 5 & -2 \end{bmatrix}$ , then write  $A^{-1}$ .

Q.7 If  $A = \begin{pmatrix} 2 & 0 & 1 \\ 2 & 1 & 3 \\ 1 & -1 & 0 \end{pmatrix}$ , find  $A^2 - 5A + 16I$

Q.8 If  $2 \begin{bmatrix} 3 & 4 \\ 5 & x \end{bmatrix} + \begin{bmatrix} 1 & y \\ 0 & 1 \end{bmatrix} = \begin{bmatrix} 7 & 0 \\ 10 & 5 \end{bmatrix}$  find  $(x - y)$ .

Q.9 Solve the following matrix equation for x:  $\begin{bmatrix} x & 1 \end{bmatrix} \begin{bmatrix} 1 & 0 \\ -2 & 0 \end{bmatrix} = O$

Q.10 If A is a square matrix such that  $A^2 = A$  then write the value of  $(I + A)^2 - 2A$ .

Q.11 If the matrix  $A = \begin{bmatrix} 0 & a & -3 \\ 2 & 0 & -1 \\ b & 1 & 0 \end{bmatrix}$  is skew symmetric, find the value of a and b.

Q.12 Given  $A = \begin{bmatrix} 2 & -3 \\ -4 & 7 \end{bmatrix}$ , compute  $A^{-1}$  and show that  $2A^{-1} = 9I - A$

Q.13 Using elementary row transformation, find the inverse of the matrix

$$A = \begin{bmatrix} 1 & 2 & 3 \\ 2 & 5 & 7 \\ -2 & -4 & -5 \end{bmatrix}$$

Q.14 Let  $A = \begin{bmatrix} 3 & 2 & 5 \\ 4 & 1 & 3 \\ 0 & 6 & 7 \end{bmatrix}$ . Express A as sum of two matrices such that one is symmetric and the other is skew symmetric

### Chapter – Determinants

Q.1 Using properties of determinants, prove that  $\begin{vmatrix} 1 & 1 & 1+3x \\ 1+3y & 1 & 1 \\ 1 & 1+3z & 1 \end{vmatrix} = 9(3xyz+xy+yz+zx)$

Q.2 Using properties of determinants, prove that  $\begin{vmatrix} a^2+2a & 2a+1 & 1 \\ 2a+1 & a+2 & 1 \\ 3 & 3 & 1 \end{vmatrix} = (a-1)^3$

Q.3 If  $x, y, z$  are different numbers and  $\Delta \begin{vmatrix} x & x^2 & 1+x^3 \\ y & y^2 & 1+y^3 \\ z & z^2 & 1+z^3 \end{vmatrix} = 0$ , then show that  $1+xyz = 0$

Q.4 Using properties of determinants, prove that  $\begin{vmatrix} 1 & x & x+1 \\ 2x & x(x-1) & x(x+1) \\ 3x(x-1) & x(x-1)(x-2) & x(x+1)(x-1) \end{vmatrix} = 6x^2(1-x^2)$

Q.5 If  $\begin{vmatrix} 2x & 5 \\ 8 & x \end{vmatrix} = \begin{vmatrix} 6 & -2 \\ 7 & 3 \end{vmatrix}$ , write the value of  $x$ .

Q.6 Using properties of determinants, prove that  $\begin{vmatrix} 2y & y-z-x & 2y \\ 2z & 2z & z-x-y \\ x-y-z & 2x & 2x \end{vmatrix} = (x+y+z)^3$

Q.7 Write the value of the following  $\begin{vmatrix} 102 & 18 & 36 \\ 1 & 3 & 4 \\ 17 & 3 & 6 \end{vmatrix}$

Q.8 Using properties of determinants, prove that  $\begin{vmatrix} a & a+b & a+b+c \\ 2a & 3a+2b & 4a+3b+2c \\ 3a & 6a+3b & 10a+6b+3c \end{vmatrix} = a^3$

Q.9 Using properties of determinants, 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.10 Evaluate  $\begin{vmatrix} a+ib & c+id \\ -c+id & a-ib \end{vmatrix}$

Q.11 Find the cofactor of  $a_{12}$  in the following:  $\begin{vmatrix} 2 & -3 & 5 \\ 6 & 0 & 4 \\ 1 & 5 & -7 \end{vmatrix}$

### Chapter – Inverse Trigonometric

Q.1  $\tan^{-1}\sqrt{3} - \cot^{-1}\sqrt{3}$

Q.2 Prove that:  $3\sin^{-1}x = \sin^{-1}(3x - 4x^3)$

Q.3  $\tan^{-1} \frac{(1+\cos x)}{\sin x}$

Q.4 If  $\tan^{-1} \frac{x-3}{x-4} + \tan^{-1} \frac{x+3}{x+4} = \frac{\pi}{4}$

Q.5  $\sin\left(\frac{\pi}{3} - \sin^{-1}\left(\frac{1}{2}\right)\right)$  is equal to

Q.6 Prove that  $\tan^{-1} \frac{\sqrt{1+x} - \sqrt{1-x}}{\sqrt{1+x} + \sqrt{1-x}} = \frac{\pi}{4} - \frac{1}{2} \cos^{-1} x$

Q.7 Prove that:  $2 \tan^{-1} \left( \frac{\sqrt{a-b} \tan \frac{x}{2}}{\sqrt{a+b}} \right) = \cos^{-1} \left( \frac{a \cos x + b}{a + b \cos x} \right)$

Q.8 If  $\sin \left( \sin^{-1} \frac{1}{2} + \cos^{-1} x \right) = 1$  then, find the value of  $x$ .

Q.9 Prove that  $2 \tan^{-1} \left( \frac{1}{5} \right) + \sec^{-1} \left( \frac{5\sqrt{2}}{7} \right) + 2 \tan^{-1} \left( \frac{1}{8} \right) = \frac{\pi}{4}$

Q.10 Prove that  $\cot^{-1} \frac{1 + \sin x + 1 - \sin x}{\sqrt{1 + \sin x} - \sqrt{1 - \sin x}} = \frac{x}{2}$

Q.11 Prove that:  $\sin^{-1} \left( \frac{63}{65} \right) = \sin^{-1} \left( \frac{5}{13} \right) + \cos^{-1} \left( \frac{3}{5} \right)$

Q.12 Prove that:  $2 \tan^{-1}(\sin x) = \tan^{-1}(2 \sec x)$   $x \neq \frac{\pi}{2}$

Q.13 Evaluate:  $\sin \left[ \frac{\pi}{3} - \sin^{-1} \left( -\frac{1}{2} \right) \right]$

Q.14 Prove that:  $\tan^{-1} \frac{1}{3} + \tan^{-1} \frac{1}{5} + \tan^{-1} \frac{1}{7} + \tan^{-1} \frac{1}{8} = \frac{\pi}{4}$

## PHYSICS

### Unit-1 Electrostatics

Q1. Define the dielectric constant of a medium on the basis of force, electric field and the capacitance?

Q2. Define dipole, dipole moment and its unit. Also find the electric field due to a dipole on axial and equatorial line.

Q3. Find an expression for torque acting on an electric dipole placed in a uniform electric field. What is the net force on the dipole?

Q4. Find an expression for P.E. of dipole. State the condition for stable and unstable equilibrium.

Q5. Define electrostatic potential and derive an expression for electric potential at a point due to point charge.

Q6. Define electrostatic potential energy for two charge system and find an expression for it.

Q7. State and prove Gauss's theorem and find the expression for electric field due to

a. Infinitely long and uniformly charged conductor

b. Infinitely thin and uniformly charged sheet

c. Uniformly charged spherical shell

Q8. Define capacitance and derive an expression for a parallel plate capacitor when the gap between plates is

(a) Fully filled by a dielectric medium (b) Partially filled by a dielectric medium

What is the effect on capacitance if the dielectric slab is replaced by a conducting slab.

Q9. Derive an expression for the energy stored in a parallel plate capacitor and also find the energy density. Where and in which form the energy is stored in a parallel plate capacitor?

Q10. Give principle, construction and working of Van de Graaff's generator. Why is the apparatus enclosed in a steel chamber?

## Unit-II Current Electricity

Q1. Define drift velocity and derive an expression for it. What are the factors on which it depends?

Q2. Define current density. Derive a relation between drift velocity and current flowing through a conductor.

Q3. State and prove Ohm's law. What is the effect of temperature on resistance?

Q4. Define resistivity. What are the factors on which it depends?

Q5. Define EMF, terminal potential and internal resistance of a cell. Derive a relation between them.

Q6. Explain grouping of cells (of different e.m.f and internal resistance) in a parallel combination.

Q7. State Kirchhoff's laws. Derive the condition for a Wheatstone bridge to be balanced using Kirchhoff's laws.

Q8. What is the principle of a Meter Bridge? How will you find the resistance of a given wire using it? Find the shift in the balance point when the two resistors in the two gaps are interchanged?

Q9. Give the principle of a potentiometer and will you use it -

(a) To compare the e.m.f of two cells and

(b) To find the internal resistance of a primary cell.

(c) How the sensitivity of a potentiometer is increased?

Q10. A student determining the internal resistance of a cell found that the deflection in the galvanometer is only in one direction when the jockey is moved from one end to another end of the potentiometer wire. What may be the two possible faults for one-sided deflection?

## CHEMISTRY

### Chapter: 1 (Solid State)

Q.1. Given for iron edge length = 286 pm and density =  $7.86 \text{ g/cm}^3$ . Find the type of cubic lattice to which the crystal belongs. Also calculate the radius of the iron atom (at. wt Fe = 55.85)

Q.2. Differentiate between Schottky defect and Frenkel defect?

- Q.3. The unit cell of an element of atomic mass 108u and density  $10.5\text{g/cm}^3$  is a cube with edge length 409 pm. Find the structure of the crystal lattice.
- Q.4. What is the distance between  $\text{K}^+$  and  $\text{F}^-$  in KF, if the density of KF is  $2.48\text{g/cm}^3$ ?
- Q.5. Define the terms: (i) F – centre (ii) Pyroelectricity (iii) Piezoelectricity
- Q.6. Differentiate between stoichiometric and non-stoichiometric defect.
- Q.7. Differentiate between ferromagnetism, anti-ferromagnetism and ferrimagnetism.
- Q.8. What are octa-hedral and tetrahedral void?
- Q.9. A Solid AB has NaCl structure, If the radius of cation 'A' is 100 pm. What is the radius of anion 'B'?
- Q.10. The length of unit cell edge of BCC metal crystal is 352 pm. Calculate the radius of an atom of the metal.
- Q.11. A solid  $\text{A}^+\text{B}^-$  has NaCl type close packed structure. If the anion has a radius of 250 pm. What should be the ideal radius for the cation. Can a cation C – having a radius of 180 pm. Be slipped into the tetrahedral site of crystal  $\text{A}^+\text{B}^-$ ? Give reasons for your answer.
- Q.12. Why do solids have high density and low compressibility?
- Q.13. Why is melting point of crystalline solid is sharp whereas amorphous solid is not?
- Q.14. Why do ionic solids have high melting and boiling points?
- Q.15. Why does electrical conductivity of most metals decrease with increase in temperature?
- Q.16. What are molecular crystals? Name the two types of forces holding the constituting particles. Give two examples.
- Q.17. The nearest neighbour Ag atoms in the silver crystal are  $2.5 \times 10^{-8}$  cm. Presuming fcc structure of the crystal, what will be density of silver? [At. Wt. of Ag = 108 g mol<sup>-1</sup> ]
- Q.18. Give differences between isotropic and anisotropic substance.
- Q.19. What type of lattice does diamond crystallize in? How many carbon atoms are present per unit cell? How many carbon atoms surround each 'C' atom and how are they arranged?
- Q.20. (i) Calculate the packing efficiency in fcc crystal. (ii) How many octahedral voids are present in fcc crystal?
- Q.21. Explain the following giving example: (i) Intrinsic semiconductor (ii) 12-16 compounds (iii) Ferromagnetic substance.
- Q.22.  $\text{Fe}_{0.94}\text{O}$  shows non-stoichiometric composition .Explain why? (**CBSE 2018**)

Q.23 An element X (At. Mass- 40g/mol) having fcc structure ,has unit cell edgelength of 400pm . calculate the density of the X and number of unitcells in 40g of X (  $N_A = 6.022 \times 10^{23}$ ) (CBSE 2018) .

**Chapter : 2 (Solution)**

Q.1. The freezing point of pure nitrobenzene is 278.8K. When 2.5g of unknown substance is dissolved in 100 g of nitrobenzene, the freezing point of solution is found to be 276.8 K. If the freezing point depression constant of nitrobenzene is  $6\text{K g K}^{-1} \text{ mol}^{-1}$  . What is the molar mass of unknown substance?

Q.2. One litre aqueous solution of sucrose (molar mass 342g) weighing 1015g is found to recorded an osmotic pressure at 4.82atm at 293K. What is the molality of the sucrose solution? ( $R = 0.0821 \text{ atm /Kmol}$ )

Q.3. A solution containing 12.5 g of non-electrolyte substance in 175g of water gave a boiling point elevation of 0.70K. Calculate the molar mass of the substance [ $K_b = 0.52 \text{ kg/mol}$ ]

Q.4. Calculate the amount KCl which must be added to 1kg of water so that the freezing point is depressed by 3K. ( $K_f = 1.86\text{Kkg/mol}$ )

Q.5. Which has highest freezing point? (i) 1M glucose (ii) 1M  $\text{CaCl}_2$  (iii) 1M  $\text{AlF}_3$  (iv) 1M NaCl

Q.6. Define the terms – (i) Ebullioscopic constant (ii) Cryoscopic constant (iii) Raoult's Law (iv) Vant hoff's factor.

Q.7. Calculate the boiling point of a solution containing 1.8 g of non volatile solute dissolved in 90g of benzene. The boiling of pure benzene is 353.23K. ( $K_b = 2.53 \text{ Kkg/mol}$ . Molar mass of solute =58g).

Q.8. Calculate the amount of NaCl which must be added to 100g water so that the freezing point is depressed by 2K. ( $K_f = 1.86\text{K/mol}$ )

Q.9. Calculate the mole fraction of water in a mixture of 12g water, 108g acetic acid and 92g ethyl alcohol.

Q.10. Determine the V.P. of an aqueous solution containing 10% by mass of urea at 40C (V.P of water = 55.3 mmHg)

Q.11. Calculate the molality of 1 molar solution of sodium nitrate the density of solution  $1.25\text{g/cm}^3$  .

Q.12. Calculate the boiling point of 1 molar aqueous solution (Density  $1.04 \text{ g/cm}^3$  ) of KCl ( $K_b$  for water .52  $\text{Kkg/mol}$ , Atomic mass K =39, Cl =35.5)

Q.13. What is meant by ideal solution?

Q.14. Define colligative property.

Q.15. The solubility of  $\text{Ba(OH)}_2 \cdot 8\text{H}_2\text{O}$  is 5.6 g per 100 g of water. What is molality of OHin saturated solution? [At. Mass of Ba = 137, H =1, O=16]

Q.16. A solution containing 12.5 g of non-electrolyte substance in 175 g of water gave a boiling point elevation 0.70K. Calculate molar mass of solute.

- Q.17. A decimolar solution of  $K_4[Fe(CN)_6]$  is 50% dissociated at 300 K. Calculate the osmotic pressure of the solution.  $R = 0.0821 \text{ L atm K}^{-1} \text{ mol}^{-1}$ .
- Q.18. With the help of suitable diagrams explain positive and negative deviations from Raoult's Law.
- Q.19. Define osmotic pressure. How does it vary with concentration and temperature?
- Q.20. Calculate the molality of  $K_2CO_3$  solution which is formed by dissolving 2.5 g of it in 1 litre of solution.  $D = 0.85 \text{ g ml}^{-1}$ . (At. Wt. of K = 39, C = 12, O = 16)
- Q.21. The osmotic pressure of blood is 8.21 atm at  $37^\circ\text{C}$ . How much glucose would be added per litre for an intravenous injection that is at same osmotic pressure as blood?
- Q.22. 5 g of compound A was dissolved in 100 g of water at 303 K. The vapour pressure of solution is 4.16 kPa whereas vapour pressure of pure water is 4.24 kPa. Calculate molecular weight of solute A.
- Q.23. At 298 K, the vapour pressure of pure water is 23.75 mm Hg, calculate vapour pressure of solution over 10% aqueous solute on the urea (Molecular weight =  $60 \text{ g mol}^{-1}$ ) and also calculate the osmotic pressure at 298 K.
- Q.24. Calculate the normal boiling point of sample of sea water containing 3.5% NaCl and 0.13% of  $MgCl_2$  by mass. Given  $K_b = 0.52 \text{ K kg mol}^{-1}$ . [Mol. Wt. of NaCl = 58.5,  $MgCl_2 = 95 \text{ g mol}^{-1}$ ]
- Q.25. What is meant by freezing point? In a solution of urea, 3.0 g of it is dissolved in 100 ml of water. What will be the freezing point of this solution? [ $K_f$  for  $H_2O = 1.86 \text{ K kg mol}^{-1}$ , density of water =  $1 \text{ g ml}^{-1}$ ]
- Q.26. Phenol associates in benzene to certain extent to form dimer. A solution contains  $20 \times 10^{-3} \text{ kg}$  of phenol in 1 kg of benzene has its freezing point decreased by 0.61K. Calculate the fraction of phenol that has dimerised. [ $K_f$  for benzene =  $5.12 \text{ K/m}$ ]
- Q.27. Calculate the freezing point of a solution containing 60g of glucose (molar mass =  $180 \text{ g/mol}$ ) in 250g of water. ( $K_f$  water =  $1.86 \text{ K kg/mol}$ )(**CBSE 2018**)

## **BIOLOGY**

1. Name two unicellular organisms who are immortal.
2. What are monoecious plants.
3. An example of a dioecious plant is  
a) cucumber b) maize c) castor beans d) date palm
4. Why palms referred to be as dioecious?
5. What is geitonogamy? Give an example. How does geitonogamy differ from xenogamy?
6. What is agamospermy? How is agamospermy different from parthenogenesis and parthenocarpy?
7. Draw a vertical section of maize grain and label any three embryonic and three other parts.
8. Draw a diagram of T.S. of an angiospermic anther. Label any six parts.
9. Describe the structure of mature angiospermic pollen grain. Mention one difference between the pollen of dicot and monocot.
10. Draw a diagram of L.S. of an anatropous ovule of an angiosperm and label the following parts:  
a) nucellus b) integuments c) antipodal cells d) secondary nucleus
11. Draw a diagrammatic sketch of a dicot embryo and label any four parts including the reduced suspensor.

12. a. Describe the endosperm development in coconut.  
b. Why is tender coconut considered a healthy source of nutrition?  
c. How are pea seeds different from castor seeds with respect to endosperm.
13. What is the fate of haploid megaspores formed by the megaspore mother cell in an angiosperm plant?
14. Give the technical term for the flowers pollinated by honey bees and butterflies. List any two special features of such flowers.
15. What develops into a micro spore mother cell in a flower? Trace the development of this cell into a pollen grain which is ready for germination. Draw the sketch of a mature pollen grain.
16. Why is the process of fertilization in a flowering plant referred as double fertilization ? Explain.
17. Mention any two characteristics of pollen in plants such maize and coconut palm to suit the kind of pollination in them.
18. List two characteristics of pollen grains that favour anemophily in plants.
19. Define seed dormancy. Give the causes and significance of seed dormancy.
20. Differentiate between the two cells enclosed in a mature male gametophyte of an angiosperm.
21. Complete your investigatory project.

### **COMPUTER SCIENCE**

\_ Make a Final Practical File which should contain:-

(1) 20 C++ Programs (Should cover various topics like Selection Construct, Loops, Arrays, Functions, Searching and Sorting, Structures)

(2) Make two tables in a database and write 50 different queries, i.e., Create, Select, Insert, delete, update based on the tables.

### **PHYSICAL EDUCATION**

1. Explain about various committees and their responsibility.
2. Explain the advantages of a league tournament.
3. Explain the advantages of knock-out tournament.
4. Explain the meaning and objectives of adventure sports.
5. Explain the material in adventure sports.
6. How creating leaders through physical activities.
7. Explain in detail about macro nutrients.
8. Explain in detail about micro nutrients.
9. Explain in detail about “Bulimia nervosa”.
10. What do you mean by “food myths & food intolerance”.
11. Make a chart showing different YogAsanas (Roll No. 1 to 10 Surya Namaskar, 11 to 20 Sarp Asana, 20 to 30 Kapalbhathi & AnulomVilom, 30 and above - other Asanas)