



DAV PUBLIC SCHOOL, IFFCO, PARADEEP

HOLIDAY HOMEWORK

2021-22

SCIENCE

STD- XII

HOLIDAY HOMEWORK (STD XII)

SUBJECT : ENGLISH

1. Read the lessons taught for a test.
2. watch news and write at least 5 positive news items date wise in a separate note book.
3. Write notice, advertisements, invitations (5 from each category)
4. Complete all the assignments given from each lesson.

HOLIDAY HOMEWORK (STD XII)

SUBJECT : PHYSICS

CHAPTER 2: ELECTRIC POTENTIAL AND CAPACITANCE

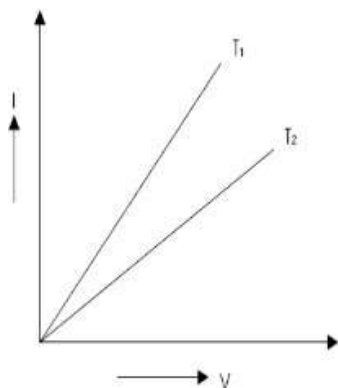
1. Define the term 'electric polarisation' of a dielectric medium. Write its S.I. unit.
2. A dielectric medium of dielectric strength 9×10^6 V/m is filled between the plates of a parallel plate capacitor having effective capacitance of 1 pF and plate separation 1 cm. Determine the charge on the capacitor.
3. N identical spherical drops charged to the same potential 'V' are combined to form a big drop. Find the potential of the new big drop formed.
4. In the electric field of a point charge 'q', the four points A,B,C and D are equidistant from q, however $AB > AC > AD$. Calculate the work done in taking a unit charge along AB, AC and AD.
5. Three identical charges each +q are placed at the corners of an equilateral triangle of side d cm. Calculate the force on a charge +2q at the centroid of the triangle.
6. Two charged conducting spheres of radii 'a' and 'b' are connected to each other by a thin wire. What is the ratio of electric fields on the surface of two spheres?
Hint: $V_1 = V_2$ So, $q_1/q_2 = a/b$, $E_1/E_2 = q_1 b^2 / q_2 a^2 = b/a$
7. Two capacitors of capacitances C_1 and C_2 such that $C_1 = 2C_2$ are connected in turn (i) in series and (ii) in parallel across the same battery. In which of the two cases will the (a) energy stored and (b) charge acquired be more? Justify your answer.

8. Three point charges of $+2\ \mu\text{C}$, $-3\ \mu\text{C}$ and $-3\ \mu\text{C}$ are kept at the vertices A, B and C respectively of an equilateral triangle of side 20 cm . What should be the sign and magnitude of the charge to be placed at the mid-point (M) of side BC so that the charge at A remains in equilibrium
9. A small sphere of radius a carrying a positive charge q is placed concentrically inside a large hollow conducting shell of radius b ($b > a$). This outer shell has charge Q on it. Show that if these spheres are connected by a conducting wire, charge will always flow from the inner sphere to the outer sphere irrespective of the magnitude of the two charges.
10. A charge is uniformly distributed over a ring of radius a . Obtain an expression for the electric field intensity E at a point on the axis of the ring. Hence show that for points at large distances from the ring it behaves like a point charge.
11. The plates of a parallel plate capacitor have an area of $90\ \text{cm}^2$ each and are separated by 2.5 mm. The capacitor is charged by connecting it to a 400 V supply.
How much electrostatic energy is stored by the capacitor?

View this energy as stored in the electrostatic field between the plates, and obtain the energy per unit volume u . Hence arrive at a relation between u and the magnitude of electric field E between the plates.
12. A $4\ \mu\text{F}$ capacitor is charged by a 200 V supply. It is then disconnected from the supply, and is connected to another uncharged $2\ \mu\text{F}$ capacitor. How much electrostatic energy of the first capacitor is lost in the form of heat and electromagnetic radiation?
13. Describe schematically the equipotential surfaces corresponding to
- a constant electric field in the z -direction,
 - a field that uniformly increases in magnitude but remains in a constant (say, z) direction,
 - a single positive charge at the origin, and
 - a uniform grid consisting of long equally spaced parallel charged wires in a plane
14. A $600\ \text{pF}$ capacitor is charged by a 200V supply. It is then disconnected from the supply and is connected to another uncharged $600\ \text{pF}$ capacitor. How much electrostatic energy is lost in the process?
15. A small sphere of radius r_1 and charge q_1 is enclosed by a spherical shell of radius r_2 and charge q_2 . Show that if q_1 is positive, charge will necessarily flow from the sphere to the shell (when the two are connected by a wire) no matter what the charge q_2 on the shell is.

CH 3: CURRENT ELECTRICITY

1. A large number of free electrons are present in metals. Why is there no current in the absence of electric field across it?
2. What is the trajectory of free electrons in a conductor between two successive collision when:
 - (a) No potential difference is applied
 - (b) Potential difference is applied
3. How the drift velocity varies if
 - (a) Potential difference increases?
 - (b) Temperature increases?
4. The charge flowing in a conductor varies with times as $q = 2t - 6t^2 + 10t^3$, Where q is in coulomb & t in second. Find
 - (a) The initial current (b) the time after which the value of reaches a maximum value
 - (b) The maximum or minimum value of current.
5. Why manganin or constantan are chosen for making standard resistances
6. Two wires of the same material having lengths in the ratio 1:2 and diameters in the ratio 2:3 are connected in series with an accumulator. Compute the ratio of pd across the two wires.
7. Two metallic wires of the same material and same length but of different cross sectional areas are joined together. 1) in series 2) in parallel to a source of emf. In which of the two wires will the drift velocity of electron be more in each of the two cases and why?
8. Current voltage graphs for a given metallic wire at different temperatures T_1 and T_2 are shown in figure. Which of the temperatures T_1 and T_2 is greater?



9. A wire of length l is stretched to two times of its original length. How does its resistance change?

10. A wire of length l is attached with another wire of same length and same cross sectional area. How does the resistance change?

Assertion Reasoning Questions: two statements are given – one labelled Assertion (A) and the other labelled Reason (R). Select the correct answer to these questions from the codes (a), (b), (c) and (d) as given below.

(a) Both A & R are true and R is the correct explanation of A.

(b) Both A & R are true but R is NOT the correct explanation of A.

(c) A is true but R is false.

(d) A is false and R is also false.

1. **Assertion (A):** A metallic shield in the form of a hollow shell may be built to block an electric field.

Reason (R): In a hollow spherical shield, the electric field inside it is zero at every point.

(a)

(b)

(c)

(d)

2. **Assertion (A):** Work done in moving a charge between any two points in a uniform electric field is independent of the path followed by the charge, between these points.

Reason (R): Electrostatic forces are not conservative.

(a)

(b)

(c)

(d)

3. **Assertion (A):** Dielectric polarisation means formation of positive and negative charges inside the dielectric.

Reason (R): Free electrons are formed in the process.

(a)

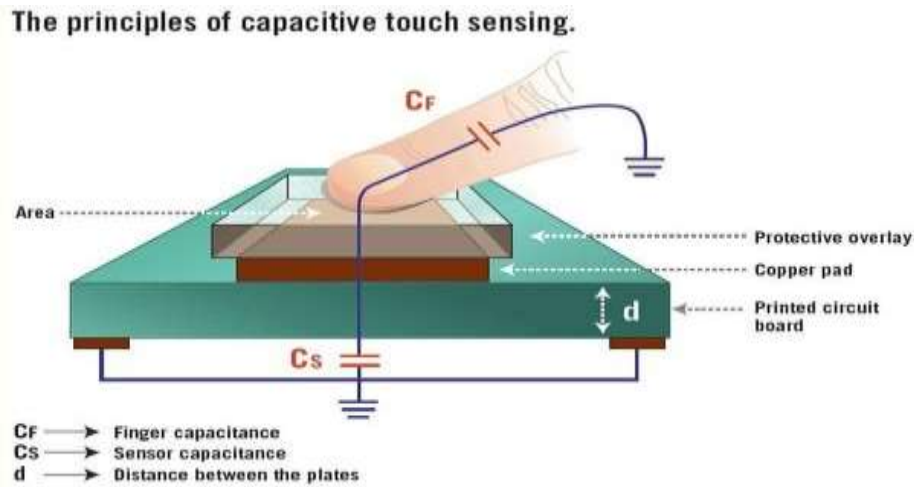
(b)

(c)

(d)

CASE BASED QUESTIONS

I. CAPACITIVE TOUCH SCREEN



The capacitive based touch screen technology is the most popular technology now a days. In a capacitive touch screen, the glass panel is coated with a thin, transparent, charge storing electrode layer. The electrical conductivity of the human body plays an important role in capacitive touch screens. When a human finger touches the screen, the electrode layer reacts to the static electricity of the human body and a dynamic capacitor is formed. The sensors measure the difference in capacitance and flow of current, which is directly proportional to the distance of the point of contact from the corner .

1. In capacitive touch screen human fingertip behaves as

- (a) conductor (b) insulator (c) semiconductor (d) dielectric

2. In the picture of capacitive touch screen, the two capacitors are

- (a) in series combination (b) in parallel combination
(c) neither in series nor in parallel (d) none of these

3. Copper is used in capacitive touch screen because

- (a) it is extremely ductile
(b) it responds to another electrical conductor
(c) it does not respond to another

(d) none of these electrical conductor

4. If 12V is applied to a capacitor with capacitance $15\mu\text{F}$, then the presence of a finger increases its capacitance by $\Delta C=0.50\mu\text{F}$. How much charge flows due to this change?

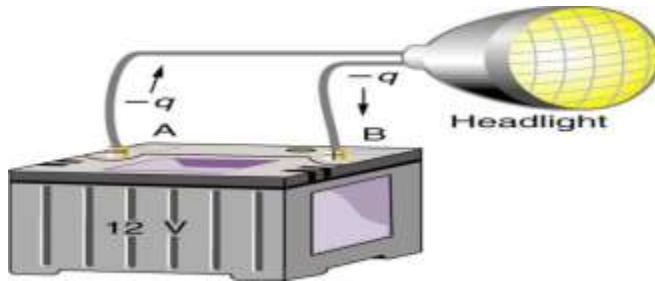
- (a) 6 C (b) $60\mu\text{C}$ (c) $6\mu\text{C}$ (d) 60 C

5. What is the equivalent capacitance of 100 capacitors of equal capacitances connected in series?

- (a) 0.01 times the capacitance of any capacitor
(b) 100 times the capacitance of any capacitor
(c) 10 times the capacitance of any capacitor
(d) same as that of the capacitance of any capacitor

II. HEAD LIGHT OF CAR

A battery moves negative charge from its negative terminal through a headlight to its positive terminal. Appropriate combinations of chemicals in the battery separate charges so that the negative terminal has an excess of negative charge, which is repelled by it and attracted to the excess positive charge on the other terminal. In terms of potential, the positive terminal is at a higher voltage than the negative. Inside the battery, both positive and negative charges move.



1. Which of the following statements is correct about the movement of charges inside the battery?

- (a) positive charges move from negative terminal to positive terminal
(b) negative charges move from negative terminal to positive terminal
(c) positive charges move from positive terminal to negative terminal
(d) none of these

2. When a 12 V car battery runs a single 30-watt headlight, how many electrons pass through it in each second?

- (a) 15.625×10^{19} (b) 1.5625×10^{19} (c) 1.5625×10^{18} (d) 15.625×10^{18}

3. A 12 V car battery can move 6×10^4 C of charge. How much energy does it deliver?

- (a) 720 KJ (b) 72 J (c) 720 J (d) 72 KJ

4. A cell in battery refers to
- (a) single anode only
 - (b) multi anodes and cathodes separated by electrolyte
 - (c) a single anode and cathode separated by electrolyte
 - (d) single cathode only
5. In a battery
- (a) chemical energy is converted into electrical energy
 - (b) kinetic energy of charge carriers is converted into electrical energy
 - (c) both chemical energy and kinetic energy are responsible for electrical energy
 - (d) none of these

NB: .COMPLET NCERT EXERCISE OF CH: 1 AND 2 IN YOUR HW COPY AND PRACTISE ALL THE DERIVATIONS TILL TAUGHT.

HOLIDAY HOMEWORK (STD XII)

SUBJECT : CHEMISTRY

CHAPTER: SOLID STATE & HALOALKANES AND HALOARENES.

CASE BASED QUESTIONS

1. Read the passage given below and answer the following questions: (1×4)

In hexagonal system of crystals, a frequently encountered arrangement of atoms is described as a hexagonal prism. Here the top and bottom of the cell are regular hexagon and three atoms are present in between them. A space filling model of this structure called hexagonal closed packed (HCP) is constituted of a sphere on a flat surface surrounded in the same plane by six identical spheres as closely as possible. Three spheres are then packed over the first layer so that they touch each other and represent the second layer. Finally, the second layer is covered by a third layer that is identical to the bottom layer in relative position. Assume radius of every sphere to be 'r'. The following questions are multiple choice questions. Choose the most appropriate answer

(i)The number of atoms in HCP unit cell is:

- (a) 4 (b) 6 (c) 12 (d) 17

(ii) The volume of this HCP unit cell is:

- (a) $24\sqrt{2}r^3$ (b) $16\sqrt{2}r^3$ (c) $12\sqrt{2}r^3$ (d) $64/3\sqrt{3}r^3$

(iii)The empty space in this HCP unit cell is:

- (a) 74% (b) 47.6% (c) 32% (d) 26%

(iv) Which of the following statement is not true about the hexagonal close packing?

- (a) The coordination number is 12.
(b) It has packing efficiency 74%.

- (c) Tetrahedral voids of the second layer are covered by the spheres of the third layer.
- (d) In this arrangement spheres of the fourth layers are exactly aligned with those of the first layer.

2. Read the passage given below and answer the following questions: (1×4)

Stoichiometric compounds are those where the number of the different types of atoms or ions present is exactly the ratios indicated by their chemical formulae, otherwise non stoichiometric compounds are formed. The Schottky defect involves absence of one positive and one negative ion. Frenkel defect consists of a vacant site and the ion is now occupied an interstitial site. A F-center is formed when an electron is occupied by an electron. Metal deficiency is caused by missing positive ion from its lattice site or the presence of the cation having higher charge in adjacent lattice site. For example, the ideal formula of ferrous oxide should be FeO but actually in one sample it is found to be $\text{Fe}_{0.93}\text{O}$. This is because the crystal may have some ferric ion in place of ferrous ion.

The following questions are Reason Assertion type questions carrying 1 mark each. Choose the correct answer out of the following choices.

- a) Assertion and reason both are correct statements and reason is correct explanation for assertion.
- b) Assertion and reason both are correct statements but reason is not correct explanation for assertion.
- c) Assertion is correct statement but reason is wrong statement.
- d) Assertion is wrong statement but reason is correct statement

(i) **Assertion:** Crystalline solids are anisotropic.

Reason: The constituent particles are very closely packed.

(ii) **Assertion:** Graphite is a good conductor of electricity however diamond belongs to the category of insulators.

Reason: Graphite is soft in nature on the other hand diamond is very hard and brittle.

(iii) **Assertion:** Metal deficiency defect occurs when the metal shows variable oxidation states.

Reason: Due to metal deficiency the compounds are non-stoichiometric.

(iv) **Assertion:** Due to Frenkel defect there is no effect on the density of the crystal.

Reason: In Frenkel defect no cation or anion leaves the crystal.

REASON ASSERTION TYPE QUESTIONS

3.

(i) **Assertion:** It is difficult to replace chlorine by -OH in chlorobenzene in comparison to that of chloroethane.

Reason : C – Cl bond in chlorobenzene has a partial double character due to resonance.

(ii) **Assertion:** KCN reacts with methyl chloride to give methyl isocyanide.

Reason : CN^- is ambident nucleophile

(iii) **Assertion:** 2,4-dinitro-chlorobenzene is more reactive towards S_N reaction.

Reason : Electron donating group at ortho and para position facilitates S_N reaction at aromatic ring

(iv) **Assertion:** Ethyl iodide can easily be substituted by OH^- in comparison to

other halogen derivatives.

Reason : Leaving capacity of iodide is more as their bond enthalpy is more.

4.

(i) **Assertion:** Alkyl halides are soluble in organic solvents.

Reason : p-dichlorobenzene possesses low M.P

(ii) **Assertion:** Halogen acids are used to prepare alkyl halides from alkene.

Reason : It is electrophilic addition, electrophiles are added to alkenes

(iii) **Assertion:** Optically active 2-chloro butane on treatment with NaI in acetone undergoes racemisation.

Reason: As carbocation is formed as intermediate, so both retention and inversion is possible

(iv) **Assertion:** Nucleophilic substitution reaction on an optically active alkyl halide gives a mixture of enantiomers.

Reason: The reaction occurs by S_N2 mechanism.

(v) **Assertion:** The major products formed by heating $C_6H_5CH_2OCH_3$ with HI are $C_6H_5CH_2I$ and CH_3OH .

Reason : Benzyl cation is more stable than methyl cation.

SHORT ANSWER TYPE QUESTION

5. Why does white $ZnO(s)$ becomes yellow upon heating?

6. Distinguish between Schottky defect and Frenkel defect. Give an example which shows both the defect.

7. A compound forms hcp structure. What is the total number of voids in 0.5 mol of it? How many of these are tetrahedral voids?

8. Ferric oxide crystallises in a hexagonal close packed array of oxide ions with two out of every three octahedral holes occupied by ferric ions. Derive the formula of the ferric oxide.

9. Atoms of element B form hcp lattice and those of element A occupy $2/3$ rd of tetrahedral voids. What is the formula of the compound formed by the elements A and B?

10. A compound is formed by two elements M and N. The element N forms CCP and atoms of M occupy $1/3$ rd of tetrahedral voids. What is the formula of the compound?

11. An element with molar mass $2.7 \times 10^{-2} \text{Kg mol}^{-1}$ forms a cubic unit cell with edge length 405 pm. If its density is $2.7 \times 10^3 \text{Kg m}^{-3}$, what is the nature of the cubic unit cell?

12. Write the packing efficiency of (i) Simple cubic (ii) B C C (iii) H C P. write the relationship between 'r' and 'a' in each case.

13. Analysis shows that nickel oxide has the formula $Ni_{0.98}O_{1.00}$. What fractions of nickel exist as Ni^{2+} and Ni^{3+} ions?

14. What are the products formed when the following reaction takes place.

(a) Chlorobenzene is treated with $Cl_2/FeCl_3$.

(b) Ethyl chloride is treated with $AgNO_2$.

15. Write the main products formed when the following reaction takes place.

(a) n- Butyl chloride is treated with alcoholic KOH.

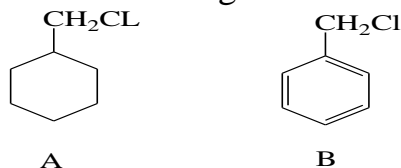
(b) 2,4,6- Trinitrochlorobenzene is subjected to hydrolysis.

16. What are ambident nucleophile ? Explain with an example.

17. Why can aryl halides not be prepared by reaction of phenol with HCl in the presence of $ZnCl_2$.

18. Why is it necessary to avoid even traces of moisture during the use of Grignard reagent.

19. Which of the following compounds would undergo S_N1 reaction faster and why ?



20. Which of the following haloalkanes react with aqueous KOH most easily? Explain with reason.

(a) 1- Bromobutane (b) 2- Bromobutane (c) 2- Bromo-2-methylpropane (d) 2- Chlorobutane

21. Explain why vinyl chloride is unreactive in nucleophilic substitution reaction ?

22. 3-bromocyclohexane is more reactive than 4- bromocyclohexane in hydrolysis with aqueous NaOH? Explain.

23. Why neo-pentyl bromide undergoes nucleophilic substitution reaction very slowly?

Q.17 Write the equations for the preparation of 1-iodobutane from

(i) 1- butanol, (ii) but-1-ene

24. (a) Explain why the dipole moment of chlorobenzene is lower than that of cyclohexyl chloride ?

(b) Why alkyl halides are immiscible with water though it is polar.

(c) Why Grignard reagent should be prepared under anhydrous condition?

(d) What is F- centre.

(e) Why is methyl chloride hydrolysed more easily than chlorobenzene?

25. The treatment of alkyl chlorides with aqueous KOH leads to the formation of alcohols but in the presence of alcoholic KOH, alkenes are the major products explain.

HOLIDAY HOMEWORK (STD XII)

SUBJECT : MATHEMATICS

01. Solve all problems of exemplar from chapters 1, 3, and 4

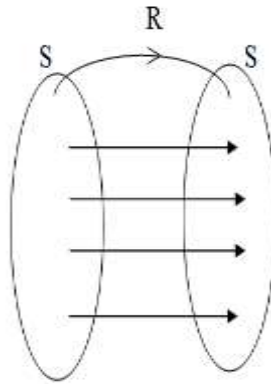
02. Solve all problems from NCERT BOOK from chapter 1, 3 and 4

03. Learn all trigonometric formulae from class-XI book

CHAPTER-1
RELATION AND FUNCTION
DESCRIPTIONS

There are 500 students in a school. The identity cards of the students are numbered from 1 to 500. These students are distributed among 4 houses namely Shanti, Maitryee, Mukti and Kirti. To distribute uniformly, we define the relation over the set of students, identified by their identity card numbers. The relation R is defined as

$$R = \{(a, b) : a - b \text{ is divisible by } 4\}$$



(i) The total number of relations are

(a) 500^{500}

(b) 16^{500}

(c) 500^4

(d) 4×500

(ii) R is

(a) Only reflexive

(b) Only symmetric

(c) Only transitive

(d) an equivalence relation

(iii) The number of distinct equivalence classes is

(a) 1

(b) 2

(c) 3

(d) 4

(iv) The number of elements in Identity relation on R is

(a) 4

(b) 4^4

(c) $4!$

(d) 4^{2000}

(v) The equivalence class of 3 or [3] is

(a) $\{1, 5, 9, \dots, 497\}$

(b) $\{2, 6, 10, \dots, 498\}$

(c) $\{3, 7, 11, \dots, 499\}$

(d) $\{4, 8, 12, \dots, 500\}$

CHAPTER-3

MATRICES

DESCRIPTIONS

In the world cup 2007-08, two cricket teams had decided to honour the players for three parameters such as excellent batting, to the point bowling and unparallel fielding, by giving Rs. x , Rs. y and Rs. z per player respectively. The first team paid 2, 2 and 1 players respectively for the above parameters with a total prize money of Rs. 11,000, while the second team paid 1, 2 and 2 players respectively for the above parameters with a total prize money of Rs. 9000. The total award money per one person each for these parameters is Rs. 6000. The above conditions can be put into a matrix equation: $AX=B$



i. The matrix X is a:

- a) row- matrix
- b) unit- matrix
- c) column- matrix
- d) square- matrix

ii. The matrix A is:

- a) invertible matrix
- b) singular matrix
- c) identity matrix
- d) diagonal matrix

iii. The system of equations is

- (a) $2x + 2y + z = 11000$, $x + 2y + 2z = 90000$, $x + y + z = 6000$
- (b) $2x + 2y - z = 11000$, $x + 2y - 2z = 90000$, $x - y + z = 6000$
- (c) $x + 2y + z = 11000$, $x + y + 2z = 90000$, $x - y + z = 6000$
- (d) $x + 2y + z = 11000$, $x - y + 2z = 90000$, $x + y - z = 6000$

iv. Order of $(3A) + (4A^T)$

- (a) 3×3
- (b) 2×3
- (c) 1×3
- (d) 3×1

v. Order of (BA^T) is

a) 1×3

(b) 3×3

(c) 3×1

(d) 2×3

CHAPTER-4

DETERMINANTS

DESCRIPTIONS

Three partners Subrat, Sunil and Bibhuti of real estate business go for a site visit to acquire a plot. The plot is situated in between two cross roads one is horizontal road another is vertical. The plot is a triangular in shape. One of the corner points is 10 m with respect to the horizontal road and 10 m with respect to the vertical road, other corner point of the plot is 100 m with respect to the horizontal road and 40 m with respect to the vertical road and third corner point of the plot is 130 m with respect to the horizontal road and 10 m with respect to the vertical road.



On the basis of the above situation answer the following.

(i) The area of the plot is

(a) 18000 m^2 ,

(b) 1800 m^2

(c) 2000 m^2

(d) 500 m^2

(ii) The area of the plot is the modulus value of

(a) $\frac{1}{2} \begin{vmatrix} 10 & 10 & 1 \\ 100 & 40 & 1 \\ 130 & 10 & 1 \end{vmatrix}$

(b) $\begin{vmatrix} 10 & 10 & 1 \\ 100 & 40 & 1 \\ 130 & 10 & 1 \end{vmatrix}$

(c) $\frac{1}{2} \begin{vmatrix} 10 & 10 & 1 \\ 100 & 40 & 1 \\ 80 & 10 & 1 \end{vmatrix}$

(d) $\frac{1}{2} \begin{vmatrix} 10 & 10 & 1 \\ 100 & 40 & 1 \\ 10 & 150 & 1 \end{vmatrix}$

(iii) If the third vertex of the plot is 130 m with respect to the horizontal road and 'p' m with respect to the vertical road so that the area of the plot will be zero then p is?

(a) 20

(b) 30

(c) 50

(d) 15

(iv) If the cost per m^2 of the plot is Rs. 1000, the total cost of the plot will be

(a) Rs. 180000

(b) Rs. 2100000

(c) Rs. 1800000

(d) Rs. 58855

(v) If $(x,10)$ lies on the side of joining two points $(10,10)$ and $(100,40)$ then value of x will be

- (a) 20 (b) 100 (c) 110 (d) 10

Three friends Motu, Patlu & Inspector Chingam went out for dinner in a restaurant. The cost of two dosas, three idlies and two samosas is ₹ 150. The cost of the two dosas, two idlies and four samosas is ₹200. The cost of five dosas, four idlies and two samosas is ₹250. They ate 3 dosas and six idlies and six samosas. If " x ", " y " and " z " be the cost of 1 dosa, 1 idly and 1 samosa respectively. then



On the basis of the above situation answer the following.

i. The system of linear equations satisfy the above conditions is

- a) $x + 3y + 2z = 150$, $2x + 2y + 4z = 200$, $5x + 4y + 2z = 250$
b) $2x + 3y + 2z = 150$, $2x + 2y + 4z = 200$, $5x + 4y + 2z = 250$
c) $2x + 3y + 2z = 150$, $x + 2y + 4z = 200$, $5x + 4y + 2z = 250$
d) $2x + 3y + 2z = 150$, $2x + 2y + 4z = 200$, $5x + y + 2z = 250$

ii) If the equation is written in the form of $AX = B$, then determinant of A is

(a) $\begin{vmatrix} 2 & 3 & 2 \\ 2 & 2 & 4 \\ 5 & 4 & 2 \end{vmatrix}$

(b) $\begin{vmatrix} 2 & 3 & 2 \\ 2 & 1 & 4 \\ 5 & 4 & 1 \end{vmatrix}$

(c) $\begin{vmatrix} 2 & 3 & 1 \\ 2 & 2 & 4 \\ 1 & 4 & 2 \end{vmatrix}$

(d) $\begin{vmatrix} 2 & 1 & 2 \\ 2 & 2 & 4 \\ 5 & 4 & 1 \end{vmatrix}$

iii) The value of the determinant of A is

- (a) 50 (b) 20 (c) 40 (d) 20

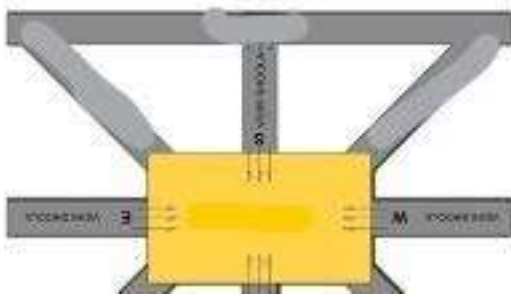
iv) If $x=30$ and $y=10$ then value of z will be

- (a) 40 (b) 60 (c) 50 (d) 30

v) The total billing amount is

- (a) Rs 330 (b) Rs 320 (c) Rs 340 (d) Rs 350

A thief is running in a path joining $(2, 3)$ and $(-3, 1)$. A policeman standing at a point $(5, 10)$ wants to catch the thief by covering the minimum distance.



On the basis of the above situation answer the following.

i. The equation of the line that passes through the points (x_1, y_1) and (x_2, y_2) is

(a)
$$\begin{vmatrix} x & y & 1 \\ x_1 & y_1 & 0 \\ x_2 & y_2 & 0 \end{vmatrix} = 0$$

(b)
$$\begin{vmatrix} x & y & 1 \\ x_1 & y_1 & 0 \\ x_2 & y_2 & 1 \end{vmatrix} = 0$$

$$(b)(c) \begin{vmatrix} x & y & 1 \\ x_1 & y_1 & 1 \\ x_2 & y_2 & 1 \end{vmatrix} = 0$$

$$(d) \begin{vmatrix} x & y & 1 \\ x & y & 0 \\ x_1 & y_1 & 0 \end{vmatrix} = 0$$

(ii) Equation of the path covered by the thief is

(a) $2x-5y+11=0$

(b) $2x-5y-11=0$

(c) $x + y=11$

(d) $5x+2y=45$

(iii) Equation of path followed by the policeman is

(a) $2x-5y+11=0$

(b) $2x-5y-11=0$

(c) $5x+2y=45$

(d) $5x+2y=7$

(iv) If the policeman catches the thief, then the point where they will meet each other is

(a) $x=1, y=1$

(b) $x=1, y=5$

(c) $x=5, y=7$

(d) $x=7, y=5$

(v) The minimum distance travelled by the policeman to catch the thief is

(a) $\frac{11}{\sqrt{29}}$

(b) $\sqrt{29}$

(c) $\frac{5}{\sqrt{29}}$

(d) $5\sqrt{29}$

HOLIDAY HOMEWORK (STD XII)

SUBJECT : HINDI

(1) निम्नलिखित प्रश्नों में से सही विकल्प चुनकर लिखिए :

(क) भक्तिन के जीवन में कुल कितने परिच्छेद की बात लेखिका ने वर्णन किया है :

(i) एक (ii)तीन (iii)चार (iv)दो

(ख) भक्तिन का असली नाम क्या है ?

(i)सरस्वती (ii)दुर्गा (iii)काली (iv)लक्ष्मी

(ग) भक्तिन किसकी कन्या है ?

(i)धोबिन (ii)हलवाई(iii)गोपालिका (iv)पंडित

(घ)भक्तिन कितने वर्ष की थी जब वह विधवा हो गई?

(i)32 (ii)34 (iii)29 (iv)35

(ङ)भक्तिन किसके नाम सुनते ही बहुत डर जाती थी ?

(i)यमराज (ii)कारावास (iii)मालकिन (iv)अपने जेठ

(च)भक्तिन पाठ में लेखिका का क्या नाम है ?

(i)कृष्णा सोबती (ii)सुभद्रा कुमारी (iii)मन्नू भंडारी (iv) महादेवी वर्मा

(छ)भक्तिन अपने पास कितने रुपए का गड़ा रखी थी ?

(i)दस (ii)दो (iii)पाँच (iv) पंद्रह

(2) निम्नलिखित प्रश्नों के उत्तर लिखिए :

(क)लेखिका ने किस आधार पर भक्तिन को शास्त्रार्थ में निपुण बताया ?

(ख)भक्तिन लेखिका के क्या-क्या काम करती थीं?

(ग)भक्तिन और लेखिका के व्यक्तित्व में क्या अंतर दिखाई देता है ?

(घ)भक्तिन का दुर्भाग्य भी उससे कम हठी नहीं था-लेखिका ने भक्तिन के संबंध में ठ कथन क्यों कहा ?

(ङ)भक्तिन ने अपने पति की मृत्यु के बाद अपने विषय में क्या निर्णय लिया ?

(3) निम्न में दिए गए विषयों पर 80-100 शब्दों में रचनात्मक लेख

लिखिए :

(क)बारिश की पहली रात

(ख)काश!में नदी होती

(4)(क)अपने क्षेत्र में अस्पताल की अव्यवस्था के बारे में बताते हुए मुख्य

चिकित्सा अधिकारी को पत्र लिखिए :

(ख)समाज में दिनों-दिन बढ़ती हुई अपराध के बारे में बताते हुए संपादक के

नाम एक पत्र लिखिए :

HOLIDAY HOMEWORK (STD XII)

SUBJECT : BIOLOGY

1. Prepare flow chart for the following topics:

- a) Phases of life
- b) Journey of male gametes starting from pollination
- c) Post fertilization in events in plants and in animals
- d) Microsporogenesis
- e) Megasporogenesis
- f) Types of pollination
- g) Artificial hybridization
- h) Journey of sperm from seminiferous tubules to ovum
- i) Spermatogenesis and oogenesis

2. Differentiate between

- a) Oestrous and menstrual cycle
- b) Sexual and asexual reproduction
- c) External and internal fertilization
- d) Spermatogenesis and oogenesis

3. Draw the following diagrams with proper labelling

- a) Types of pollination
- b) Double fertilization
- c) Different types of Asexual Reproduction
- d) Cross section of Seminiferous tubules
- e) Ovary showing development of follicle and corpus luteum

f) Graph showing: Pituitary hormone levels, ovarian events, Ovarian hormone levels, Uterine events in a colourful way

g) Pie chart of menstrual cycle

4. Prepare a small write up on the consequences of Covid 19 pandemic in our daily life, in the present situation and as biology student suggest your views , how to deal with the situation.
5. Take a printout of the words given and highlight the words you can find in the word search game:

CH-2 - SEXUAL REPRODUCTION IN PLANTS

WORD SEARCH

M	N	O	P	L	D	A	A	B	C	P	Q	B	D	G	H	I	J	K	P	Q
Q	R	S	T	K	H	E	B	W	X	Y	Z	R	S	C	E	L	M	N	O	R
E	X	U	T	G	I	F	G	C	S	T	U	Y	D	T	F	S	T	U	V	W
F	Y	V	A	P	O	M	I	X	I	S	E	F	G	H	U	V	X	Y	Z	A
T	Z	W	P	A	R	T	H	E	N	O	C	A	R	P	I	C	W	X	Y	B
U	A	B	E	X	I	N	E	I	J	K	L	M	N	O	P	Q	R	Z	A	C
X	D	C	T	G	H	I	P	Q	R	S	P	Q	R	S	Y	A	D	E	F	D
Y	V	W	U	J	K	L	M	N	O	T	U	V	W	X	Z	B	C	H	G	I
Z	A	B	M	I	C	R	O	P	Y	L	E	I	J	K	E	L	M	N	O	J
C	D	E	F	L	M	N	N	I	J	K	L	M	N	O	M	E	F	G	H	K
G	H	O	P	Q	R	S	O	V	U	L	E	B	C	D	A	E	F	W	X	Y
T	U	V	W	X	Y	Z	S	Y	N	E	R	G	I	D	S	Z	A	E	F	G
A	U	Q	R	V	W	X	P	X	Y	Z	A	E	I	J	C	B	C	D	H	I
B	S	T	U	Y	Z	A	O	G	H	I	J	I	K	L	U	J	K	L	M	N
C	D	E	B	C	D	E	R	K	L	M	N	T	M	N	L	O	P	Q	R	S
V	W	F	F	G	H	I	O	P	Q	R	O	O	B	A	G	G	I	N	G	
E	X	G	H	U	V	W	C	Q	R	S	T	N	P	Q	T	T	U	V	A	B
F	Y	G	H	I	J	K	L	M	N	O	P	O	R	S	I	W	X	Y	Z	C
M	Z	I	J	K	L	C	H	A	S	M	O	G	A	M	O	U	S	D	E	F
N	A	O	P	Q	R	S	T	S	T	U	V	A	T	U	N	V	G	H	I	J
J	B	M	N	O	P	W	X	Y	Z	A	B	M	O	R	X	U	A	E	F	G
K	P	O	L	Y	E	M	B	R	Y	O	N	Y	P	S	Y	V	B	C	D	K
L	C	D	C	D	E	F	G	H	K	L	M	N	Q	T	Z	W	H	I	J	I

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ASSERTION AND REASON TYPE OF QUESTIONS

In the questions given below two statements- an assertion (A) and a reason (R) are given. Give the appropriate response as:

- a) Both assertion and reason are true, and the reason is the correct explanation of assertion.
- b) Both assertion and reason are true, but the reason is not the correct explanation of assertion.
- c) Assertion is true but reason is false.
- d) Both assertion and reason are false.

1. Assertion: Pollen grains are well preserved as fossils.

Reason : Exine is made up of sporopollenin which can withstand in high temperatures, strong acids and alkalis and no enzyme that degrades sporopollenin is so far known.

2. Assertion- the megaspore mother cell divides mitotically to produce four spores.

Reason- the megaspore mother cell and the megaspores are haploid.

3. Assertion :Continued self-pollination results in inbreeding depression.

Reason : Flowering plants have developed many devices to encourage self-pollination and discourage cross pollination.

4. Assertion: During embryonic development in dicots, suspensor serves as the main nutritive tissue for the embryo.

Reason : The last cell of the suspensor at the end adjacent to the embryo is haustorium.

5. Assertion: As the seed matures its moisture content is reduced to 10-15%.

Reason : Micropyle facilitates the entry of oxygen and water into the seed during seed germination.

Read the following and answer any four questions from (i) to (v) given below:-

Apomixis occurs through the temporal or spatial deregulation of the sexual process mediated by genetic or epigenetic factors influenced by the environment. Apomicts have evolved mechanisms that circumvent sexual pathways by forming functional female gametophytes without meiosis(apomeiosis), developing embryos without fertilisation(Parthenogenesis) and a functional

endosperm. Unreduced gametophytes can develop via two main developmental pathways: 1) two unreduced MCs are formed via restitutional meiosis or via mitotic division (diplospory); 2) an unreduced cell of the nucellus develops into an embryo sac (apospory). Therefore seed development without fertilisation in apomicts represents a trait of high economic relevance to exploit heterosis and preserve superior allele combination.

i. Apomixis is a form of

- a. Vernalization
- b. Parthenogenesis
- c. Parthenocarpy
- d. Photoperiodism

ii. Find the incorrect statement in relation to apomixis.

- a. There is no fertilisation involved in the formation of seeds.
- b. Seeds are genetically identical.
- c. It is observed in all angiosperms.
- d. Diploid egg cell formed without reduction division develops into embryo without fertilisation.

iii. The reason why hybrid seeds have to be produced every year is

- a. Hybrid seed industry tends to decrease the cost of seed
- b. Hybrid plants turn sterile in coming years
- c. Hybrid plants show more heterosis in coming years
- d. Hybrid vigour is not maintained in more than one generation as segregation of genes is initiated in the second generation

iv. In many laboratories, active research is on to comprehend the genetics of apomixis as:

- a. Apomixis generates genetically different individuals
- b. Apomixis is a method to produce fruits without fertilisation
- c. Hybrid plants are directly formed by apomixes
- d. Transfer of apomictic genes into hybrid varieties that shall prevent hybrid vigour loss over the years

v. Assertion :There are several ways of development of apomictic seeds.

Reason :Apomixis is a form of sexual reproduction that mimics asexual reproduction.

- a. Both assertion and reason are true, and the reason is the correct explanation of assertion.
- b. Both assertion and reason are true, but the reason is not the correct explanation of the assertion.
- c. Assertion is true but reason is false.
- d. Both assertion and reason are false.

HOLIDAY HOMEWORK (STD XI)

SUBJECT : COMPUTER SCIENCE

Q1. Identify the valid identifier(s) from the given list :

My.file , _count, For, 2digits, 4thSu, Total, Number#, Name1 , Elif, while, try, del , Def , 1stName, Add+Subtract , break , print , Import , random , as , In , csv , continue , def1

Q2. If the following codes are executed, what will be the output of the following code?

a) `Subject = "Python&@Programming"`
`print(Subject[::-1])`

b) `>>> Sub = "Class12Python"`
`>>> print(Sub[2:-3])`

Q3. Evaluate the following expressions :

- a) $(15 < 10)$ and $(5 < 15)$ or $(30 < 18)$ and not $80 < 18$
- b) $2 * -3 ** 0 + \text{len}(\text{str}(5))$
- c) $(5 < 10)$ and $(10 < 5)$ or $(3 < 18)$ and not $8 < 18$
- d) $1 + (2 ** 3) * 4$

Q4. Differentiate between Default argument(s) and Keyword argument(s) . Also, give a suitable example to illustrate each type of argument(s) .

Q5. What is the difference between a local variable and a global variable ? Also, give a suitable Python code to illustrate both .

Q6. Rewrite the following code in Python after removing all syntax error(s). Underline each correction done in the code.

```
DEF execmain() :
```

```
    x = input("Enter a number ")
```

```
    If (abs(x) = x) :
```

```
        Print("You Entered a positive number ..")
```

```
    else :
```

```
        x =* -1
```

```
        print("Number made positive : " x)
```

```
execmain()
```

Q7. What are the possible outcome(s) executed from the following code ? Also specify the maximum and minimum values that can be assigned to variable NUM .

```
import random
```

```
NAV = ['LEFT' , 'FRONT' , 'RIGHT' , 'BACK']
```

```
NUM = random.randint(1,3)
```

```
NAVG = "
```

```
for i in range(NUM , 1 , -1) :
```

```
    NAVG = NAVG + NAV[i]
```

```
print(NAVG)
```

i) BACKRIGHT ii) BACKRIGHTFRONT iii) BACK iv) LEFTFRONTRIGHT

Q8. What are the possible outcome(s) executed from the following code ? Also specify the maximum values that can be assigned to variable NUMBER .

```
import random
```

```
STRING = "CBSEONLINE"
```

```
NUMBER = random.randint(0,3)
```


N=9

while STRING[N]!='L':

print(STRING[N] + STRING[NUMBER] + '#', end = '')

NUMBER = NUMBER +1

N = N-1

(i) ES# NE# IO#

(ii) LE# NO# ON#

(iii) NS# IE# LO#

(iv) EC# NB# IS#

Q9. Find out the output :

```
def fun(s):
```

```
    n = len(s)
```

```
    m = ''
```

```
    for i in range(0,n):
```

```
        if (s[i] >='a' and s[i] <= 'z'):
```

```
            m = m + s[i].upper()
```

```
        elif (s[i] >= 'A' and s[i] <='Z'):
```

```
            m = m + s[i].lower()
```

```
        else:
```

```
            m = m + str(i)
```

```
    print(m)
```

```
fun("CBSE@2021")
```

Q10. Find out the output :

```
def makenew(mystr):
```

```
    newstr = ""
```

```
    count = 0
```

```

for i in mystr:
    if count%2 != 0:
        newstr = newstr + str(count)
    else:
        if i.islower():
            newstr = newstr + i.upper()
        else:
            newstr = newstr + i
    count += 1
newstr = newstr + mystr[:1]
print("The new string is:", newstr)

```

makenew("Python")

Q11. Write a function CountToThe() in Python that counts and display the occurrence of 'to' and 'the' words present in a text file Quotes.txt separately .

Q12. Write a function DisplayLines() to read from the file story.txt and display only those lines in which number of words are exactly three .

Q13. Write a method / function ABLINES() in Python to read contents from a text file LINES.TXT , to display those lines , which are either starting with an alphabet 'A' or starting with alphabet 'B' .

Q14. Write a method in Python to read data from a text file INDIA.txt , to find and display the occurrence of the word "India" .

Q15. A binary file "EMPLOYEE.DAT" has structure as empcode , Name and salary . Write a function count() that would read content of the file "EMPLOYEE.DAT" and display the details of all those employees whose salary is more than 50000 .

Q16. Write a function definition to create a binary file "Emp.dat" containing details such as [empno , ename , dept , salary] . Also, Write a python function to display the Employee names of 'Marketing' Department .

Q17. A binary file student.dat contains 20 students records . It has the following fields : name , rollno, mark and grade in the given order. Write a function UPDATEMARKS() to update the marks of rollno 10 to 100 and display all the records of the student.dat file after updation .

Q18. Find out the output :

```
f1= open("data.txt","w")  
f1.write("We are doing Holiday Homework")  
f1.close()  
f2 = open("data.txt","r")  
print(f2.read(4) , end = '')  
print(f2.read(7))  
f2.close()
```

Q19. What will be the output of the following code :

```
F = open("data.txt","r+")  
F.write("0123456789abcdef")  
F.write("xyz8466")  
F.seek(10)  
print(F.read(6), end = ' ')  
F.seek(3)  
print(F.read(2))  
F.read()  
F.close()
```

Q20. What will be the output of the following code :

```
import pickle  
list1 = ['Roza',{ 'a':23,'b':True},(1,2,3),[['dogs','cats'], None]]  
list2 = ['Rita',{ 'x':45,'b':False},(9,5,3),[['insects','bees'], None]]  
with open('data1.dat','wb') as f :
```

```

pickle.dump(list1,f)
with open('data1.dat','wb') as f :
    pickle.dump(list2,f)
with open('data1.dat','rb') as f :
    list1 = pickle.load(f)
print(list1)

```

- (a) ['Roza' ,{'a':23,'b':True} ,(1,2,3),[['dogs' ,'cats'], None]]
- (b) ['Rita', {'x': 45, 'b': False}, (9, 5, 3), [['insects', 'bees'], None]]
- (c) [['Roza', {'a':23,'b':True} ,(1,2,3),[['dogs','cats'], None]] , ['Rita', {'x': 45, 'b': False}, (9, 5, 3), [['insects', 'bees'], None]]]
- (d) Error

Q21. CASE BASED QUESTION:

Good Health Pharmaceutical Company wants for automation of their company. *Navin Gupta & Co.*, a software firm designed software for *Good Health* Pharmaceutical Company.

A part of the program is given below:-

```

def Purchase (price=1,qty=1):           #Line1
    val= price*qty                       #Line2
    return val                           #Line3
    print (“Thank you for shopping”)    #Line4

def PlaceOrder (qty=10, totalpay):      #Line5
    if qty>=50:
        print(“You are eligible to get 10% discount”)
        totalpay=totalpay-totalpay*0.10
    elif qty>=30:
        print(“You are eligible to get 5% discount”)
        totalpay=totalpay-totalpay*0.05

```

else:

```
print ("You are not eligible to avail discount")
```

def Shipping (Date, Time, Day):

```
print ("Shipping schedule is", Date, Time, Day)
```

- a) Some errors are found in Line 5. As a software designer, suggest the correction required in Line 5.
- b) "Thank you for shopping" is not getting printed in the above code fragment. Find the reason behind this problem.
- c) Write Python statements to invoke Purchase () in two different ways.
- d) Find the statement given below which will show error while calling Shipping():-

```
Shipping (25, 2)
```

```
Shipping (a, b, c)
```

```
Shipping (Day="Tuesday", Date=25, Time=2)
```

```
Shipping (time=2, date=25, day="Tuesday")
```

- e) Mention the scope of variable price, qty and val in Purchase ().

Q22. **Safocity** Construction Company of New Delhi has got a tender to build 50 Duplex in Gurgaon. 150 people have applied to get a duplex. Each applicant is assigned with a unique key value from 1 to 150. As a software designer, suggest the company to solve the following problems:-

- a) The construction company wants to find the volume of each duplex. Write a function Volume() to compute the volume of one duplex, if length=120, breadth=150 and height=500. Take length, breadth and height as function parameters holding the given values as the default values. Compute the volume of that duplex and return the computed value.
- b) The construction company wants to colour all duplex buildings. Write a function TotalCost (), to calculate the total cost for colouring all duplex buildings. Assume, the cost for colouring 1 square feet is 60 rupees and total area of each building for colouring is 2000 cubic square feet.

(N.B.: Total number of duplex is 50). Return the total cost for colouring all 50 buildings.

- c) As a programmer, write an appropriate statement to invoke Volume().
- d) As the company has built only 50 duplex, they have decided to go for a lucky draw among 150 people. The software designer, wrote a function named LuckyDraw() to generate 50 random numbers which is given below:

```
def LuckyDraw():  
    Li=[ ]  
    for i in range (50):  
        r= _____  
        Li.append(r)
```

Fill the blank line in such a way that it will generate a random number between 1 to 150 in every iteration.

- e) Which module is required to be imported by the software designer to execute the previous code correctly?

HOLIDAY HOMEWORK (STD XI)

SUBJECT : PHYSICAL EDUCATION

Planning in Sports-1

- 1- ALL MCQ QUESTIONS AND ANSWERS
- 2- ALL QUESTIONS AND ANSWERS
- 3- DRAW 21TEAMS KNOCK-OUT FIXTURE
- 4- DRAW 32 TEAMS STAIRCASE FIXTURE
- 5- DRAW A CHART VARIOUS COMMITTEE FOR ORGANISING TRACK AND FIELD MEET/ SPORTS

ACTIVITY

Regular Practice :-

1-REGULAR EXERCISE MINIMUM 30 mins.

2- YOGA:-

☞ PADAMASANA

☞ SURYA NAMASKAR

☞ VAJRASANA

☞ BHUJANGASANA

☞ PAWANMUKTASANA

☞ ARDHA CHAKRASANA

☞ SHALABHASANA

NB:- ALL THE STUDENTS SEND YOUR YOGA PHOTOS FOR DOCUMENTS

ASSERTION- Consultation tournament provide a chance to the defeated teams to play again & win subsidiary honor.

REASONING - All the defeated teams of second round will have opportunity to compete among themselves.

a- Both A&B are true and R is the correct example of A.

b- Both A & B are true and R is not correct example of A.

C- A is true but R is false.

d- A is False but R is true.

CASE STUDY

In 2018 men's FIH Hockey world cup at Bhubaneswar, the central and state Govt. took no stone centurned for smooth conduct of tournament and brought name & fame to the country as a whole.

Based on this Case, answer the following questions.

1- What was main objective of FIH tournament are Bhubaneswer.

a- Propagate the Sports.

b- Generate revenue of the Government.

c- Fun time for audience.

d- Measure the efficiency of local Government.

2- Who among the following were technically benefitted out of the tournament.

a-School kids

b- Spectator

c- Organizer

d- Volunteers

3- Why this world class events, was allotted to Bhubaneswar.

a- Rich tradition of Hockey in the State.

b- Tiny & medium city with Sports lovers.

c- A city with no security the real.

d- Ideal climatic condition suit for Hockey.

N.B:

✓ Maintain index in your CW and HW copy.

✓ Do page numbering in all copies.

Its SUMMER TIME again. Time to strengthen your family bond, sharing joy and sorrow. Use your holiday home work as an opportunity to spend quality time together. Let your child take the lead and use his/ her imagination, creativity and knowledge to do the assigned work. The role of the parent is to be a facilitator and guide to sheer the child in the right direction. Take good care of your health and hygiene.

**WE WISH YOU TONS OF HAPPINESS, JOY AND FUN WHILE YOU ARE ON VACATION.
MAINTAIN SOCIAL DISTANCING AND STAY SAFE .**

Supervisor

Coordinator

Principal