JAIN VIDYA MANDIR SR. SEC. SCHOOL ,SONEPAT

HOLIDAY'S HOMEWORK

CLASS -12 SCIENCE

DEAR PARENTS,

Holidays are the time when we can connect with child in many ways. As you are your child's first teacher, you can encourage your child's love for learning by participating in many activities at home. Working together will help your child build confidence, learn to reason and develop skills necessary for his/her education.

Take your Child for morning yoga, talk about the things that you see around.

Play indoor games with your child.

Let your child help around house doing small jobs like cleaning, watering plants etc.

To spend quality time with your child.

Encourage them to spend time with grandparents.

Communication will play pivotal role in grooming the overall personality of the children. Converse your child preferably in English.

GENERAL INSTRUCTIONS TO BE FOLLOWED WHILE DOING HOLIDAYS HOMEWORK:

Do the work according to the roll numbers.

Holidays home work should be done as per the instructions given on A4, A3 size sheets or charts.

The child should be assessed for the neat handwriting, presentation, creativity.

Parents can be facilitator at home but the work should be done independently by the child in his/ her own handwriting.

Thank you

English Core

1. Creative Corner

- ★ **Prepare a comic Strip based on the story The Tiger King. (Roll No 1-17)**
- ★ **Prepare handouts representing different motivation words. (Roll No 18-36)**
- ★ **Prepare an information brochure highlighting the main programs of a function. (Roll No 37 to 50)**

2. Power Point Presentation

- ★ **Child Labour/Poverty in India (Roll No 1-17)**
- ★ **Ideal Teacher/ Students' Traits for new Teaching- learning process. (Roll No 18-36)**
- ★ **Tiger Reserves of India. (Roll No 37 to 50)**

3. Project File (10-15 pages)

Book Review

Enjoy reading story books by renowned authors during the summer vacation. Present a book review on any one book you liked the most or any chapter you have read. Add these points:

1. Book Title and Author

2. The characters from the story

3. The main story line

4. Which character did you like the most and why?

5. The summary of the story

6. Any paintings/ sketch/ pictures depicting the characters or any part of the story

7. Also decorate a book cover for the same book

Worksheet

1. Franz saw a huge crowd assembled in front of the bulletin board, but did not stop. How would you evaluate his reaction?

a) Franz was too little to care about the news of lost battles.

b) Nobody in Franz's family was in the army, so it did not matter.

c) Bad news had become very normal, so he went about his task.

d) It was too crowded for Franz to find out what news was up on the board.

2. There was usually great bustle and noise when school began, but it was all very quiet. Which of the following describes Franz' emotions most accurately?

a) shock and awe b) disappointment and anxiety

c) confusion and distress d) curiosity and uncertainty

3. “I never saw him look so tall”. Which of the following best captures M. Hamel on the last day of school?

a) cranky, miserable, dedicated, resigned b) patient, dignified, emotional, courageous

c) calm, nostalgic, disappointed, patriotic d) proud, reproachful, persistent, heroic

4. ‘But promises like mine abound in every corner of his bleak world’. This suggests that

a) there is no dearth of promises which remain unfulfilled

b) there is a scarcity of people promising things for betterment

c) people make a lot of promises which are often fulfilled

d) promises made, live up to the expectations of people.

5. From this chapter, it is evident that the author has an attitude of

a) sympathy b) apathy c) empathy d) bewilderment

6. "That’s why they left, looking for gold in the big city.’ Here ‘gold’ indicates

a) misfortune of circumstances b) ample wealth

c) means of survival d) a sign of luxury

7. Choose the statement that is NOT TRUE about ragpickers in Seemapuri

a) Children are equally involved in rag picking as their parents

b) The ragpickers settle down in a place permanently

c) Rag picking has accomplished itself as a skill and form of art

d) Ragpickers live in unsteady shanties on the outskirts of Delhi.

8. The phrase ‘old familiar ache’ has been used to refer to a fear, in this extract. This phrase can also be used to

a) compare physical pain with mental agony.

b) elicit someone’s unanswered queries.

c) substantiate reasons for aches and pains.

d) describe a longing one has been aware of.

9. The tone of the poet in the poem is primarily a combination of _____ and _____.

1. dauntlessness 2. apprehension 3. dejection 4. disappointment

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

10. How would you describe Charley’s vision of his grandfather’s life and times?

a) wistful escapism b) idealized sentimentality

c) nostalgic simplicity d) dreamy perfection

11. 'The Third Level' refers to the third level at the Grand Central Station. As a metaphor, which of the following would NOT be an appropriate explanation of the title?

a) The convergence of reality and fantasy.

b) The bridge between the past and the present.

c) The oppressive monotony of modern life.

d) The need for an alternate plane of understanding.

12. How would you describe Charley?

a) confused, happy-go-lucky b) escapist, adventurous

c) imaginative, nostalgic d) friendly, responsible

13. Which of the following is a conclusion that can be drawn from the story?

a) Reality is indeed stranger than fiction.

b) With all its worries, modern life is not worth living.

c) The past is undoubtedly better than the present.

d) Imagination might be the only great escape.

14.As soon the tiger king was born the astrologer foretold that--

(a) the new born child would become a great king. (b) He would do justice with all.

(c) He would actually die.

15. Match the following statement/words/sentences given in column A with the characters in column B

A	B
(a) "O, wise prophets! I it was I who spoke"	**(a) Dewan**
(b)' Thank you very much for your gifts"	**(b) Tiger king**
(c) " you must be very careful with hundredth tiger"	**(c) Duraisani**
(d) The hundred tiger was killed by	**(d) Astrologer**
(e) Avery old tiger was brought for the king to shoot by	**(e) One of the hunter**

Assignment

Q1. You are the Secretary of the English Literary Association of Tagore Memorial School, Patna. Write out a notice for noticeboard, inviting names of those who would like to participate in the proposed inter-house debate, oratorical and elocution contest.

Q2. You are President of the Cultural Society of your school. You are planning to organize a cultural program. Write a notice for the school noticeboard inviting names of students willing to participate. You are Sudhir, the secretary of the society.

Q3. You are Anil/Anita, a social activist. Design a poster to observe Wildlife Protection Week in your city.

Q4. You are Mohan. You intent to start Online hobby classes during lockdown period at your residence. Write a notice to be published in The Hindu. (50 words) (Hints; name of hobby classes, date, time, qualified faculty, mode of admission, contact no etc.

Q5. You are the Rakesh Verma , Secretary of the Old Students' Association, Mayo School, Ajmer. The 20th Alumni Meet will be held on Sunday the 28th June. 2022 at 8:00 p.m. at Palace Hotel, Write invitation for all old students of the school to attend the meet.

As Sajit Sharma write a formal reply also expressing your acceptance/regret at not being able to attend

PHYSICS

Q1. Draw an equipotential surface:

(a) In a uniform electric field

(b) For a point charge <0.

Q2.How will the capacitance of a capacitor change when a dielectric slab is introduced between the plates of a capacitor?

Q3. How does the resistivity of a conductor depend upon the number density of free electrons and temperature?

Q4. Show mathematically that the potential at a point on the equatorial line of an electric dipole is zero.

Q5. A hollow metal sphere of radius 5cm is charged such that the potential on its surface is 10V. What is the potential at the center of the sphere?

Q6. A charge of 12 C is given to hollow metallic sphere of radius 0.1m. Find the potential at (i) the surface of the sphere (ii) center of the sphere.

Q7. Calculate the Coulomb force between a proton and an electron separated by 0.8 x 10-15 m.

Q8 Calculate the Value of electric field exactly balancing the weight of an electron.

Q9.Two capacitors 3 farad & 6 farad are connected in series with 6 V battery. Which one will have higher potential?

Q10. Calculate the net capacitance of the given network, if each capacitor is 5 microfarad.

Q11. If the plates of a charged capacitor are further separated while the capacitor is still connected to the charging battery, what will happen to the energy?

Q12. How does a torque affect the dipole in an electric field?

Q13. 27 drops of same size are charged at 220V each. They collapse to form a bigger drop. Calculate the potential of the bigger drop.

Q14. Draw a plot showing the variation of electric field & potential with distance due to a point charge. Q16.A wire of resistance 5 ohm is drawn out so that its length is increased to twice its original length. Calculate its original resistance.

Q15. A lamp of 100 W works at 220 volt calculates its resistance & current capacity?

Q16. Why are thick copper wires used as connecting wire?

Q17. Define resistivity of the material of a wire. State its S.I. unit. Q21. The storage battery of a car has an E.M.F. of 12 V. If the internal resistance of the battery is 0.4 ohm, what is the maximum current that can be drawn from the battery?

Q18. Three charges +Q, q, +Q are placed respectively, at distance 0, d/2 and d from the origin, on the x-axis. If the net force experienced by +Q placed at x = 0 is zero, then value of q is

(a) +Q/4 (b) –Q/2 (c) +Q/2 (d) –Q/4

Q19. A parallel plate capacitor having capacitance 12 pF is charged by a battery to a potential difference of 10 V between its plates. The charging battery is now disconnected and a porcelain slab of dielectric constant 6.5 is slipped between the plates. The work done by the capacitor on the slab is

(a) 508 pJ (b) 692 pJ (c) 560 pJ (d) 600 pJ

Q20. An electric field of 1000 V/m is applied to an electric dipole at an angle of 45°. The value of the electric dipole moment is 10–29 Cm. What is the potential energy of the electric dipole?

(a) –10 × 10–29 J (b) –7 × 10–27 J (c) –20 × 10–18 J (d) –9 × 10–20 J

Q21. A solid conducting sphere, having a charge Q, is surrounded by an uncharged conducting hollow spherical shell. Let the potential difference between the surface of the solid sphere and that of the outer surface of the hollow shell be V. If the shell is now given a charge of –4 Q, the new potential difference between the same two surfaces is

(a) 4 V (b) V (c) 2 V (d) –2 V

Q22. Voltage rating of a parallel plate capacitor is 500 V. Its dielectric can withstand a maximum electric field of 106 V m–1. The plate area is 10–4 m2. What is the dielectric constant if the capacitance is 15 pF? (given 0 = 8.86 × 10–12 C2N–1 m–2)

(a) 3.8 (b) 8.5 (c) 6.2 (d) 4.5

Q23. The bob of a simple pendulum has a mass of 2 g and a charge of 5.0 C. It is at rest in a uniform horizontal electric field of intensity 2000 V m–1. At equilibrium, the angle that the pendulum makes with the vertical is (take g = 10 m s–2)

(a) tan–1 (0.2) (b) tan–1 (0.5) (c) tan–1 (2.0) (d) tan–1 (5.0)

Q24. A parallel plate capacitor has 1 F capacitance. One of its two plates is given + 2 C charge and the other plate, +4 C charge. The potential difference developed across the capacitor is

(a) 3 V (b) 2 V (c) 5 V (d) 1 V

Q26. A capacitor with a capacitance 5 µF is charged to 5 µC. If the plates are pulled apart to reduce the capacitance to 2 µF, how much work is done?

(a) 6.25 × 10–6 J (b) 3.75 × 10–6 J (c) 2.16 × 10–6 J (d) 2.55 × 10–6 J

Q27. A parallel plate capacitor of capacitance 90 pF is connected to a battery of emf 20 V. If a dielectric material of dielectric constant K = 5/3 is inserted between the plates, the magnitude of the induced charge will be

(a) 1.2 nC (b) 0.3 nC (c) 2.4 nC (d) 0.9 nC

Q28. A parallel plate capacitor of capacitance 90 pF is connected to a battery of emf 20 V. If a dielectric material of dielectric constant K = 5/3 is inserted between the plates, the magnitude of the induced charge will be

(a) 1.2 nC (b) 0.3 nC (c) 2.4 nC (d) 0.9 nC

Q29. Two identical conducting spheres A and B, carry equal charge. They are separated by a distance much larger than their diameters, and the force between them is F. A third identical conducting sphere, C, is uncharged. Sphere C is first touched to A, then to B, and then removed. As a result, the force between A and B would be equal to

(a) 3F/8 (b) F/2 (c) 3F/4 (d) F

Q30. Two capacitors C1 and C2 are charged to 120 V and 200 V, respectively. It is found that by connecting them together the potential on each one can be made zero. Then

(a) 9C1 = 4C2 (b) 5C1 = 3C2 (c) 3C1 = 5C2 (d) 3C1 + 5C2 = 0

Q31. An electric dipole is placed at an angle of 30º to a non-uniform electric field. The dipole will experience

(a) a torque only

(b) a translational force only in the direction of the field

(c) a translational force only in a direction normal to the direction of the field

(d) a torque as well as a translational force

Q32.A parallel plate capacitor is made of two circular plates separated by a distance of 5 mm and with a dielectric of dielectric constant 2.2 between them. When the electric field in the dielectric is 3 × 104 V/m, the charge density of the positive plate will be close to

(a) 6 × 104 C/m2 (b) 6 × 10–7 C/m2 (c) 3 × 10–7 C/m2 (d) 3 × 104 C/m2

Q33. Three concentric metallic spherical shells of radii R, 2R, 3R, are given charges Q1:Q2:Q3respectively. It is found that the surface charge densities on the outer surfaces of the shells are equal. Then, the ratio of the charges given to the shells, Q1:Q2:Q3

(A) 1 : 2 : 3 (B) 1 : 3 : 5 (C) 1 : 4 : 9 (D) 1 : 8 : 18

Q34. An electric field

exists in a region of space. If the potential at the origin is taken to be zero then the potential at x = 2 m, y = 2m is

(A) -110 J (B) -140 J (C) -120 J (D) -130 J

Q35. Assume that an electric field

exists in space. Then the potential difference VA – V0, where V0 is the potential at the origin and VA the potential at x = 2m is

(A) 120 J/C (B) -120 J/C (C) -80 J/C (D) 80 J/C

Q36. A hollow metal sphere of radius 5 cm is charged such that the potential on its surface is 10 volts. The potential at the centre of the sphere is

(A) zero

(B) 10 volts

(C) same as at a point 5 cm away from the surface

(D) same as at a point 25 cm away from the surface

Q37. Concentric metallic hollow spheres of radii R and 4R hold charges Q1 and Q2 respectively. Given that the surface charge density of the concentric spheres are equal, the potential difference V(R) – V(4R) is

(A) $3Q1/16\pi\varepsilon 0R$ (B) $3Q2/4\pi\varepsilon 0R$ (C) $Q2/4\pi\varepsilon 0R$ (D) $3Q1/4\pi\varepsilon 0R$

Q38. A charge Q is divided into q and (Q – q). If Q/q = x, such that the repulsion between them is maximum, find x.

(A) 1 (B) 2 (C) 3 (D) 4

Q39. Two point charges +q and -q are held fixed at (-d,0) and (d,0) respectively of a x-y coordinate system. Then

a)The electric field E at all points on x-axis has the same direction

b)Electric field at all points on y-axis is along x-axis

c)Work has to be done in bringing a test charge from infinity to the origin

d)The dipole moment is 2qd along the x-axis

Q40. A parallel plate capacitor of capacitance C is connected to a battery and is charged to a potential difference V. Another capacitor of capacitance 2C is similarly charged to a potential difference 2V. The charging battery is now disconnected and the capacitors are connected in parallel to each other in such a way that the positive terminal of one is connected to the negative terminal of the other.

final energy of the configuration is

a) zero b) $\frac{3}{2}CV^2$ c) $\frac{25}{6}CV^2$ d) $\frac{9}{2}CV^2$

Activity

Make a working project on the topic of method of charging

Make a chart on any practical topic of your choice.

Chemistry

Make a working model of the given topics roll no.wise

Roll no.1 to 10- Ball and stick model of any carbon compound.

Roll no. 11 to 20- Prepare a 3 D model of buckminster fullerene.

Roll no.21 to 30- Solar powered house

Roll no.31 to 40- Rain water harvesting

Roll no.41 to 50- Water purifier

Assignement

Solutions

Short Answer Type Questions

1. Sodium chloride aqueous solution freezes at lower temperature than water but boils at higher temperatures than water. Explain.
2. Define
   (i) Mole fraction
   (ii) Molarity
3. Calculate the osmotic pressure in Pascal exerted by a solution prepared by dissolving l.0 g of polymer of molar mass 185000 in 450 mL of water at 37°C.
4. An aqueous solution of glucose is made by dissolving 10 g of glucose ($C_6H_{12}O_6$) in 90 g of water at 303 K. If the vapour pressure of pure water at 303 K be 32.8 mm Hg. what would be the vapour pressure of the solution?
5. Henry Law constant for the solubility of methane in benzene at 298 K is 4.27 × 105 mm Hg. Calculate the solubility of methane in benzene at 298 K under 760 mm Hg.
6. When mercuric iodide is added to an aqueous solution of KI the freezing point is raised. Why?
7. State Henry's law correlating the pressure of a gas and its solubility in a solvent and mention two applications for the law.
8. 0.01 M solution of KCl and $BaCl_2$ are prepared separately in water. The freezing points of KCl is found to be –2°C. What freezing point would you expect for $BaCl_2$ solution assuming both KCl and $BaCl_2$ to be completely ionized.
9. Calculate the number of moles of methanol in 5 liters of its 2 m solution, if the density of the solution is 0.981 kg $litre^{-1}$. (Molar mass of methanol of 32.0 g mol^{-1}).
10. At a certain temperature, the vapour pressure of CH_3OH and C_2H_5OH solution is represented by
    P = 119 x + 135.
    where x is the mole fraction of CH_3OH. What are the vapour pressure of pure components of this temperature?
11. Distinguish between the boiling point of a liquid and the normal boiling point of a liquid.

Very Long Answer Type Questions

1. The freezing point of a solution containing 0.2 g of acetic acid in 20.0 g of benzene is lowered by 0.45° C. Calculate.
   (i) The molar mass of acetic acid from this data
   (ii) Van't Hoff factor [For benzene, K_f = 5.12 K kg mol^{-1}]
   What conclusion can you draw from the value of Von't Hoff factor obtained?

2. One litre aqueous solution of sucrose (molar mass = 342 g mol^{-1}) weighing 1015 g is found to record an osmotic pressure of 4.82 atm at 293 K. What is the molarity of the sucrose solution? (R = 0.0821 atm L mol^{-1} K^{-1})
3. Calculate the temperature at which a solution containing 54 g of glucose, in 250 g of water will freeze. (K, for water = 1.86 K mol^{-1} kg).
4. What is meant by Van't Hoff factor?
   The osmotic pressure of a 0.0103 molar solution of an electrolyte is found to be 0.70 aim at 27°C. Calculate the Van't Hoff factor. (R = 0.082 L atm-mol^{-1} K^{-1})
   What conclusion do you draw about the molecular state of the solute in the solution?
5. Determine the amount of $CaCl_2$ (i = 2.47) dissolved in 2.5 litre of water such that its osmotic pressure is 0.75 atm at 27°C.
6. (A) Among the following compounds, identify which are insoluble, partially soluble and highly soluble in water.
   (i) phenol (ii) toluene
   (iii) formic acid.
   (B) Based on solute-solvent interactions, arrange the following in order of increasing solubility in n-octane and explain.
   Cyclohexane, KCl, CH_3OH, CH_3CN
7. A solution is made by dissolving 30 g of a non-volatile solute in 90 g of water. It has a vapour pressure of 2.8 kPa at 298 K. At 298 vapour pressure of pure water is 3.64 kPa. Calculate the molar mass of the solute.
8. The boiling point elevation of 0.30 g acetic acid in 100 g benzene is 0.0633 K. Calculate the molar mass of acetic acid from this data. What conclusion can you draw about the molecular state of the solute in the solution? [Given Kb for Benzene = 2.53 K kg mol^{-1}]
9. Nalorphene ($C_{19}H_{22}NO_3$), similar to morphine, is used to combat withdrawal symptoms in narcotic users. Dose of nalorphine generally given is 1.5 mg. Calculate the mass of 1.5×10^{-3} m aqueous solution required for the above dose.

Electrochemistry

Short Answer Type Questions

1. Suggest a way to determine the Λ^o_m value of water.
2. If a current of 0.5 ampere flows through a metallic wire for two hours, then how many electrons flow through the wire?
3. Calculate the potential of a Zn/Zn^{2+} ion electrode in which the $[Zn^{2+}]$=0.001 M.
   ($E^o_{Zn^{2+}/Zn}$ = – 0.76 V, R = 8.314 JK^{-1} mol^{-1}, F = 96500 C mol^{-1})
4. Calculate the equilibrium constant for the following reaction at 298 K :
   $Cu(s) + Cl_2(g) \rightarrow CuCl_2(aq)$ R = 8.314 $JK^{-1}mol^{-1}$, $E^o_{Cu^{2+}/Cu}$= 0.34 V = 1.36 V,
5. Calculate the equilibrium constant of the reaction:
   $Cu(s) + 2\,Ag^+(aq) \Rightarrow Cu^{2+}(aq) + 2\,Ag(s)$ $E°_{Cell}$ = 0.46 V
6. What is the effect of temperature on the electrical conductance of
   (i) metallic conductor (ii) electrolytic conductor.
7. (a) State the factors that influence the value of cell potential of the following cell:
   $Mg(s)\,|Mg^{2+}(aq)\,||Ag^+(aq)|Ag(s)$
   (b)Write Nernst equation to calculate the cell potential of the above cell. If Ag^+ =0.114 Mg^{2+} = 0.1 M. $E^o_{Ag^+/Ag}$ = 0.8 V $E^o_{Mg^{2+}/Mg}$ = – 2.37 V
8. Why does the molar conductance increase on diluting the solution of a weak electrolyte? Electrolytic conductivity of 0.30 M solution of KCl at 295 K is 3.72 x 10^{-2} S cm^{-1}. Calculate its molar conductivity.
9. The resistance of a conductivity cell containing 0.001M KCl solution at 298 K is 1500 W. What is the cell constant if conductivity of 0.001 M KCl solution at 298K is 0.146×10^{-3} S/cm?

10. With the help of ionic equations describe what happens when
(i) pH of a solution of dichromate ions is raised, (ii) potassium manganate is electrochemically oxidised.
11. How much electricity in terms of Faraday is required to produce?
(i) 20.0 g of Ca from molten CaO_2 (ii) 40.0 g of Al from molten Al_2O_3
12. Why is a salt bridge or a porous plate not needed in a lead storage battery?

Very Long Answer Type Questions

1. What is corrosion? Describe electrochemical phenomenon of rusting of Iron.
2. Three electrolytic cells A, B and C containing solutions of zinc sulphate, silver nitrate and copper sulphate, respectively are connected in series. A steady current of 1.5 ampere was passed through them until 1.45 g of silver were deposited at the cathode of cell B. How long did the current flow? What mass of copper and what mass of zinc were deposited in the concerned cells? (Atomic masses of Ag = 108, Zn = 65.4, Cu = 63.5)
3. (A) The resistance of a conductivity cell containing 0.001 M KCl solution at 298 K is 15000W. What is the cell constant, if the conductivity of 0.001 M KCl solution at 298 K is 0.146×10^{-3} S cm^{-1}? (B) Predict the products of electrolysis in the following: A solution of H_2SO_4 with platinum electrodes.
4. Calculate the pH of the following half cell: $Pt(s)|H_{2(g)}|H_2SO_4$ (aq)
For the cell the oxidation potential is +0.3V, p $H_{2(g)}$ =1 atm
5. Calculate the standard cell potential of the galvanic cell in which the following reaction takes place: $2\ Cr\ (s) + 3\ Cd^{2+}\ (aq) \rightarrow 2\ Cr^{3+}\ (aq) + 3\ Cd\ (s)$
Also calculate the value of the reaction.
(Given: = – 0.40 V and F = 96500 C mol^{-1}

Biology

Part A Assignment

Solve the given assignments in separte notebook

Assignment 1

SEXUAL REPRODUCTION IN FLOWERING PLANTS

Q.1 Write briefly the role of pollination in the growth and development in an angiosperm.

Q.2 Describe the structure of a typical/polygonum type embryo sac found in flowering plants. Why is it called monosporic?

Q.3 Why is the process of fertilization in a flowering plant referred to as double fertilization?

Q.4 What is the process of fertilization in flowering plant referred to as double fertilization?

Q.5 The flower of Brinajal is referred to as chasmoganous while that of Bean is cleistogamous. How are they different from each other.

Q.6 Coconut Palm is monoecious while Date Palm is dioecious. Why are they called so?

Q.7 Banana is a parthenocarpic fruit whereas oranges show polyembryony. How are they different from each other with respect to seeds?

Q.8 Name the cell from which the endosperm of Coconut develops. Give the characteristic features of endosperm of coconut.

Q.9 Draw a vertical section of a Maize grain and label.

(i) pericarp (ii) scutellum (iii) coleoptile (iv) radicle

Q.10 Fertilization is essential for production of seeds

(i) Give one example of an angiosperm that produces seed without fertilization. Name the process.

(ii) Explain two ways by which seeds develop without fertilization.

Q.11 Explain any two devices by which autogamy is prevented in flowering plants.

Q.12 Mention the reasons for difference in ploidy of zygote and primary endosperm nucleus in an angiosperm.

Q.13 How does the floral pattern of Mediterranean orchid, Ophrys, guarantee cross pollination ?

Q.14 Draw a longitudnal section of a post pollinated pistil to who entry of pollen tube into mature embryo sac. Label filiform apparatus, chalazal end, hilum, antipodals, male gametes and secondary nucleus.

Q.15 Where does triple fusion take place in a flowering plant. Why is it so called ? Mention its significance.

Q.16 If you squeeze a seed of orange, you might observe many embryos of different sizes. How is it possible ? Explain.

Q.17 (a) Mention any four strategies adopted by flowering plants to prevent self pollination.

(b) Why is geitonogamy also referred to geneticalautogamy ?

Q.18 Explain giving two reasons why pollen grains can be best measured as fossils.

Q.19 How many haploid cells are present in a mature female gametophyte of a flowering plant. Name them.

Q.20 Differentiate between albuminous and non-albuminous seeds, giving one example each.

Q.21 Draw a diagram of a male gametophyte of an angiosperm. Label any four parts . Why is sporollenin considered the most resistant organic material ?

Q.22 Differentiate between geitonogamy and xenogamy in plants. Which one between the two will lead to inbreeding depression and why ?

Q.23 Where is sporollenin present inplants ?state its significance with reference to its chemical nature.

Q.24 State one advantage and one disadvantage of cleistogamy.

Q.25 Explain the function each of a) Coleorhiza (b) Germ pores .

Q.26 How does the study of different parts of a flower help in identifying wind as its pollinating agent ?

Q.27 Write the cellular contents carried by the pollen tube. How does the pollen tube gain entry into the embryo sac ?

Q.28 Name the product of fertilization that forms the kernel of coconut. How does the Kernel differ from coconut water ?

Q.29 (a) Mention the similarity between autogamy and geitonogamy.

(b) How does geitonogamy differ from xenogamy ?

Q.30 Differentiate perisperm and endosperm giving one example of each.

Assignment 2

HUMAN HEALTH AND DISEASES

1. What is vaccine? Give an example of a vaccine produced by recombinant technology.

2. Why are stimulants and hallucinogens categorized as psychotropic drugs? Give example of each of two types mentioned.

3. A person has been diagnosed as HIV positive. (i) Name the test which the person

underwent. (ii) Write full name of pathogen involved and describe its structure. (iii) Which particular cells of this person are likely to get destroyed.

4. What is the other name of filarial? Give the scientific name of causative germ of elephantiasis.

5. Name and explain the type of barrier of innate immunity where some cells release interferons when infected.

6. What are oncogenes ? Explain.

7. List any four danger signals of cancer.

8. Why is blood group identification not required for transfusing serum?

9. What are second generation vaccines?

10. Describe the structure of immunoglobin antibody. Draw a diagram showing the formation of antigen-antibody complex and label the parts.

11. Write down the terms in expanded form.

(i) AMIS (ii) CMIS (iii) NACO

12. (i) How and at what stage does Plasmodium enter into human body?

(ii) With the help of flow chart only show the stages of asexual reproduction in the

life of the parasite in the infected human.

(iii) Why does the victim show symptoms of high fever?

13. Why do sports persons often fall victim to cocaine addiction?

14. (a) Name the infective stages of Plasmodium which Anopheles mosquito takes in

15. (a) Name the respective forms in which the malarial parasite gains entry into (i) Human and (ii) Body of female Anopheles.

along the blood meal from an infected person.

(b) Why does the infection cause fever in humans?

(c) Give a flow chart of the part of life cycle of this parasite passed in the insect.

(b) Name the hosts where the sexual and the asexual reproduction of malarial parasite respectively.

(c) Name the toxin responsible for the appearance of symptoms of malaria in humans. Why do these symptoms occur periodically?

16. Name the type of cells the AIDS virus first enters into after getting inside the human body. Explain the sequence of events that the virus undergoes within these cells to increase its progeny.

17. Name one plant and the addictive drug extracted from its latex. How does this drug affect the human body?

18. (a) Explain the property that prevents normal cells becoming cancerous.

(b) All normal cells have inherent characteristics of becoming cancerous. Explain.

19. List the specific symptoms of pneumonia. Name the causative organism.

20. How does spleen act as a lymphoid organ? Explain.

21. What is colostrum? Why is it important to be given to new born infants?

22. (a) Name the virus that causes AIDS in humans.

(b) Explain the sequence of events that flows when this virus attacks to cause immunodeficiency in humans.

23. How is innate immunity different form the immunity that you acquire through vaccines? Describe any two ways by which innate immunity can be accomplished.

24. (a) Name the lymphoid organ in humans where all the blood cells are produced.

(b) Where do the lymphocytes produced by the lymphoid organ mentioned above migrate and how do they affect immunity.

25. Name the specific symptoms of typhoid. Name its causative agent.

26. Write the name of any two opiate narcotics and their harmful effects.

27. An antibody is represented by H2L2 . Explain

28. Name the host and the site where the following occur in the life cycle of a malarial parasite

(a) Formation of gametocytes. (b) Fusion of gametes.

29. Name the type of human cell HIV attacks at its entry into the body. Explain the events that occur in the cell which further lead to cause immunodeficiency syndrome.

30. Define the term ‘health’. Mention any two ways of maintaining it.

Assignment 3

MICROBES IN HUMAN WELFARE

1. What is the biochemical reaction of yeast fermentation of molasses for alcoholic fermentation?

2. What protects nitrogenase?

3. What is economic value of Spirulina?

4. Name the group of organisms and the substrate they act on to produce biogas.

5. Name the organism commercially used for the production of single cell protein.

6. Which of the following is a fee living bacterium that can fix nitrogen in the soil?

Spirulina, Azospirillum, Sonalika.

7. Milk starts to coagulate when lactic acid bacteria (LAB) are added to warm milk as starter. Mention any other two benefits LAB provides.

8. Which of the following is a cyanobacterium that can fix atmospheric nitrogen?

Azospirillum, Ocillatoria, Spirulina.

9. Which of the following produces single cell proteins?

Sonalika, Spirulina, Saccharomyces.

10. Write the scientific name of the microbe used for fermented malted cereals and fruit

juices.

11. Mention the source orgsnisms of gene cry I Ac and its target pest.

12. Mention the role of cyanobacteria as biofertilizers.

13. Why should biological control of pests and pathogens be preferred to the convential

use of chemical pesticides? Explain hoe the following microbes act as biocontrolagents : (a) Bacillus thuringiensis (b) Nucleopolyhedrovirus.

14. During the secondary treatment of the primary effluent, how does the significant decrease in BOD occur?

15. (a) How does activated sludge get produced during sewage treatment?

(b) Explain how this sludge is used in biogas production. (C.B.S.E. 2009)

16. (a) Baculoviruses are excellent candidates for integrated pest management in an

ecological sensitive area. Explain giving two reasons.

(b) What is organic farming? Why is it suggested to switch over to organic

farming?

17. How does addition of a small amount of curd to fresh milk help in formation of curd? Mention a nutritional quality that gets added to the curd.

18. Mention the product and its use produced by each of the microbe listed below: (i)

Streptococcus (ii)(Lactobacillus (iii) Saccharomyces cerevisiae.

19. How do plants benefit from having mycorrhizal symbiotic association?

20. Describe how biogas is obtained from an activated sludge.

21. An organic farmer relies on natural predation for controlling plant pests and diseases.

Justify giving reasons. Why this is considered to be holistic approach.

22. (a) Why do farmers prefer biofertilizers to chemical fertilizers these days?

Explain.

(b) How do Anabaena and mycorrhiza act as biofertilisers? (C.B.S.E.2011)

23. Name the enzyme produced by Streptococcus bacterium. Explain its importance in medical science.

24. Name the genus to which baculoviruses belong. Describe their roleinthe integrated pest management programmes.

25. Why are some molecules called bioactive molecules? Give two examples of such molecules.

26. Give the scientific name of the microbes from which cyclosporine A and statin are

obtained. Write one medical use of each one of these drugs.

27. Explain the different steps involved in sewage treatment before it can be released into natural water bodies.

28. Why is Rhizobium categorized as a 'symbiotic"?

29. Name the source of streptokinase/cyclosporine –A/Statin.

30. How does the bioactive moledule function in our body.

Part B Investigatory Project

Submit your assigned project that has to be made in a proper sequence.

Physical Education

Prepare an assignment on motor fitness test in 15 pages.

Prepare a practical file on lifestyle diseases with 2 asana for each and write about least one sport.

Learn chapters- 1,6,10,2

Chapter -1 Planning in sports.

Chapter-6 Test and measurement in sports.

Chapter -10 Training in sports and nutrition.

Chapter-2 Sports and nutrition.

Q1. Explain the administration of AAPHERD youth fitness test.

Q2. Elucidate the Rikli and Jones senior citizen fitness test in detail.

Q3. Draw a fixture of 12 teams on league basis according to the cyclic method. How will you decide the winner in a league tournament?

Q4. Write about the various committees and their responsibilities.

Q5. Briefly discuss about vitamins.

Q6. Briefly discuss macronutrients.

Q7. Define endurance and explain any two methods of improving endurance.

Q8. What are the types of strengths? Explain the method of strength development in detail.

MATHEMATICS

1. Revise chapter 3 and 4 .

2.Do all the examples of chapter 3and 4 in your notebook .

ASSIGNMENT

Solve the following questions:

1. What is matrix?
2. Define symmetric and skew symmetric matrix with examples.
3. A is any square matrix then A+A(TRANSPOSE) is always a ……..matrix
4. What is determinant?
5. Define minors and cofactors.
6. For what value of k, the points (5,5), (k,1) and (11,7) are collinear.
7. Find area of the triangle with vertices as (3,8), (-4,2) and (5,-1).
8. Find equation of line joining the points (3,1)and (9,3)
9. If(x,0),(0,y) and (1,1)are collinear ,prove that x+y= xy
10. If A be a square matrix of order 3x3 then I KA I is equal to…….
11. Write the difference between singular and non singular matrix.
12. A matrix is a square matrix of order n then |AdjA|=……..?
13. Adjoint of an identity matrix is …….matrix.
14. Adj(AB)=(AdjB) (AdjA) check it is true or false.
15. $(AB)^{-1}$=……
16. Solve the system of equation using matrix

    5x-7y=2 ,7x -5y=3

17. Solve by matrix method

X+ y-z=3

2x+3y+z=10

3x-y-7z=1

18. Find the quadratic function defined by $f(x)=ax^2+bx+c$,if f(0)=6,f(2)=11 and f(-3)=6 using matrix.

19.sum of three numbers is 20.if we multiply the first by 2 and add second number and subtract the third we get 23.if we multiply the first by 3 and add second and third to it we get 46.find the numbers.

20.If A is of order 5x5 and |A|=1 .FIND |-A|.

ACTIVITIES: Do the following

Roll no.(1 to 20)

*Make a power point presentation on matrix and types of matrix .

*Write the definition of Determinant and show all the properties in a scrap file.

Roll no. 21 onwards

*How matrix /determinant is using in real life situation make a video presentation on it.

* write definition of Matrix and types of matrix in scrap file.

Do the following activities from lab manual:

Graph of an inverse Trigonometric Function.

Principal value of inverse Trigonometric Function.

Continuity and Discontinuity of a function at a point.

TYPOGRAPHY & COMPUTER APPLICATION

1. Learn chapters 1,2,3,4,5,7 of part-B and do written practice in separate holiday home work note book.
2. Create a practical file including following points :
1. Write a General letter and convert the letters into different styles as Indented style, blocked style, and semi –block style.
2. Write a memorandum to an employee of the institute for the confirmation of his/her job to the post of junior secretariat assistant (JSA).
3. Draft on office order for an employee for grant/sanction of earned leave for a period of 5 days.
4. Write a D.O (Demi-Official) letter from the principal of the school to directorate of education registering a complain of the staff member.
5. Draft on office note inviting the teachers of the school for an urgent assembly in the auditorium.
6. Practice of different passage with different manuscripts signs.
7. Create a PowerPoint presentation on any festival. (6-8 slides).
8. Create a PowerPoint presentation on any sports (6-8 slides).

9. Create a Student Worksheet for 10 students with Name, Roll no, Department, Marks. Calculate the Total, Percentage
10. Create a Student Worksheet for 10 students with Name, Roll no, Department, Marks. Calculate the Total and Grade If Total marks > 350 Grade A < 350 and > 200 Grade B < 200 Grade C
11. Create an Employee Worksheet with Basic Salary and calculate HRA, DA, Total Salary. HRA = 24% of Basic Salary DA = 35% of Basic Salary Total Salary = Basic Salary + HRA + DA
12. Create a Store Worksheet with Item number, Item name, Quantity, Price. Calculate the Amount. (Amount = Quantity*Price).
Note : After completion submit hardcopy of above practical work ,work should be compiled in single file

INFORMATICS PRACTICES

1. **Prepare hand written project file of PYTHON which contains following practicals :**
   a. At least 20 programs of PANDAS.
   b. At least two practicals of import /export CSV files .
   c. At least two practicals of matplotlib
   2. Read and learn PANDAS, Matplotlib and chapter-5(MYSQL) do practice of unsolved assignments in separate holiday homework notebook.
   3. Make a Power point presentation on attributes of Series and Dataframe

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