Open Test - 2075 (Magh)

Class: XI(Science)
Time: 3 Hrs

English

Attempt all these questions:

1. **Answer in brief for the following situations.**   **5**
    a. A friend can't decide What kind of car to buy. Recommend one and say why.
    b. You've got a nasty cut on your leg. A friend sees it and asks ' How did it happen? ' Till him.
    c. A friend suggests going to see a new movie at the cinema. Refuse giving a reason.
    d. A friend's got hiccups. Give her an advice.
    e. A friend asks you how long it us since you last had a holiday. What do you say?

2. **Write the remarks for the following as indicated in the bracket.**   **5**
    a. Shyam's lost his wallet. (Give him advice)
    b. You've missed the last bus home. (make request)
    c. It's time for your favorite program on TV. (ask for permission)
    d. your friend looks thirsty. (make an offer)
    e. Meat is getting so expensive. (Make a decision)

3. **Write comparative sentence for each of the people below either using 'than' or 'as …….as'.**   **5**
    a. Janet; play cards (quite often); play chess (not very often)
    b. Henry; dancing (every Saturday); cinema (three times a week)
    c. John; swimming (every day); jogging (twice a week)
    d. Maria; speaking English (good); playing the trumpet (useless)
    e. Allan; singing (not bad); playing the trumpet (useless)

4. **Write two sentences saying what happened (a) using when (b) using while as given in the example.**

Eg. Walk in the park | meet an old friend (I)
    ➢ I was walking in the park yesterday When I met an old friend.
    ➢ I met an old friend while I was walking in the park yesterday.
    a. find a £ 10 note / do the washing. (He)
    b. read a magazine / fall asleep. (I)
    c. lost consciousness / give the injection. (She)
    d. fell off the ladder / paint the ceiling. (He)
    e. go blank / watch the news. (The TV)

5. **Put the verbs in brackets into the correct form using 'Simple Present' or 'Present Participle'**
    a. I turned round and saw a snake (slither) towards me.
    b. I heard the bomb (explode) and felt the whole building (shake).
    c. I could hear a car (come) fast along the main road. I heard the driver (brake) hard.

6. **Write a short leter to a friend suggesting him What to do | not to do by giving reasons, as he|she is going through a very difficult situation at the moment.**   **5**

7. **Write a paragraph comparing the town a few years ago with the town now.**   **5**

8. **Answer any three for the following**   **5×3=15**
    a. How do you explain that concrete cat' as a concrete poem?
    b. Is unchopping a tree possible? Give your own viewpoint.
    c. What kinds of serious problems could a fuel shortage cause?
    d. Interpret the poem 'Keeping things Whole' as you like.
    e. Why is Phoenix taking the long trip to town? How does she feel about stealing the nickel that the hunter dropped?

Physics

(Mechanics)
Short Questions
1. What are the condition for stable equilibrium?
2. Define the moment of Inertia.

Long Questions

1. Derive the moment of Inertia of uniform one dimensional bar about the an axis passing from centre of bar and perpendicular to the length of bar. 4
2. What is rigid body? Establish the relation relation between moment of Inertia & torque. 4
3. Define elastic & inelastic collision. Show that in elastic collision in one dimension relative velocity of approach is equal to relative velocity of separation. 4
4. What is cold welding? Show that angle of repose and angle of friction are equal
5. A train of mass 2×10^5 KG moves at a constant speed of 72KM/hr up a straight inclined against friction force of 1.28×10^4 m. The inclined is such that train rises vertically 1.0 m for every 100 m travelled along the incline. Calculate the power developed by train. 4
6. If energy is neither nor destroyed. What happens to the energy spend against friction.

(Heat)

1. Show that, on the basis of the simple kinetic theory of gases, the pressure P of an ideal gas of density 'P' is given by $P = \frac{1}{3} pc^2$, where c^2 is the mean square speed of the molecules. Explain the assumptions you have made in deriving this formula. 4

2. From what height a block of ice be dropped in order that it may completely melt. It is assumed that 20% of energy of fall is retained by ice. (L=80 cal/g) 4

3. Helium gas occupies a volume of $0.04 m^3$ at pressure of 2×10^5 Nm^2 and the temperature 300 K. calculate the mass of the helium and root mean square speed of its molecules. (Relative Molecular mass of helium=4, molar mass=8.3 J mol^{-1} K^{-1} 4

(Optics & Electrostatics)

1. If a lens made of glass is immersed into water, what will happen to its power? 2

2. Why pointed ends are not kept in the electrostatics machine? 2

3. Derive lens maker formula and state sign convention for radius of curvature. 4

4. A luminous object and a screen are placed on an optical bench and a converging lens is placed between them to throw a sharp image of the object on the screen. The liner magnification of the image is found to be 2.5. the lens is now moved 30 cm nearer the screen and a sharp image now moved 30 cm nearer the screen and a sharp image again formed. Calculate the focal length of the lens. 4

Chemistry

1. Differentiate between flux and slag with example. 2

2. One mole of gas occupies a volume of 1 liter at 27°C. What will be the pressure of the gas? 2

3. Stage and explain Charles' law. How is Charles' law explained qualitatively in the light of kinetic theory of gas. 10

4. Calculate the oxidation number of underlined atoms 2

   a. $\underline{N}H_4NO_3$ b. $Na_2\underline{S_2}O_3$ c. MnO_4

5. What is meant by redox reaction? Balance the following equation by oxidation number method indicating oxidant and reductant. 7

   $KMno_4 + Hcl \rightarrow Kcl + Mncl_2$

6. What is Wurtz reaction. Explain with example 2

7. Give the IUPAC name of the following compound. 2

   $$\begin{array}{cc} O & O \\ \| & \| \end{array}$$
   a. $H - C - C - H$
   $$\begin{array}{cc} Br & Cl \\ | & | \end{array}$$
   b. $CH_3 - C = C - CHO$

8. List all the isotopes of hydrogen. Name the isotopes which does not contain neutron? 2

Botany

Very Short questions.
1. What is twisted aestivation?   1
2. What do you mean by epipetalous condition?
3. What do you mean by saturated fatty acid?
4. What is primary productivity?
5. Give an example of napiform root
6. What are climbers?
7. What is cymose inflorescence?
8. Draw the structure of a deoxyribose sugar
9. What is superior ovary?
10. What is axile placentation?
11. Give an example of a stolon?
12. What are fatty acids?

Long Question
1. Discuss the functional aspect of grassland ecosystem.
2. Describe the sexual reproduction of spirogyra.
3. Draw the DNA structure. Give the differences between DNA and RNA.
4. Describe various types of abiotic factors in an ecosystem.
5. Describe the family Solanaceae with semi technical terms. Or, Describe the types of adventitious root for food storage.

Short Question
1. Describe the types of lipids with examples.
2. Answer in brief on Composition of nucleotide.
3. Differentiate between DNA and RNA.
4. Describe the structure of DNA.
5. Discuss food chain? Explain the simple food chain in a grassland ecosystem.
6. Illustrate about competition.
7. Structure of spirogyra
8. Describe the type of placentation in angiosperms.
9. What is infloresame? Briefly discuss its types.
10. Describe the term genus and species with suitable examples.
11. Describe the characters of red and brown algae.
12. Draw well labelled diagram of a prokaryotic cell.

Long Question
1. Describe the structures and functions of any two major cytoplasmic organelles of eukaryotic cell.
2. Describe the Fluid Mosaic Model of plasma membrane.
3. Differentiate between Mitosis and Meiosis.

4. Define ecosystem. Describe the abiotic factors in a terrestrial ecosystem. Mention the flow of energy in the trophic level.
5. Give the description of Cruciferae in semi technical terms with floral formula and floral diagram.

Zoology

Long Question
1. Discuss the Neo-Darwinism along with drawbacks of theory of Natural relation.
2. What is digestion? Give an account on the digestive tract of pheretima a with suitable diagram.
3. Discuss the physiology of digestion in frog.
4. Write an essay on Lamarckism.

Short Question
1. Differentiate between Chondrichthyes and Osteichthyes.   3
2. Archaeopteryx is a connecting link between reptiles & birds, how?   3
3. Mention the criticism in Lamarckism.   3
4. Draw a neat & will libeled diagram of pharynx of earthworm (no description is required)   3
5. Write short note on teeth of frog.
6. Draw a well labelled diagram of T.S. of earthworm passing through typhlosole.   3
7. Describe histology of frog's liver.   3
8. Describe the histological structure of pancreas of frog.   3

Very short
1. What is meant by nuclear dimorphism?
2. In which group of animals, you find flame cells.
3. Mention the action of proteolytic enzyme in frog's stomach.
4. What is typhlosole?
5. What does it mean by histology?
6. Name the boring organ of earthworm.
7. Why blood becomes red in higher organisms?
8. What is exflagellation?
9. When are copulatory pads developed in frog?
10. Why paramecium never gets old?

Computer

1. What is operating system? Write its importance. Describe CUI and GUI based operating system with merits and demerits.   10
2. Define the term computer peripherals. Discuss about different types of printers with their merits and demerits.   10
3. What is computer architecture? Describe different units in computer system.   10
4. What is "BUS" in computer architecture? Explain.   5
5. Explain any five function of operating system.   5
6. Differentiate between primary and secondary memory.   5
7. Describe the terms: spooling and buffering.   5

Math

Group A

1. Write the converse and Contrapositive of the statement 'For a function to be integrable, it is sufficient that the function is continuous.
2. Find the domain of the function y=$\sqrt{x-2}$.
3. Find the distance between the two parallel lines y=2x+4 and 6x-3y=5.
4. The length of the perpendicular from the point (a,3) on the line 3x+4y+5=0 is 4, Find the value of 'a'.
5. Differentiate Sinx with respect to tanx.
6. Evaluate: $\int \cot x \, (\log, \sin x)^3 dx$

Group B

7. Solve the inequality |2x-1|≥5 and represent the solution set in the real line.
8. Let Q be the set of all rational numbers. Show that the function of. Q→Q such that $\int(x)=3x+5$ for all xϵ Q is one to one and onto. Find f^{-1}.
9. Find the equation of the straight line which passes through the point (a cos³θ, a sin³θ) and is perpendicular to the straight line x sec θ+y(usec θ =a is xcos θ-y sinθ=acos2θ
10. Find the bisectors of the angle between the lines a_2 x+b_2y+c_2=0.
11. Find from first principle, the derivative of sinGx.
12. Integrate $\int sec^3 x$ dx.

Group C

13. Solve x²-2x-3≥ 0. Also draw the graph of the inequality.
14. Define composite function of two functions f and g. Let f:R→R and g: R→R be two functions defined by f(x)=2x²-3 and g(x)=3x+2. Determine $f°g(x)$, $g°g(x)$. Is fog(x)=g°$g(x)$one to one.
15. The origin is a corner of a square and two of its sides are given by 2x+y=0 and 2x+y=3. Find the equation of other two sides.
16. Find, from the first principles, the derivative of sin²(3x-5)

The End