

CARMEL CONVENT SCHOOL, SECTOR 9B
FINAL EVALUATION
SCIENCE

Class: IX
Date: 03.03.25

Time Allowed: 3 hours
Maximum Marks: 80

BIOLOGY (27)

General Instructions:

- i. This question paper consists of 5 sections each.
- ii. All questions are compulsory.
- iii. Section A consists of objective type questions carrying 1 mark each.
- iv. Section B consists of Very Short questions carrying 02 marks each. Answers to these questions should be in the range of 30 to 50 words.
- v. Section C consists of Short Answer type questions carrying 03 marks each. Answers to these questions should be in the range of 50 to 80 words.
- vi. Section D consists of Long Answer type questions carrying 05 marks. Answers to this question should be in the range of 80 to 120 words.
- vii. Section E consists of a source-based/case-based unit of assessment of 04 marks each with sub-parts.

Section A (1 mark each)

1. Membrane biogenesis is the function of
 - a. Plasma Membrane
 - b. Ribosomes
 - c. Endoplasmic Reticulum
 - d. Golgi Apparatus

2. The chemical secreted by cork cells is
 - a. Suberin
 - b. Maltose
 - c. Glycogen
 - d. cutin

3. The incorrect statement among the following is:
 - a. Parenchymatous tissue lacks intercellular spaces.
 - b. Collenchymatous tissue lies in leaf stalks
 - c. Meristematic tissue contain vacuoles at early stage
 - d. Apical and intercalary tissues help in growth

4. Which of the following tissues does not have matrix:
 - a. Epithelial Tissue
 - b. cartilage Tissue
 - c. Ligament Tissue
 - d. Bone

5. Brackish water is not found in
 - a) estuaries
 - b) rivers
 - c) lagoons
 - d) swamp

DIRECTION: In each of the following questions, a statement of Assertion is given followed by a corresponding statement of Reason just below it. Of the statements, mark the correct answer as

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

6. Assertion (A): A living cell swells in a hypotonic solution.
Reason (R): Hypotonic solution is more concentrated than the cell.
7. Assertion: The inner lining of the intestine has tall epithelial cells.
Reason: Columnar epithelium facilitates absorption and secretion.
8. Assertion: Meiosis maintains the genetic similarity of cells.
Reason: Chromosomes undergo crossing over.

Section B (2 marks each)

9. Differentiate between the three types of muscular tissues. (4 points)

OR

Differentiate between mitosis and meiosis (4 points)

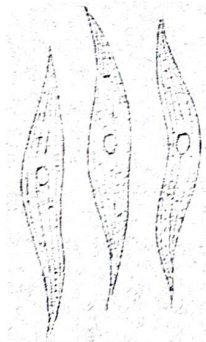
10. What is the limitation of Composite fish farming? How is it overcome?

Section C (3 marks each)

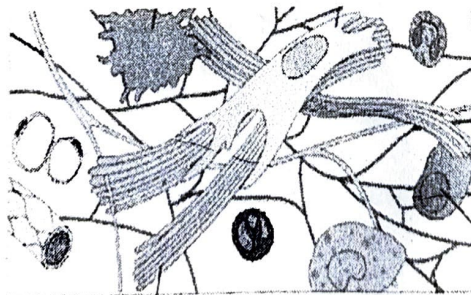
11. Name the cell organelle that performs the following function:

- a. Respiration - *mito*
- b. Formation of complex sugars from simple sugars - *gol*
- c. Photosynthesis - *plastid*

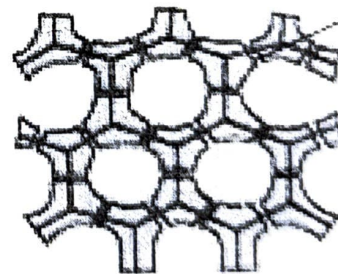
12. Identify the tissue given below and give one function of each.



A



B



C

Section D (5 marks)

- 13.
- a. Draw a neat and well labelled diagram of the Plant cell.
 - b. How is it different from a prokaryotic cell? (3 +2)

- 3 Identify the isotopes among $^{35}_{17}\text{A}$, $^{40}_{20}\text{B}$, $^{37}_{17}\text{C}$, $^{40}_{18}\text{D}$.
(a) $^{35}_{17}\text{A}$ and $^{40}_{20}\text{B}$ (b) $^{40}_{20}\text{B}$ and $^{40}_{18}\text{D}$
(c) $^{35}_{17}\text{A}$ and $^{37}_{17}\text{C}$ (d) None of these

- 4 The percentage of oxygen in CH_4O is
(a) 60% (b) 40%
(c) 30% (d) 50%

In the following Questions, the Assertion (A) and Reason(R) have been put forward. Read both the statements carefully and choose the correct alternative from the following. (1x4)

- (a) Both the Assertion and the Reason are correct and the Reason is the correct explanation of the Assertion;
(b) The assertion and the Reason are correct but the Reason is not the correct explanation of the Assertion.
(c) Assertion is true but the Reason is false.
(d) The statement of the Assertion is false but the Reason is true.

- 5 Assertion: Path of light is not visible in a solution. Δ
Reason: Particles of solution do not scatter light due to very small size.

- 6 Assertion: Atom is electrically neutral. \downarrow
Reason: A neutral particle, neutron is present in the nucleus of atom.

- 7 Assertion: Ions are always positively charged. Δ
Reason: Ions are formed by losing or gaining of electrons.

- 8 Assertion. A saturated solution becomes unsaturated upon heating.
Reason: More of solute dissolves in the solvent upon heating. Δ

- 9 Design an experiment with diagram to show sublimation of Ammonium chloride. (1 x 2)

- 10 An ion X^{2+} contains 18 electrons and 20 neutrons. Calculate the atomic number and mass number of element X. Name the element. (1x 2)

- 11 Write the chemical formula of the following compound. (1 x 2)
(a) Ammonium Sulphate (b) Magnesium hydrogen carbonate.

- 12 Define solubility. How much water should be mixed with 12ml of alcohol so as to obtain 12% alcohol solution? (1 x 3)

- 13 (a) List any two Bohr-Bury rules for distribution of electrons in different Shells. (1 x3)
(b) Differentiate between 2H and H_2 .

- 14 An element 'Z' forms the following compound when it reacts with hydrogen, chlorine, oxygen and phosphorous. (1 x 3)
 ZH_3 , ZCl_3 , Z_2O_3 and ZP

Section E Case Study based (4 marks)

In India there has been four times increase in the production of food grains from 1952 to 2010 with only 25% increase in the cultivable land area. This increase in production has been achieved through the practices involved in farming, classified as Crop variety improvement, Crop production improvement & Crop protection management. Since time immemorial, animals have been an integral part of our food. They have been used to obtain food like milk, eggs, meat, honey etc. Other than the food, we use them even for some basic requirements like wool, silk, labour, etc. Animal husbandry is the management of various animals with the goal of enhancing the quantity and quality of the produce. For this reason, high-yielding and disease-resistant breeds are developed.

Answer the following Questions:

14. Choose the incorrect option in the following:

- i. *Apis cerana indica* stings less
- ii. *Apis dorsata* is the Rock bee
- iii. *Apis mellifera* stays long in the beehive
- iv. *Apis cerana* is the Italian bee

a. i & iii

c. i & iv

b. ii & iii

d. ii & iv

15. Which of the following elements do not come under the category of macronutrients?

a. Phosphorous

c. Magnesium

b. Manganese

d. Nitrogen

16. Growing, rearing, and then capturing of fish in freshwater is called:

a. Marine culture ✗

b. Inland fisheries

c. Aquaculture ✗

d. Composite farming

17. Crop production management includes

a. Cropping Patterns, developing disease resistance varieties, Nutrient management. ✗

b. Irrigation, Hybridization, Nutrient management. ✗

c. Hybridization, developing disease resistance varieties, Cropping Patterns ✗

d. Cropping Patterns, Irrigation, Nutrient management. ✗

CHEMISTRY (27)

1 Which of the following substances has strongest inter-molecular forces? (1x4=4)

(a) water

(b) carbon dioxide

(c) sodium chloride

(d) none of these

2 Smoke is an example of

(a) Compound

(b) Solution

(c) Aerosol

(d) None of these

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- (I) What is the valency of element 'Z'?
- (II) Element 'Z' is a metal or a non-metal?
- (III) Give one example of poly atomic cation and poly atomic anion?

15 Read the following and answer the questions.

Atoms are electrically neutral due to equal number of electrons and protons. Atomic number is equal to number of protons and also equal to number of electrons in neutral atom. Electrons revolve around nucleus in fixed path called orbits, with specific energy, therefore called energy levels in which electrons do not radiate energy when they revolve in same energy level. Number of neutrons are equal to mass number- atomic number. (1 x 4)

- (i) Which of the following containing maximum number of neutrons?
- (a) Aluminium (b) Nitrogen
(c) Oxygen (d) Calcium
- (ii) Which of the following is correct electronic configuration of K(19)?
- (a) 2,8,9 (b) 2,9,8
(c) 2,8,8,1 (d) 1,8,8,2
- (iii) Which of the following goes on increasing from Lithium (3) to Ne(10)?
- (a) Electrons (b) Protons
(c) Atomic Number (d) All of these
- (iv) The formula of chloride and oxide of silicon respectively
- (a) SiCl_2 , SiO_2 (b) SiCl_4 , SiO_2
(c) SiCl_3 , SiO_2 (d) SiCl_4 , SiO_3

PHYSICS (MM:26)

MCQ

(1x4)

- 1 A body is thrown vertically upward with velocity u , the greatest height to which it will rise is
- (a) U/g (b) $u^2/2g$ (c) u^2/g (d) $u/2g$
- 2 Inertia
- (a) sets objects in motion
(b) causes changes in motion
(c) is the result of a net force
(d) is directly proportional to the mass of an object
- 3 An object of mass 2kg is sliding with a constant velocity of 4ms^{-1} on a frictional horizontal table. The force required to keep the object moving with same velocity is
- (a) 2N (b) 8N (c) 32N (d) 0N
- 4 A force 20N acts on a body of mass 10kg for 10s. Change in momentum is
- (a) 5kg m/s (b) 100kg m/s
(c) 200kg m/s (d) 1000kg m/s

The following question consists of two statements- Assertion(A) and Reason (R). Answer these questions by selecting the appropriate option given below:

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

(b) Both A and R are true and R is not the correct explanation of A.

(c) A is true but R is false.

(d) A is false but R is correct.

(1 x 4)

5 Assertion (A) : When the force retards the motion of a body, the work done is positive.
Reason (R) : Work done depends on angle between force and displacement α

6 Assertion(A): To hear a distinct echo the time interval between the original sound and the reflected one must be at least 0.1s.

Reason (R) : The sensation of sound persists in our brain for about 0.1s α

7 Assertion(A): An object can have constant speed but variable velocity. α

Reason(R): Velocity change due to change in direction, though speed is same.

8 Assertion(A): the value of acceleration due to gravity does not depend upon mass of the body.

Reason(R): Acceleration due to gravity is a constant quantity. α

9 State Newton's second law of motion. Deduce Newton's first law from the second law? (2)

10 (a) Derive the relationship between wave velocity, wavelength and frequency of sound.

(b) A boat at anchor is rocked by waves whose crests are 100m apart and whose speed is 25m/s.

After what interval these waves reach the boat?

(3)

11 (a) What is power?

(a) The power of a motor pump is 2kW. How much water per minute can the pump raise to a height of 10m? (Given $g=10\text{ms}^{-2}$).

(3)

12 (a) State the universal law of gravitation.

(b) A stone is allowed to fall from a tower 20m high and at the same time another stone is projected vertically upwards from the ground with a velocity of 20m/s. Calculate when and where the two stones will meet.

(3)

13 (a) Name the physical quantity obtained from area under speed - time graph. Also state its SI Unit.

(b) Navin travels along a straight road 500m long and returns back 100m. Find his average speed and average velocity if he takes a time of half an hour.

(3)

14. Read the following and answer the question. (1x4)

Action and reaction forces are equal and opposite to each other. But they may not produce acceleration of equal magnitudes in both objects. Action and reaction forces do not act on the same object. For example, while playing the game of football, two players collide with each other, they both get hurt as each player applies equal and opposite force on each other.

(i) The incorrect option regarding action-reaction pair is

(a) They are equal and opposite

(b) They act on two different bodies

- (c) They act only between bodies in contact
- (d) Their sum on/by a body is zero

(ii) Which of the following is explained by Newton's third law of motion?

- (a) Rocket propulsion
- (b) Recoil of gun
- (c) Walking on road
- (d) All of these

(iii) The water sprinkler in a field starts to rotate as water oozes out of it due to the reaction force of

- (a) ground
- (b) water
- (c) sprinkler
- (d) gardener

(iv) The acceleration produced in a gun after recoil is smaller than that produced in a bullet because

- (a) its mass is more
- (b) action and reaction forces should be equal and opposite.
- (c) both (a) and (b)
- (d) action and reaction forces cancel each other.

END