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**DAV PUBLIC SCHOOLS, ODISHA ZONE
HALF YEARLY EXAMINATION, 2023-24**

- Please check that this question paper contains **7** printed pages.
- Check that this question paper contains **33** questions.
- Write down the Serial Number of the question in the left side of the margin before attempting it.
- 15 minutes time has been allotted to read this question paper. The question paper will be distributed 15 minutes prior to the commencement of the examination. The students will read the question paper only and will not write any answer on the answer script during this period.

CLASS- XI

SUB: BIOLOGY (044)

Time Allowed: 3 Hours

Maximum Marks: 70

General Instructions:

- (i) All questions are compulsory.
- (ii) The question paper has five sections and 33 questions.
- (iii) Section-A has 16 questions of 1 mark each, Section-B has 5 questions of 2 marks each, Section-C has 7 questions of 3 marks each, Section-D has 2 case-based questions of 4 marks each, and Section-E has 3 questions of 5 marks each.
- (iv) There is no overall choice. However, internal choices have been provided in some questions. A student has to attempt only one of the alternatives in such questions.
- (v) Wherever necessary, neat and properly labelled diagrams should be drawn.

SECTION-A

1. In the classification of animals the taxonomic unit phylum, is equivalent to which hierarchical level in the classification of plants? 1
(a) Class (b) Order (c) Family (d) Division.
2. Fungi can be distinguished from algae because of it's _____. 1
(a) Chitinous cell wall and presence of chloroplast
(b) Cellulosic cell wall and presence of chloroplast
(c) Chitinous cell wall and absence of chloroplast
(d) Cellulosic cell wall and absence of chloroplast
3. Name the kingdom to which Archaea and Nitrogen-fixing organisms belong. 1
(a) Animalia (b) Plantae (c) Monera (d) Fungi

4. In pteridophytes, reduction division occurs during: 1
 (a) Spore formation (b) Gamete formation
 (c) Sporophyte formation (d) Gametophyte formation.
5. Identify the set of animals that belongs to a single taxonomic group. 1
 (a) Cuttlefish, Jellyfish, Starfish
 (b) Bat, Pigeon, Butterfly
 (c) Monkey, Chimpanzee, Man
 (d) Silkworm, Tapeworm, Earthworm
6. Casparian strips occur in _____. 1
 (a) Cortex (b) Endodermis (c) Epidermis (d) Pericycle
7. Palisade parenchyma is absent in leaves of _____ plant. 1
 (a) Sorghum (b) Soya bean (c) Gram (d) Mustard
8. Female frog lacks which one of the following characteristic? 1
 (a) Webbed feet (b) Copulatory pad (c) Tympanum (d) Nictitating membrane
9. The Golgi Complex and rough ER are often near each other, that is essential for their roles in the endomembrane system. Select the correct statement that justify it. 1
 (a) The Golgi complex uses enzymes to digest misfolded proteins that are produced in the rough ER.
 (b) The Golgi complex translates proteins using instructions provided by rough ER.
 (c) The Golgi complex modifies lipids that have been produced by the rough ER.
 (d) The Golgi complex modifies and packages proteins that are produced in the rough ER.
10. Choose the correct statement. 1
 (a) Cellulose is a monosaccharide. (b) Inulin is a polymer of fructose.
 (c) Cellulose is a heteropolymer. (d) Starch is a heteropolymer.
11. Haemoglobin has _____ structure of protein. 1
 (a) Primary (b) Secondary
 (c) Tertiary (d) Quaternary
12. Select the correct option from the following that does not take place in G₁ phase of the cell cycle. 1
 (a) DNA synthesis (b) Duplication of centriole (c) Growth of cell (d) Both a and b
- Question no. 13 to 16 consists of two statements- **Assertion (A)** and **Reason(R)**.
 Answer these questions selecting the appropriate option given below:
 (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) **Assertion** is false but **Reason** is true.
13. **Assertion: (A)** *Mycoplasma* are often called as PPLO (Pleuro pneumonia like organisms) 1
Reason: (R) They are the simplest unicellular prokaryotes.
14. **Assertion: (A)** Calyx and corolla in a flower are accessory whorls. 1
Reason: (R) They protect the reproductive whorl during bud stage.

15. **Assertion: (A)** The flowers of guava and cucumber are epigynous. 1
Reason: (R) In the flowers of guava and cucumber the ovary is above all other whorls and is superior.
16. **Assertion: (A)** Ribosomes are non-membrane bound cell organelles found in both eukaryotic and prokaryotic cells.
Reason: (R) These are present only in the cytoplasm. 1

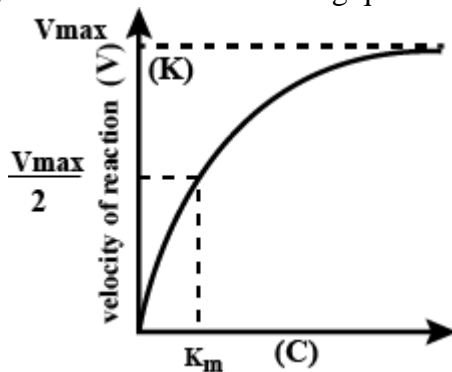
SECTION B

17. Mention the name of the scientists associated with the discovery of Viroid and Tobacco mosaic virus. Viroid is different from that of the virus in terms of protein coat. Justify. 2
18. Ascomycetes are of great benefit to mankind. Mention any four beneficial aspects of it. 2

OR

Draw a diagram of Funaria showing gametophyte and sporophyte.

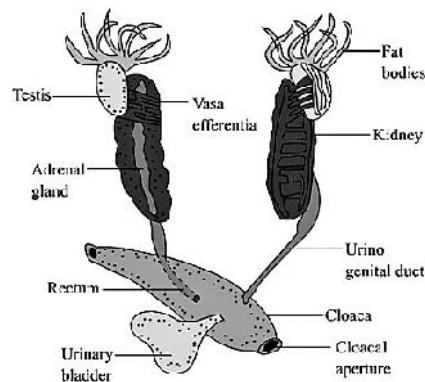
19. Study the graph given below showing the effect of substrate concentration [S] on enzyme activity and answer the following questions: 2



- a. Explain the effect of substrate concentration on enzyme activity.
b. Mention the effects of low temperature and high temperature on enzyme activity.
20. Find out the number of the chromosomes of a Human cell, in the following stages of cell division. 2
a. Anaphase I b. At the end of Telophase I c. Anaphase II d. Metaphase I
21. Define cytokinesis. How does cytokinesis in plant cell differs from that of animal cell ? 2

SECTION C

22. a. Euglenoids differ from Dinoflagellates on the basis of cell wall and flagella. Provide suitable evidence. 3
b. Enumerate the process of ingestion of food in ciliated protozoans.
23. Name the excretory organs of different animals given below: 3
a. Balanoglossus b. Leech c. Locust d. Liver fluke e. Pila f. Labeo
24. A family of plants include tomato, brinjal and potato. 3
i. Name the family.
ii. Write the floral formula of the family.
iii. Draw the floral diagram of the family.

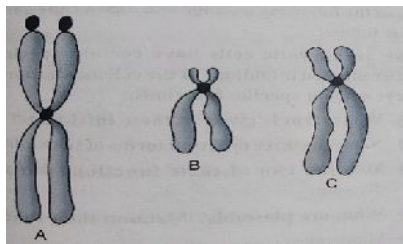


Study the above diagram and answer the followings:

- Mention the structure that adheres the testes to the upper part of kidney.
- The ureters in a male frog called urino-genital ducts. Give reason.
- From where do the vasa efferentia arise and where do they open on entering the kidney?

26.

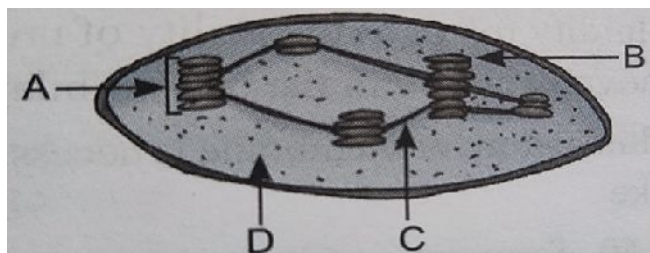
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Three types of chromosomes are shown in the figure given above. Answer the following questions:

- Identify and name the types of chromosomes A, B and C
- State the basis of such classification of chromosomes.
- Define the term kinetochores ?

OR



The diagram of chloroplast is given above. Answer the following questions:

- Name A, B, C and D as shown in the diagram.
 - Name the structures present in D and also in mitochondria, which are required for the synthesis of proteins.
27. Co-factors are essential for making the enzyme catalytically active.
- Find the difference between the co-factors : prosthetic groups and co-enzymes.
 - Name the type of enzymes that catalyse the following :
 - Hydrolysis of ether
 - Joining of C-O

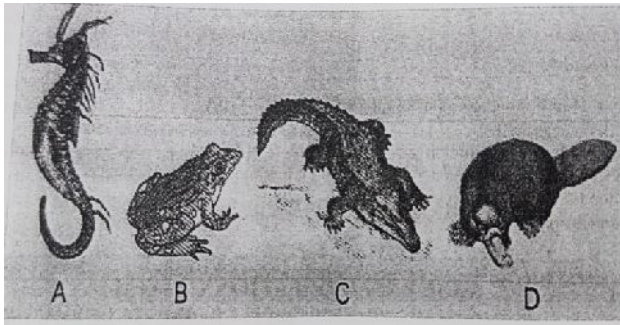
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28. Mention the phases of meiosis in which the followings are formed . 3
- | | |
|-------------------------------------|---------------------------------|
| a. Synaptonemal complex | b. Recombination nodules |
| c. Appearance of enzyme recombinase | d. Terminalization of Chiasmata |
| e. Formation of Chiasmata | f. Formation of tetrad. |

SECTION D

Q29 and Q30 are case based questions. Each question has sub parts with internal choice in one sub part.

29. 4



Observe the pictures of some vertebrates given above and answer the following questions:

- i. Identify the animals with

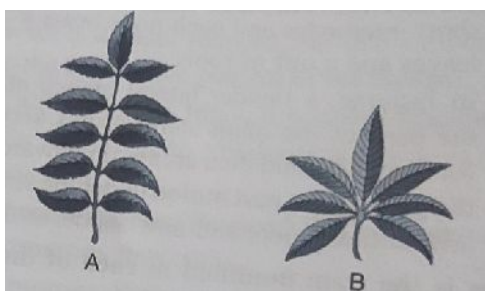
a. Two chambered heart.	b. Four chambered heart.
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- ii. Identify among them that show(s) external fertilization.
- iii. Select one animal from the above pictures that shows:

a. Direct development.	b. Indirect development.
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- iv. 'B' differs from 'C' in its external morphology. Justify.

OR

Poikilothermous differs from homoithermous. Give reasons.

30. Two types of compound leaves are shown below. 4

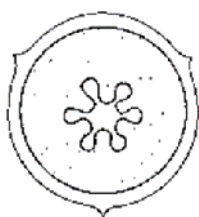


- a. Identify the types of compound leaves in the figure A and B.
- b. Give an example of each type.
- c. Find out the difference between 'A' and 'B' ?
- d. Alstonia shows whorled type of phyllotaxy. Justify.

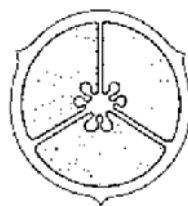
OR

Name the kind of phyllotaxy in

- | | |
|------------|---------------|
| a. Mustard | b. Calotropis |
|------------|---------------|



(a)

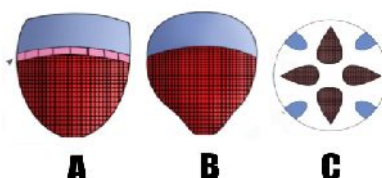


(b)

- i. Observe the given figures and identify the type of placentation.
- ii. Mango and coconut both come under the drupe type of fruit, but they differ in their mesocarp structure. Mention the difference.
- iii. Draw a neat diagram of monocot seed and label the following parts:
 - a. Outer covering of endosperm
 - b. Enclosing sheath of plumule
 - c. Protective sheath of radicle
 - d. Outer covering of the seed

OR

Observe the diagram given below and answer the following questions :



- a. Identify the three types of vascular bundles, A, B and C shown above. Name the type of plants where these types of vascular bundles are found.
 - b. Out of the three which one contributes for the secondary growth? Justify your answer.
 - c. Name the layer of cells that surrounds the vascular bundles of dorsiventral leaf. Mention the type of vascular bundle found in the leaf.
33. a. On the chemical analysis of the plants, fungal and microbial cells, we would see thousands of compounds like alkaloids, flavonoids, rubber, gums, spices etc. Many of them are useful to human welfare. Give two examples of useful drugs from the above mentioned organisms.
- b. State the function of GLUT-4 ?
 - c. Draw the structure of an amino acid containing hydroxyl methyl group.
 - d. The Sugar component of RNA is different from that of DNA. Explain.
 - e. Lipid has a molecular weight of around 800 Daltons, still they come under acid insoluble fraction. Why ?

OR

Read the following passage and answer the following questions :

The improved model of the structure of the cell membrane proposed by Singer and Nicolson (1972) is called fluid mosaic model. The fluid nature of the membrane is important from the point of view of certain functions.

- a. Explain the meaning of fluidity of the membrane.
- b. 'The fluid nature of the membrane is necessary'. Mention any four significance of it
- c. Give the labelled diagram of fluid mosaic model of plasma membrane.
