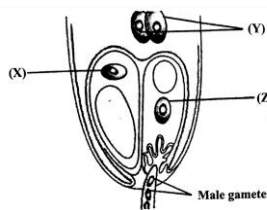


General instructions:

- (i) The question paper has five sections and 10 questions. All questions are compulsory.
- (ii) Section–A has 6 questions of 1 mark each; Section–B has 1 question of 2 marks; Section– C has 1 question of 3 marks; Section– D has 1 case-based questions of 4 marks; and Section–E has 1 questions of 5 marks.
- (iii) 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.
- (iv) Wherever necessary, neat and properly labeled diagrams should be drawn.

SECTION – A

| Q. No. | Questions | Marks |
|---|--|-------|
| 1. | An anther is made up of the following major parts: theca and sporangia. The theca are cavities in which sporangia develop. Which of the following types of anther structure can develop into a tetrasporangiate anther? a) filamentous b) monothealous c) dithealous d) unlobed | 1 |
| 2. | The given figure of an egg apparatus of an angiosperm shows the entry of pollen tube for releasing the two male gametes. Which of the two from 'X', 'Y' and 'Z', the two male gametes fuse with: a) X and Z b) X and Y c) Y and Z d) Z and Z | 1 |
| 3. | Transplantation of tissues/organ to save certain patients often fails due to rejection of such tissues/organs by the patient. Which type of immune response is responsible for such rejections? a) auto-immune response b) humoral immune response c) physiological immune response d) cell-mediated immune response | 1 |
| 4. | Many diseases can be diagnosed by observing the symptoms in the patient. Which group of symptoms are indicative of pneumonia? a) difficulty in respiration, fever, chills, cough, headache b) blood clots, abdominal pain, cramps, constipation c) cough, nasal congestion and discharge, constipation, headache d) high fever, weakness, stomach pain, loss of appetite, diarrhea | 1 |
| <p>Question No. 5 and 6 consist of two statements – Assertion (A) and Reason (R). Answer these questions 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 true</p> | | |
| 5. | Assertion: Second infection of the same pathogen is quickly eliminated. Reason: Preformed memory B and T-cells elicit a quick and vigorous attack on pathogens. | 1 |
| 6. | Assertion: Seeds of beet and black pepper have perisperm, which is not found in pea seeds. Reason: Perisperm and endosperm have the same function. | 1 |
| SECTION – B | | |
| 7. | How is a cancerous cell different from a normal cell? | 2 |



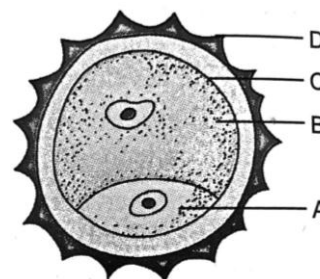
SECTION – C

| | | |
|----|---|---|
| 8. | ‘Fertilisation is not an obligatory event for fruit production in certain plants’. Explain the statement. | 3 |
|----|---|---|

SECTION – D

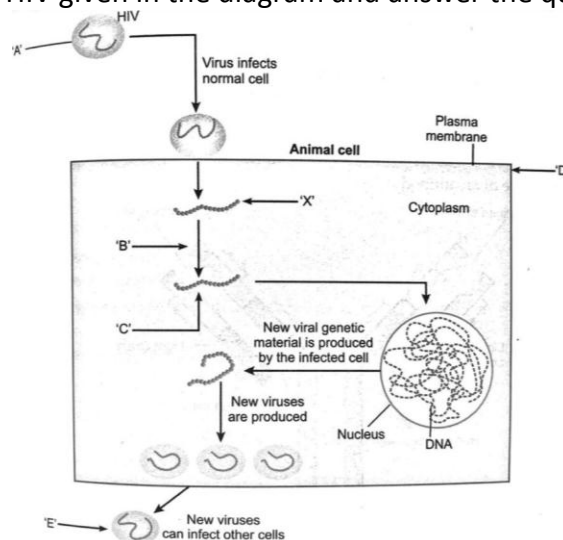
Read the following passage and answer the questions that follow:

| | | |
|----|--|---|
| 9. | <p>The pollen grains represent the partially developed male gametophyte of angiosperms. They show an amazing variety of architecture, when observed under a microscope. They are generally spherical and measure about 25-50 micrometers in diameter. Each pollen grain has a prominent two-layered wall. Pollen grains are well-preserved as fossils.</p> <p>(a) How many cells are present in a pollen grain, at the time of release from the anther? Name them.</p> <p>(b) What are germ pores?</p> <p>(c) Refer to the figure given and match the parts (with their names) labeled with their characteristics mentioned.</p> <p>(i) It is made of highly-resistant organic material.</p> <p>(ii) It is spindle-shaped in outline and has dense cytoplasm with a prominent nucleus.</p> <p align="center">OR</p> <p>(i) It has vacuolated cytoplasm and an irregularly-shaped nucleus.</p> <p>(ii) It is made of pectin and cellulose.</p> | 4 |
|----|--|---|



SECTION – E

| | | |
|-----|--|---|
| 10. | Observe the life cycle of HIV given in the diagram and answer the questions below. | 5 |
|-----|--|---|

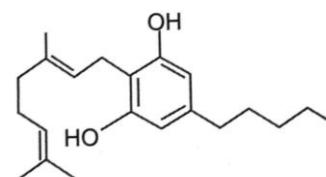


- (a) Name the enzyme ‘B’ acting on ‘X’ to produce molecule ‘C’. Name ‘C’.
- (b) Name the group of viruses responsible for causing AIDS in humans. Why are these viruses so named?
- (c) List any two ways of transmission of HIV infection in humans, other than sexual contact.

OR

The outline structure of a drug is given below:

- (a) Which group of drugs does this represent? Name the organ system of the body which is affected by consumption of these drugs.



- (b) Why do sports persons often fall a victim to cocaine addiction?
- (c) Mention the useful as well as the harmful drug obtained from the latex of Poppy plant.

SECTION – B

| | | |
|----|---|---|
| 7. | How is a cancerous cell different from a normal cell? | 2 |
|----|---|---|

SECTION – C

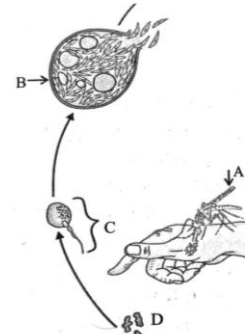
| | | |
|----|---|---|
| 8. | ‘Fertilisation is not an obligatory event for fruit production in certain plants’. Explain the statement. | 3 |
|----|---|---|

SECTION – D

Read the following passage and answer the questions that follow:

| | | |
|----|---|---|
| 9. | <p>Malaria is a disease, man has been fighting since many decades. It is caused by a protozoan, called <i>Plasmodium</i>. The different species of <i>Plasmodium</i> like <i>P. falciparum</i>, <i>P. ovale</i>, <i>P. malariae</i> and <i>P. vivax</i> cause different types of malaria. The malarial parasite requires two hosts humans and mosquitoes, to complete its life cycle. Study the part of the life cycle of the malarial parasite shown in the diagram.</p> | 4 |
|----|---|---|

- (a) Name the stage ‘D’ of the parasite that the vector picks up from the human body. In which cells of the human body this stage develops?
- (b) What does ‘C’ represent and where does it take place?
- (c) Identify the organ ‘B’ and the cells being released from it.

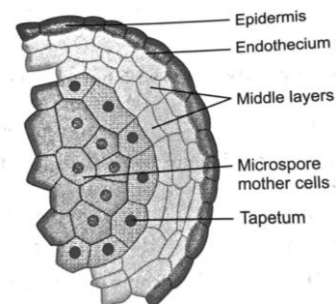


- OR**
- (c) Name the most serious form of malaria and its causative agent.

SECTION – E

| | | |
|-----|---|---|
| 10. | <p>Observe the diagram of microsporangium of a mature anther given below. Answer the questions that follow:</p> | 5 |
|-----|---|---|

- (a) Mention the characteristics and function of the cells forming the tapetum.
- (b) An anther with malfunctioning tapetum often fails to produce viable male gametophytes. Give one reason.
- (c) The meiocyte of rice has 24 chromosomes. How many chromosomes are present in its endosperm?
- (d) If the stamens are well exposed, usually which mode of pollination the plant is expected to follow?



OR

The picture given shows a *Commelina* plant, bearing two types of bisexual flowers, an adaptation for assured seed and genetic variation in progeny.

- (a) Name the type of flower A and the type(s) of pollination that can occur in it.
- (b) Name the type of flower B and the type(s) of pollination that can occur in it.
- (c) Name the two other plant species, which also produce these two types of flowers on the same plant.
- (d) Which of the two types of flowers A and B will show (i) assured seed set and (ii) genetic variation in the progeny, respectively.

