RASHTRIYA MILITARY SCHOOL BENGALURU

CHAPTER WISE TEST : CHAPTER 1

Class 12 - Biology

Time Allowed: 2 hours **Maximum Marks: 70**

General Instructions:

ATTEMPT ALL QUESTIONS

Section A

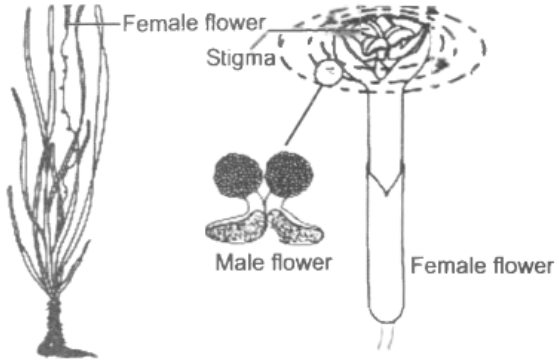
1. Caruncle is derived from: **[1]**

   a) None of these
   b) Integument
   c) Peduncle
   d) Cotyledons

2. Pollination by wind is called: **[1]**

   a) Anemophily
   b) Autogamy
   c) Geitonogamy
   d) None of these

3. The figure is given below showing hydrophily in: **[1]**



   a) Lotus
   b) Zostera
   c) Vallisneria
   d) All of these

4. Parachute mechanism is found in: **[1]**

   a) None of these
   b) Solanaceae
   c) Cruciferae
   d) Compositae

5. In which one of the following plants water is not necessary for the act of fertilization? **[1]**

   a) Vallisneria
   b) Fem
   c) Coconut
   d) Moss

6. Development and formation of pollen grains in anther are started with: **[1]**

   a) Formation of pollen sac
   b) Megasporogenesis
   c) Microsporogenesis
   d) All of these

7. When the filament runs along the back of anther, it is called: **[1]**

   a) Longitudinal
   b) Syngenecious

c) Versatile
d) Adnate

8. Polyembryony commonly occurs in: **[1]**

a) Citrus
b) Both Citrus and Mango
c) Tomato
d) Mango

9. Seeds are called products of sexual reproduction because they: **[1]**

a) Can be stored for longer time
b) Are formed by fusion of pollen tubes
c) Give rise to new plant
d) Are formed by fusion of gamete

10. Pollinia are found in which of the following plant family? **[1]**

a) Malvaceae
b) Myrtaceae
c) Asteraceae
d) Asclepiadaceae

11. How many microspore mother cells will give rise to 256 microspores after reduction division? **[1]**

a) 96
b) 512
c) 64
d) 128

12. How many number(s) of seed present in each fruit of maize? **[1]**

a) Many
b) One
c) Two
d) Both two and many

Section B

13. **Assertion (A):** Stigma promotes pollen germination. **[1]**
Reason (R): They provide them water exudate.

a) Both A and R are true and R is the correct explanation of A.
b) Both A and R are true but R is not the correct explanation of A.
c) A is true but R is false.
d) A is false but R is true.

14. **Assertion (A):** All insect-pollinated flowers are cross-pollinated. **[1]**
Reason (R): Okra is a self-pollinated plant.

a) Both A and R are true and R is the correct explanation of A.
b) Both A and R are true but R is not the correct explanation of A.
c) A is true but R is false.
d) A is false but R is true.

15. **Assertion (A):** Pollen grain reaches directly to the egg, which is seated deep in the ovarian cavity. **[1]**
Reason (R): To effect fertilization, the pollen grains germinate on the stigma.

a) Both A and R are true and R is the correct explanation of A.
b) Both A and R are true but R is not the correct explanation of A.
c) A is true but R is false.
d) A is false but R is true.

16. **Assertion (A):** Composite endosperm is formed in Loranthaceace. **[1]**
Reason (R): In Loranthaceace, there is no true ovule.

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

c) A is true but R is false.

d) A is false but R is true.

17. **Assertion (A):** In angiosperms, the first fertilization is called syngamy. **[1]**

Reason (R): Second fertilization is called vegetative fertilization.

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

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

c) A is true but R is false.

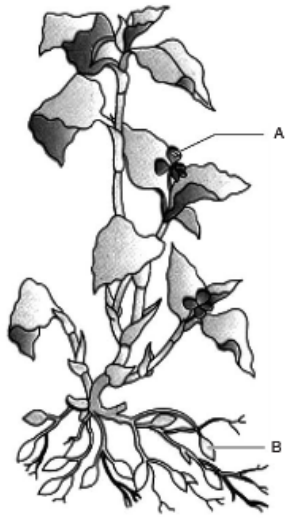
d) A is false but R is true.

Section C

18. The generative cell of a 2-celled pollen divides in the pollen tube but not in a 3-celled pollen. Give reasons. **[2]**

19. A bilobed, dithecus anther has 100 microspore mother calls per micro sporangium. How many male gametophytes this anther can produce? **[2]**

20. Identify the types of flower shown in A and B. Which out of the two will produce an assured seed set. **[2]**



21. What is pollination? Name the different agencies of pollination. **[2]**

22. Normally one embryo develops in one seed but when an orange seed is squeezed many embryos of different shapes and sizes are seen. Mention how it has happened? **[2]**

23. Why is fertilization in an angiosperm referred to as double fertilization? Mention the ploidy of the cells involved. **[3]**

24. When and where do tapetum and synergids develop in flowering plants? Mention their functions. **[3]**

25. Explain the following giving reasons: **[3]**

(i) Pollen grains are well preserved as fossils.

(ii) Pollen tablets are in use by people these days.

26. Where are the following structures present in a male gametophyte of an angiosperm? Mention the function of each one of them. **[3]**

a. Germ pore

b. Sporopollenin

c. Generative cell

27. i. Why is tender coconut considered as a healthy source of nutrition? **[3]**

ii. How are pea seeds different from castor seeds with respect to endosperm?

28. Describe the process of megasporogenesis in angiosperms until 8 nucleate stage. **[5]**

OR

Draw a diagrammatic sketch of a dicot embryo and label any four parts including the reduced suspensor.

29. Differentiate between: **[5]**

a. hypocotyol and epicotyl

b. coleoptile and coleorrhiza

c. integument and testa

d. perisperm and pericarp

30. Draw a vertical section of maize grain label any three embryonic and three other parts. **[5]**

OR

A flower of the brinjal plant following the process of sexual reproduction produces 360 viable seeds.

Answer the following questions giving reasons.

i. How many ovules are minimally involved?

ii. How many megaspore mother cells are involved?

iii. What is the minimum number of pollen grains that must land on stigma for pollination? **OR**

iv. How many male gametes are involved in the above case?

31. Describe the germination of pollen grain up to the formation of male gametophyte. **[5]**

OR

Describe the structure of mature angiospermic pollen grain. Mention one difference between the pollen of dicot and monocot.

Section D

32. **Read the following and answer any four questions:** **[4]**

The pollen grains or microspores are the male reproductive bodies of a flower and are contained in the pollen sac or microsporangia. Each pollen grain consists of a single microscopic cell, possessing two coats: the exine and the intine. The exine of a pollen grain is made of chemically stable material. Because of this, pollen grains are often very well preserved for thousands of years in soil and sediments.

i. One of the most resistant biological material present in the exine of pollen grain is

a. pectocellulose

b. sporopollenin

c. suberin

d. cellulose.

ii. The exine possesses one or more thin places known as

a. raphe

b. germ pores

c. hilum

d. endothecium.

iii. What is the function of germ pore?

a. Emergence of radicle

b. Absorption of water for seed germination

c. Initiation of pollen tube

d. All of th above

iv. What is the key advantage to the plant for having such strong pollen grain walls?

a. It protects the vital genetic material in the pollen grain.

b. It allows pollen to serve as a valuable fossil record for the study of ancient plants.

c. It prevents the pollen tube from growing out before the pollen grain reaches the stigma of a compatible species.

d. It gives weight to the pollen grain, allowing it to cling better to the body surfaces of insect pollinators.

v. The number of germ pores in dicots and monocots respectively are

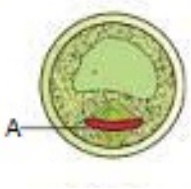
a. one and three

b. three and two

c. two and three

d. three and one

vi. Identify A in the figure given below



a. Vacuoles

b. Asymmetric spindle

c. Vegetative cell

d. Generative cell

33. **Read the following and answer any four questions:** **[4]**

In angiosperm, the seed is the final product of sexual reproduction. It is described as a fertilized ovule. The seeds are formed inside the fruit. The seed consists of a seed coat, cotyledon, and the embryo axis. A mature seed is usually non - albuminous or albuminous. Integument of ovules harder as tough protective seed coat. Sometimes due to reduced water content, the general metabolic activity of the seed slows down and the seed enters a state of inactivity. In the mature plant, the fruit develops from the ovary they are called true fruit. The fruit is the result of fertilization. There are a few species in which fruit develop without fertilization banana is such an example

i. Which of the following have non-albuminous seed?

a. Sunflower

b. Groundnut

c. Maize

d. Barley

ii. The entry of oxygen and water in the seed during germination:

a. micropyle

b. chalazal

c. epicotyl

d. hypocotyl

iii. The embryo enters the state of inactivity called:

a. pericarp

b. dormancy

c. apomixis

d. none of these

iv. The wall of the ovary develops into the wall of fruit called:

a. scutellum

b. pericarp

c. plumule

d. radicle

v. The figure given below represent

a. true fruit

b. parthenocarpic fruit

c. false fruit of apple

d. false fruit of strawberry

vi. **Assertion -** Micropyle facilitate entry of oxygen and water into the seed during germination.

Reason - The wall of the ovary develops into the wall of the fruit called the perisperm.

a. Both Assertion and Reason are true and Reason is the correct explanation of the Assertion.

b. Both Assertion and Reason are true but Reason is not the correct explanation of the Assertion.

c. The Assertion is true but the Reason is false.

d. Both the statements are false.