

DPP

DAILY PRACTICE PROBLEMS

Class : XIIth
Date :

Solutions

Subject : BIOLOGY
DPP No. : 10

Topic :- Sexual Reproduction in Flowering Plants

- 1 (c)
Fruit developed from unfertilized ovary.
In most of the species fruits are results of fertilization. There are few species in which fruits develop without fertilization. Such fruit are called parthenocarpic fruits. Banana is one such example. Parthenocarpy can be induced through application of growth hormones and such fruit are seed less
- 2 (d)
Seeds carry two generations first their parent genes and second its upcoming plant gene. That's why it is called plant part having two generation. Seed is the ripened ovule
- 3 (c)
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- 4 (c)
The chromosome number in gamete (n) of *Ophioglossum* (a fern) is 630, of rice is 12, of potato is 24, and of man is 23
- 5 (c)
Double fertilization is the fusion of one male gamete with the egg cell (real fertilization) and another male gamete with the secondary nucleus, which resulted into triploid endosperm. Double fertilization found only in angiosperms and discovered by **Nawaschin** in 1898.
- 6 (a)

Sometimes the nucellus does not completely consumed so it persist. It is found in many plant like black pepper and beet. This nucellus is called perisperm

7 (c)

Tuber is oval or spherical swollen underground modified stems lacking adventitious roots. It possesses a number of spirally arranged depressions called eyes. Each eye represents node and consists of 1-3 axillary buds in the axils of small scaly leaves.

8 (a)

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9 (c)

Pollen grain are generally 25-50 μm in diameter.

Pollen grains have two main layers

(i) **Outer Layer** It is also called **exine**. It is made up of **sporopollenin**. It is hard and protective in nature. Due to sporopollenin pollen can with stand extreme temperatures.

(ii) **Inner layer** It is also called **intine**. It is made up of cellulose and pectin. It is very thin as compared to the outer layer

10 (b)

In angiosperms (dicots), the *Polygonum* type of embryo sac is most common. In this emryo sac, the arrangement of the nuclei is $3 + 2 + 3$, *ie*, 3 in antipodals cells, 2 as polar nuclei (which later fuse and form a diploid secondary nucleus); and 3 in egg apparatus (2 in synergids and 1 in egg cell).

11 (c)

Pericarp is wall of ovary which develops later into wall of fruit

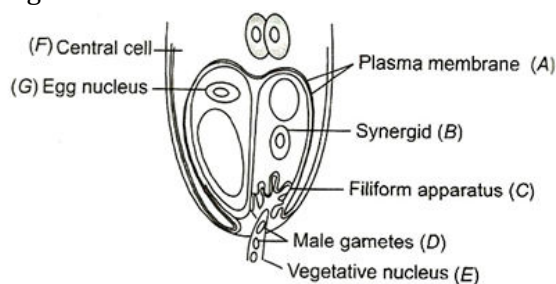
12 (b)

Tapetum is the innermost layer of the wall of pollen sac. Tapetum cells are **nutritive** in function.

13 (c)

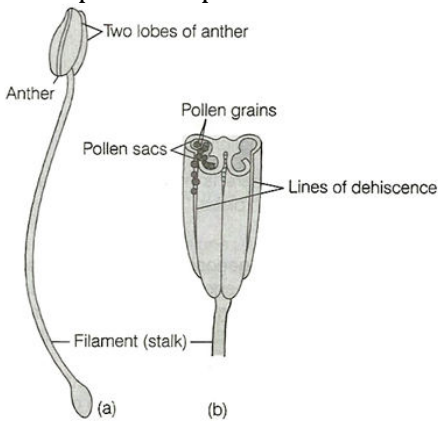
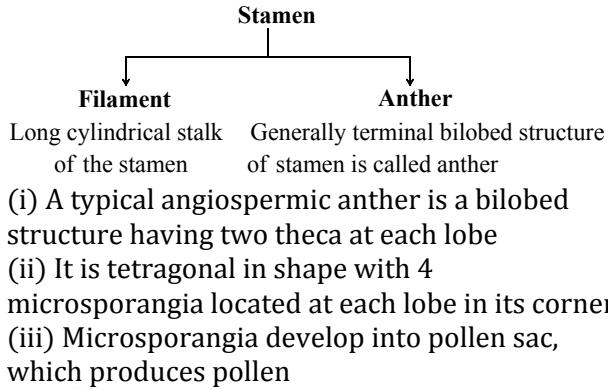
After entering the ovule the pollen tube is attracted toward the micropylar end. The attractant is secreted by filiform apparatus. The pollen tube pierce one of the two synergid and releases its gametes. Out of the two male gametes one fuses with egg to perform generative fertilization (syngamy)

It gives rise to the diploid zygote. The nucleus of the second male gametes fuses with the two haploid polar nuclei to form triploid endosperm nucleus. This second fertilization is called vegetative fertilization



Egg apparatus showing entry of pollen tube into a synergid

- 14 **(a)**
The movement of pollen tube towards embryo sac is **chemotropism** as it occurs in response to certain chemical substances like auxin and carbohydrates.
- 15 **(d)**
Pollen wall comprises of two principal layers the inner intine and outer exine. The intine is pectocellulosic in nature. A special feature of intine is the presence of beads, ribbons or plates of enzymatic proteins particularly in vicinity of germ pores. The exine is composed of sporopollenin which is derived from carotenoids by oxidative polymerization. It is resistant to physical and biological decomposition. Due to this, pollen walls are often preserved for long periods in fossil deposits.
- 16 **(d)**
Triple fusion in angiosperm is the fusion of second sperm with two polar nuclei or the secondary nucleus which results in the formation of a triploid **Primary Endosperm Nucleus (PEN)**.
- 17 **(c)**



(a) A typical stamen
(b) Three-dimensional cut section of an anther

18

(b)

Microspore tetrad.

Microsporogenesis During developmental phase of anther the cells of sporogenous tissue undergoes meiotic division to form microspore tetrad. The process of formation of microspore from pollen mother cell is called microsporogenesis. The microspores are formed and arranged in a group of four cells called microspore tetrad. Microspore develops into the pollen grain and represents the male gametophyte

19

(d)

Majority of insect pollinated flower are large, colourful, fragrant and rich in nectar in order to attract the insects for pollination

20

(c)

The term **amphimixis** is used in the sense of a true sexual reproduction. It involves the fusion of male and female pronuclei of the gametes and the formation of a zygote.

| ANSWER-KEY | | | | | | | | | | |
|-------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Q. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| A. | C | D | C | C | C | A | C | A | C | B |
| | | | | | | | | | | |
| Q. | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| A. | C | B | C | A | D | D | C | B | D | C |
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