

# DPP

DAILY PRACTICE PROBLEMS

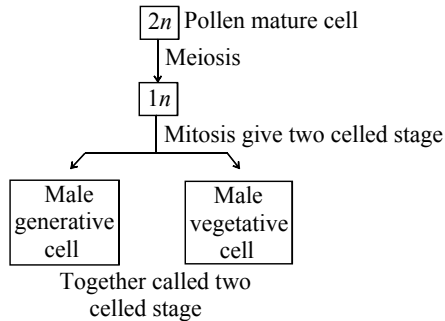
Class : XII<sup>th</sup>  
Date :

## Solutions

Subject : BIOLOGY  
DPP No. : 7

### Topic :- Sexual Reproduction in Flowering Plants

- 1 **(b)**  
Parthenogenesis is a type of **asexual reproduction** because it involves an unfertilized egg cell only.
- 2 **(d)**  
When the micropyle, body of the ovule and funicle lie in one vertical plane, the ovule is called orthotropous, *e.g., Polygonum*.
- 3 **(c)**  
Genetic parthenocarpy is produced by mutation or hybridization. Most of banana varieties are **triploid** and triploidy is associated with seedlessness.
- 4 **(c)**  
Double fertilization is characteristic feature of angiosperms. It was discovered by **S G Nawaschin** in 1898. In double fertilization, one male gamete fused with ovum to form diploid zygote and the second male gamete fused with diploid secondary nucleus to form the triploid primary endosperm nucleus, which develops into endosperm. The endosperm provides nutrition to the developing embryo.
- 5 **(b)**  
Mature male gametophyte is derived by one meiosis and one mitotic division. Two celled stage of male gametophyte is called mature male gametophyte



- 6 **(b)**  
The **mega-gametophyte** or female gametophyte also called embryo sac, is mostly a 7-celled structure.
- 7 **(d)**  
Albuminous seed retain a part of endosperm as it is not completely used up during embryonic development, *e.g.*, Wheat, maize, barley, castor, sunflower. Their cotyledons are fleshy and thick as compared to the non-albuminous seed
- 8 **(c)**  
Double fertilization is characteristic feature of angiosperms. It is a fusion of two male gametes brought by a pollen tube to two different cells of the same female gametophyte to produce zygote and endosperm. A total of five nuclei takes part in double fertilization (sometimes called four as the two polar nuclei fuses to form one).
- 9 **(b)**  
A- Embryonal axis, B- cotyledons, C- Epicotyle, D- Plumule
- 10 **(a)**  
**Geitonogamy** involves the transfer of pollen grains from a male flower to the stigma of an other female flower growing on the same plant. Thus, geitonogamy operates only in monoecious plant, *i.e.*, plants having male and female flowers on different places, *e.g.*, *Zea mays*.
- 11 **(c)**  
Megaspore mother cell is developed inside the nucellus and by a meiotic division, it forms four megaspores. Out of these, generally three degenerate and remaining one is called functional megaspore. It undergoes mitosis three times without cytoplasmic division to form an eight

nucleate embryo sac.

12 (c)  
2-1-2-3

### Development of Female Gametophyte

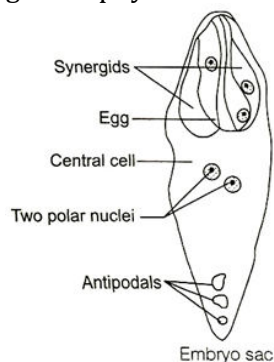
(i) Megaspore mother cell undergoes the reductional/meiotic division that give rise to four megaspores

(ii) Three of them die (in majority of plants) only one remains viable. This method of embryo sac formation is called monosporic development

(iii) The nucleus of the functional megaspore divides mitotically to form two nuclei, which move to the opposite poles forming two nucleate embryo sac

(iv) Two more sequential mitotic nuclear divisions results in the formation of four nucleate and later 8 nucleate stages of embryo sac

(v) After the 8 nucleate stage cell walls are laid down leading to the organization of typical female gametophyte



PPE

13 (d)  
Pollination of flowers by birds is called **ornithophily**. Ornithophilous flowers are large sized, brightly coloured, odourless and produce a large amount of mucilagenous nectar as drinking material of birds, *e.g., Strelitzia reginae, Bigonia, Aloe vera, Salmelia*.

Pollination of flowers by means of bats is called cheiropterophily. *Eidoling helvum*, a large and strictly vegetarian bat visit the flowers of *Adansonia digitata* to extract nectar.

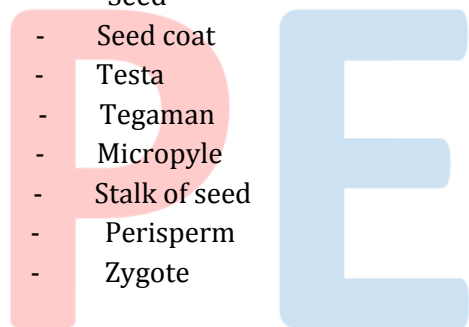
14 (a)  
**Clone** is an individual obtaining from single parent through apomixis, vegetative reproduction and tissue culture. The process of fusion of two male gametes in a single embryo sac is called

**double fertilization.** It is found in sexual reproduction of angiosperms only and discovered by **Nawaschin** (1898).

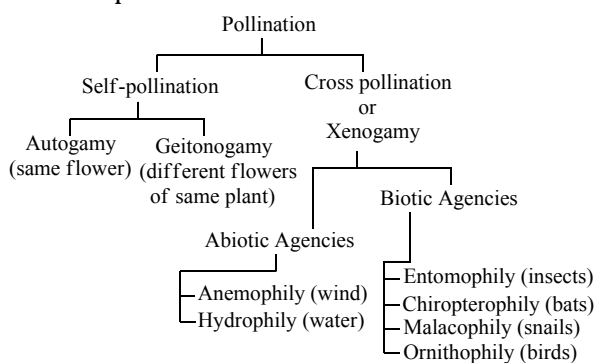
- 15 **(c)**  
Although seeds. In general are the product of fertilization, a few flower plants such as some species of Asteraceae and grasses, have evolved special mechanism to produced seed without fertilization called **apomixis**

- 16 **(a)**  
The transformation of part of flower

<b>Before Fertilisation</b>	-	<b>After Fertilisation</b>
Calyx, corolla	-	Wither
Androecium, style and stigma	-	Fruit
Ovary		
Ovary wall	-	Pericarp
Ovule	-	Seed
Integuments	-	Seed coat
Outer integuments	-	Testa
Inner integuments	-	Tegaman
Micropyle	-	Micropyle
Funicle	-	Stalk of seed
Nucellus (if persistant)	-	Perisperm
Egg cell (oospore)	-	Zygote
Synergid	-	Disintegrate



- 17 **(c)**  
**Pollination** Transfer of pollen grains to the stigma is called pollination



- 18 **(c)**  
Monocot A-Cotyledon, B-Epicotyle, C-Radicle, D-Endosperm, E-Seed coat

- 19 **(a)**

**Pollen grain** are generally 25-50  $\mu\text{m}$  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

20 (c)

In porogamy, pollen tube enters the ovule through the **micropyle**. It is the most common way of the entry of pollen tube inside ovule.

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