Sexual Reproduction in Flowering Plants: Chapter Introduction

A flower is a plant's reproductive organ. Pollen reaches the stigma, a pollen tube delivers two male gametes, double fertilisation follows, and the ovule becomes a seed and the ovary a fruit.

Name: Date: Score: ____ / 20

A. Fill in the blanks

1. Pollen grains are formed in the ____ of the stamen.

2. The part of the pistil that receives pollen is the ____.

3. The pollen tube carries ____ male gametes into the ovule.

4. Fusion of a male gamete with the two polar nuclei is called ____ fusion.

5. After fertilisation the ovule develops into the ____.

B. True or False

6. The stamen is the female reproductive part of a flower. True / False

7. Insects, wind and water can all be agents of pollination. True / False

8. The zygote is triploid. True / False

9. After fertilisation the ovary becomes the fruit. True / False

C. Assertion and reason

10. Assertion (A): Double fertilisation gives both a zygote and an endosperm.
Reason (R): One male gamete fuses with the egg and the other with the two polar nuclei.

(a) Both A and R are true, and R explains A
(b) Both A and R are true, but R does not explain A
(c) A is true, R is false
(d) A is false, R is true

Answer: _____

11. Assertion (A): A mango is a ripened ovary.
Reason (R): After fertilisation the ovary develops into the fruit.

(a) Both A and R are true, and R explains A
(b) Both A and R are true, but R does not explain A
(c) A is true, R is false
(d) A is false, R is true

Answer: _____

D. Choose the correct option

12. The female reproductive part of a flower is the:

(a) stamen
(b) pistil
(c) sepal
(d) petal

Answer: _____

13. Double fertilisation is characteristic of:

(a) ferns
(b) mosses
(c) flowering plants
(d) algae

Answer: _____

14. The primary endosperm nucleus is:

(a) haploid
(b) diploid
(c) triploid
(d) tetraploid

Answer: _____

15. Formation of seeds without fertilisation is called:

(a) pollination
(b) apomixis
(c) syngamy
(d) germination

Answer: _____

E. Numerical problems

16. If a plant's egg cell has 12 chromosomes, how many are in its zygote and its primary endosperm nucleus?

17. A flower has 5 ovules, each fertilised. How many male gametes and how many pollen tubes are needed?

F. Short answer questions

18. Describe double fertilisation.

19. What happens to the ovule and the ovary after fertilisation?

G. Match the columns

20. Match each item in Column A with the correct item in Column B.

Column A	Column B	Your answer
1. Anther	(a) Egg + male gamete	1 → ____
2. Stigma	(b) Polar nuclei + male gamete	2 → ____
3. Zygote	(c) Pollen grains	3 → ____
4. Endosperm	(d) Receives pollen	4 → ____

Detailed solutions

1. anther

2. stigma

3. two

4. triple

5. seed

6. False. The stamen is male; the pistil is female.

7. True. These carry pollen to the stigma.

8. False. The zygote is diploid (2n); the primary endosperm nucleus is triploid (3n).

9. True. The ovules inside become seeds.

10. (a) R describes the two fusions in A.

11. (a) R explains A.

12. (b) pistil. Pistil: stigma, style, ovary.

13. (c) flowering plants. It occurs in angiosperms.

14. (c) triploid. One male gamete (n) + two polar nuclei (n + n) = 3n.

15. (b) apomixis. Apomixis.

16. Egg (n) = 12, so n = 12; Zygote = n + n = 2n; PEN = n + n + n = 3n. **Answer: Zygote 24, PEN 36**

17. Each ovule needs one pollen tube; each tube brings 2 male gametes; 5 × 2. **Answer: 5 pollen tubes, 10 male gametes**

18. The pollen tube releases two male gametes into the embryo sac. One fuses with the egg (syngamy) to form the diploid zygote; the other fuses with the two polar nuclei (triple fusion) to form the triploid primary endosperm nucleus.

19. The ovule develops into the seed (zygote → embryo, PEN → endosperm) and the ovary develops into the fruit.

20. 1 → (c), 2 → (d), 3 → (a), 4 → (b). Each structure matches its role in reproduction.