

Sexual Reproduction in Flowering Plants — CBSE Pattern Test 1

Class 12 Biology · 90 minutes · 40 marks · Sections A–D with answer key · Narayan Gurukul Academy

Test 1 — CBSE Pattern (90 minutes, 40 marks)

Class 12 Biology · Sexual Reproduction in Flowering Plants · Narayan Gurukul Academy (ClassApna)

General Instructions: (1) This paper has four sections — Section A (1×10), Section B (2×4), Section C (3×4) and Section D (5×2) — total 40 marks. Time allowed: 90 minutes.
(2) All questions are compulsory. No overall choice is given; internal choice, where allowed, is clearly marked.
(3) For MCQ questions choose the single correct option; for VSA answers write a single line.
(4) Take $g = 10 \text{ m/s}^2$. All symbols carry their usual meaning. Use of a calculator is not permitted.

Section A — MCQ & VSA ($10 \times 1 = 10$ marks)

- The outermost layer of the microsporangium is
 - tapetum
 - endothecium
 - epidermis
 - middle layer
- Sporopollenin is present in
 - intine
 - exine
 - vegetative cell
 - generative cell
- The functional megaspore develops into
 - endosperm
 - embryo sac
 - ovule
 - fruit
- Pollination by wind is called
 - anemophily
 - hydrophily
 - entomophily
 - ornithophily
- Double fertilisation results in the formation of
 - zygote and endosperm
 - zygote and fruit
 - endosperm and seed coat
 - embryo and perisperm
- The embryo sac is the
 - female gametophyte
 - male gametophyte
 - sporophyte
 - gamete
- The ovule after fertilisation becomes the
 - seed

- (B) fruit
 - (C) endosperm
 - (D) flower
8. Production of seeds without fertilisation is
- (A) apomixis
 - (B) polyembryony
 - (C) parthenocarpy
 - (D) syngamy
9. Define pollination.
10. What is triple fusion?

Section B — Short Answer I ($4 \times 2 = 8$ marks)

11. Name the male reproductive organ of a flower.
12. What is the function of the tapetum?
13. Give one example of polyembryony.
14. What are albuminous seeds?

Section C — Short Answer II ($4 \times 3 = 12$ marks)

15. Distinguish between microsporogenesis and megasporogenesis.
16. Distinguish between autogamy and geitonogamy.
17. Distinguish between albuminous and non-albuminous seeds.
18. Why is fertilisation called double fertilisation in angiosperms?

Section D — Long Answers ($2 \times 5 = 10$ marks)

19. (a) Describe the structure of a mature pollen grain. (b) Explain microsporogenesis.
20. (a) Describe the development of the female gametophyte (embryo sac). (b) Explain the process of double fertilisation and its significance.

Answer Key (Marking Scheme)

- Q1 — (C) epidermis. Q2 — (B) exine. Q3 — (B) embryo sac. Q4 — (A) anemophily. Q5 — (A) zygote and endosperm. Q6 — (A) female gametophyte. Q7 — (A) seed. Q8 — (A) apomixis.
- Q9 — Pollination is the transfer of pollen grains from the anther to the stigma.
- Q10 — Triple fusion is the fusion of one male gamete with the two polar nuclei, forming the triploid endosperm nucleus.
- Q11 — The stamen.
- Q12 — It nourishes developing pollen grains and provides sporopollenin for the exine.
- Q13 — Citrus (or mango).
- Q14 — Seeds that retain endosperm (e.g. wheat, maize).
- Q15 — Microsporogenesis forms microspores (pollen grains); megasporogenesis forms megaspores (embryo sac). Both involve meiosis.
- Q16 — Autogamy: pollination within the same flower. Geitonogamy: between flowers of the same plant.
- Q17 — Albuminous seeds retain endosperm; non-albuminous seeds consume it (e.g. pea, groundnut).

Q18 — Because two fusion events occur: syngamy (gametes) and triple fusion (male gamete + polar nuclei).

Q19 — (a) Two-celled: generative + vegetative cells; wall of exine (sporopollenin) and intine. (b) PMC → meiosis → microspore tetrad → pollen grains (male gametophytes).

Q20 — (a) Megaspore mother cell → meiosis → 4 megaspores → functional megaspore → embryo sac (7-celled, 8-nucleate). (b) Syngamy → zygote ($2n$); triple fusion → triploid PEN; gives embryo and nutritive endosperm.