



INDIAN SCHOOL AL WADI AL KABIR

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| Class: XII | Department: SCIENCE SUBJECT : BIOLOGY | Date of submission: 16.09.2020 |
| Worksheet No: 07 WITH ANSWERS | UNIT: REPRODUCTION Chapter: Sexual Reproduction in Flowering Plants | Note: A4 FILE FORMAT |
| NAME OF THE STUDENT | CLASS & SEC: | ROLL NO. |

MULTIPLE CHOICE QUESTIONS

1. In a flower, if the megaspore mother cell forms megaspores without undergoing meiosis and if one of the megaspores develops into an embryo sac, its nuclei would be:

- (a) Haploid
- (b) Diploid
- (c) A few haploid and a few diploid
- (d) With varying ploidy.

Ans. (b)

2. The phenomenon observed in some plants where in parts of the sexual apparatus is used for forming embryos without fertilisation is called:

- (a) Parthenocarpy
- (b) Apomixis
- (c) Vegetative propagation
- (d) Parthenogenesis

Ans. (b)

3. While planning for an artificial hybridization programme involving bisexual plants, which of the following steps would not be relevant:

- (a) Bagging of female flower
- (b) Dusting of pollen on stigma
- (c) Emasculation
- (d) Collection of pollen

Ans. (c)

4. In an embryo sac, the cells that degenerate after fertilisation are:

- (a) Synergid, zygote and primary endosperm nucleus
- (b) Synergid, antipodal and polar nuclei
- (c) Antipodal, synergid and primary endosperm nucleus

- (d) Synergid, polar nuclei and zygote. **Ans. (b)**
5. In a fertilised embryo sac, the haploid, diploid and triploid structures are:
- (a) Synergid, zygote and primary endosperm nucleus
 - (b) Synergid, antipodal and polar nuclei
 - (c) Antipodal, synergid and primary endosperm nucleus
 - (d) Synergid, polar nuclei and zygote. **Ans. (a)**
6. From among the situations given below, choose the one that prevents both autogamy and geitonogamy.
- (a) Monoecious plant bearing unisexual flowers
 - (b) Dioecious plant bearing only male or female flowers
 - (c) Monoecious plant with bisexual flowers
 - (d) Dioecious plant with bisexual flowers **Ans. (b)**
7. A particular species of plant produces light, non-sticky pollen in large numbers and its stigmas are long and feathery. These modifications facilitate pollination by:
- (a) Insects
 - (b) Water
 - (c) Wind
 - (d) Animals. **Ans. (c)**
8. Choose the correct statement from the following:
- (a) Cleistogamous flowers always exhibit autogamy
 - (b) Chasmogamous flowers always exhibit geitonogamy
 - (c) Cleistogamous flowers exhibit both autogamy and geitonogamy
 - (d) Chasmogamous flowers never exhibit autogamy **Ans. (a)**
9. From the statements given below choose the option that are true for a typical female gametophyte of a flowering
- i. It is 8-nucleate and 7-celled at maturity
 - ii. It is free-nuclear during the development
 - iii. It is situated inside the integument but outside the nucellus
 - iv. It has an egg apparatus situated at the chalazal end
- (a) i and iv,
 - (b) ii and iii
 - (c) i & ii
 - (d) ii & iv **Ans. (c)**

10. The outermost and innermost wall layers of microsporangium in an anther are respectively:

- (a) Endothecium and tapetum
- (b) Epidermis and endodermis
- (c) Epidermis and middle layer
- (d) Epidermis and tapetum

Ans. (d)

TWO MARKS QUESTIONS

1. What will be the advantage of making the hybrids into apomicts? Why?
(Hints: To prevent the segregation of desirable characters)
2. Are pollination and fertilization necessary in apomixis? Give reason.
(Hints: No, it is the development of seeds without fertilisation, from parts like nucellus)
3. The flower of brinjal is chasmogamous, while that of beans is cleistogamous. How are they different from each other?
(Hints: Brinjal – flowers are exposed and cleistogamous – unopened flowers to ensure pollination)
4. Differentiate between albuminous and non-albuminous seeds, giving one example of each.
(Hints: Seeds are with endosperm – albuminous, Seeds are without endosperm – non-albuminous, examples)
5. Differentiate between perisperm and endosperm giving one example.
(Hints: Perisperm – remnant of nucellus in seed, endosperm – reserve food material for embryo; examples)

THREE MARKS QUESTIONS

1. State the significance of pollination. List any four differences between wind pollinated and insect pollinated flowers?
(Hints: Pollination is necessary for fertilisation. Differences between wind and insect pollinated flowers)
2. Banana is a parthenocarpic fruit, whereas oranges show polyembryony. How are they different from each other with respect to seeds?
(Hints: Banana – fruits are formed without fertilisation and hence seedless fruits, orange – seeds consist of more than one embryo)
3. (i) Where is Sporopollenin present in plants?
ii) State its significance with reference to its chemical nature.
iii) Why can pollen grain be preserved for many years.
**(Hints: (i) Exine of microspores
(ii) Highly stable and thus pollen grains are even preserved in fossils)**

- (iii) Due to the presence of sporopollenin)**
- Why do pollen grains of some flowers trigger “sneezing” in some people?
(Hints: Nature of pollen grains, causing allergic responses)
 - Write notes on different types of endosperm development
(Hints: Nuclear type of endosperm development and cellular type of development)

FIVE MARKS QUESTIONS

- Give reasons why:
 - Most zygote in angiosperms divide only after certain amount of endosperm is formed.
 - Ground nut seeds are ex-albuminous and castor seeds are albuminous
 - Micropyle remains as a small pore in the seed coat of a seed.
 - Integuments of an ovule harden and the water content is highly reduced, as the seed matures.
 - Apple and cashew are not called true fruits.
**(Hints: (a) Provides nutrition for embryo
(b) Absence and presence of endosperm
(c) Facilitates moisture and oxygen entry
(d) Helps in the storage of seeds for long time
(e) Developed from thalamus and not from fertilised ovary)**
- With the help of a neat labelled diagram explain the wall layers of a mature anther of angiosperms
(Hints: Diagram and explanation of wall layers – epidermis, endothecium, middle layers and tapetum)
- Illustrate the process of megasporogenesis and embryo sac development
(Hints: Represent the diagrammatic stages of megaspore and embryo sac development)

PREVIOUS BOARD QUESTIONS

- Explain any three advantages the seeds offer to angiosperms.
(Hints: Product of sexual reproduction and thus provides variations, Dormancy and thus can be stored, pollination and fertilisation are not depending on water)
- Name the product of fertilization that forms the kernel of coconut. How does the kernel differ from coconut water?
(Hints: Product of fertilisation – PEN, nuclear endosperm development, wall formation limited to peripheral sides, central free nuclei)
- Write the cellular contents carried by the pollen tube. How does the pollen tube gain its entry into the embryo sac?

(Hints: 2 male gametes, chemotropism, enters into ovule through Micropyle and embryo sac with the help of filiform apparatus in synergid)

4. Draw a labeled schematic diagram of the transverse section of a mature anther of an angiosperm plant.

(Hints: Diagram)

5. a) Describe in sequence the process of megasporogenesis in angiosperms.
(b) Draw the seven celled structure formed and label all the different cells.

(Hints: (a) formation of megaspore mother cell, meiosis, spore tetrad formation and formation of megaspores)

6. Draw a labeled diagram of globular embryonic stage of angiosperms.

(Hints: Diagram)

7. Draw a diagrammatic sectional view of a mature anatropous ovule and label the following parts in it:

(i) that develops into seed coat.

(ii) that develops into an embryo after fertilization.

(iii) that develops into an endosperm in an albuminous seed

(iv) through which the pollen tube gains entry into the embryo sac.

(v) that attaches the ovule to the placenta.

(Hints: (i) Diagram + label (i) integuments, (ii) egg, (iii) polar nuclei, (iv) filiform apparatus, (v) funicle)

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