



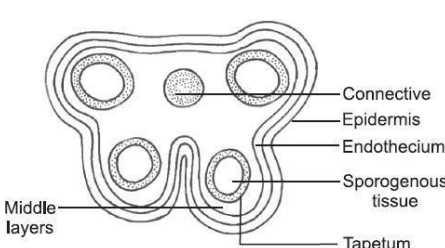
Indian School Al Wadi Al Kabir

Unit test (2026-2027)

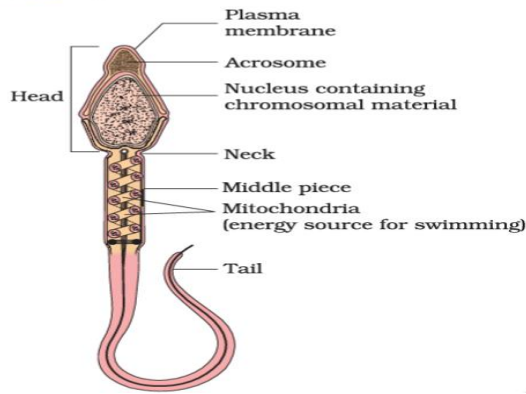
Class: XII
Date: 20/05/2026

Subject: BIOLOGY (044)
Set- I

Max. marks: 30
Time: 1hour

SECTION – A		
Q. No.	QUESTION	Marks
1	B. Zygote Suspensor Cotyledon Plumule	1
2	B. 200, 50	1
3	B. (Coleorhiza)	
4	A. (a) iv, (b) i, (c) ii, (d) iii	1
5	A. (FSH stimulates Sertoli cells)	1
6	B. (22 + X)	
Questions No. 5 to 6 consist of two statements – Assertion (A) and Reason (R) .		
7	A) Both true, but R is the correct explanation	1
8	A) Both true, and R is the correct explanation	1
SECTION-B		
9	<p>(A) Blastocyst</p> <p>i. Identification:</p> <ul style="list-style-type: none"> • A → Trophoblast • B → Inner Cell Mass <p>ii. Functions:</p> <ul style="list-style-type: none"> • Trophoblast → helps in implantation & placenta formation • Inner Cell Mass → develops into embryo <p style="text-align: center;">OR</p> <p>(B) Uterus</p> <p>i. Three layers:</p> <ul style="list-style-type: none"> • Perimetrium (outer layer) • Myometrium (muscular layer) • Endometrium (inner layer) <p>ii. Endometrium is glandular and undergoes cyclic changes</p>	(1+1=2)
10	<p>T.S. of Anther</p> <p>Labels:</p> <div style="text-align: center;">  </div>	(1+1=2)

11	<p>i. Zygote divides after endosperm formation because endosperm provides nutrition to the developing embryo</p> <p>ii.</p> <ul style="list-style-type: none"> • Groundnut → non-albuminous (endosperm used up) • Castor → albuminous (endosperm retained) <p>iii. Micropyle remains for entry of water and oxygen during germination</p>	(1+ ½ + ½ =2)												
SECTION-C														
12	<p>(A)</p> <p>i. Examples:</p> <ul style="list-style-type: none"> • Parthenocarpy → Banana / Seedless orange • Apomixis → Asteraceae/Grasses <p>ii.</p> <table border="1" style="margin-left: 40px;"> <thead> <tr> <th>Feature</th> <th>Parthenocarpy</th> <th>Apomixis</th> </tr> </thead> <tbody> <tr> <td>Fertilization</td> <td>Absent</td> <td>Absent</td> </tr> <tr> <td>Product</td> <td>Fruit (seedless)</td> <td>Seeds</td> </tr> <tr> <td>Example</td> <td>Banana</td> <td>Citrus</td> </tr> </tbody> </table> <p>Similarity: Both occur without fertilisation</p> <p>(B)</p> <p>a)</p> <ul style="list-style-type: none"> • Hypocotyl → below the cotyledon, forms root region • Epicotyl → above the cotyledon, forms shoot <p>b)</p> <ul style="list-style-type: none"> • Pericarp → fruit wall (from ovary) • Perisperm → persistent nucellus <p>c)</p> <ul style="list-style-type: none"> • Integument → ovule covering • Testa → mature seed coats 	Feature	Parthenocarpy	Apomixis	Fertilization	Absent	Absent	Product	Fruit (seedless)	Seeds	Example	Banana	Citrus	3
Feature	Parthenocarpy	Apomixis												
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Product	Fruit (seedless)	Seeds												
Example	Banana	Citrus												
13	A. Structure of sperm	1+1												



1

- B. Seminal plasma components
- Fructose (energy)
 - Calcium
 - Enzymes

SECTION-D

14

- A. The hormone responsible for the peak in both cases is Luteinizing Hormone (LH). Its primary function is to induce the rupture of the Graafian follicle and cause the release of the ovum, a process called ovulation.
- B. In the ovary, primary follicles grow to become fully mature Graafian follicles. Simultaneously, the endometrium of the uterus regenerates through proliferation, becoming thicker.
- C. Hormone Q is progesterone. It is essential for the maintenance of the endometrium, which is necessary for the implantation of a fertilized ovum and other events of pregnancy.
- D. The corpus luteum will remain functional in the ovary. It is formed from the remaining parts of the Graafian follicle after the process of ovulation.

SECTION-E

15

A. a)

Cell	Function
Vegetative cell	Forms pollen tube
Generative cell	Divides → 2 male gametes

(b)

i. Pollination types:

- 1 → **Autogamy**
- 2 → **Geitonogamy**
- 3 → **Xenogamy**

ii. Pollination mechanisms:

- Water lily → **Entomophily (insects)**
- Vallisneria → **Hydrophily (water)**

iii. Advantages of Xenogamy:

- Genetic variation
- Better adaptability
- Hybrid Vigor

B) i. Division of (P) → (Q):

Meiosis

ii. Only **1 megaspore forms embryo sac**

Type → **Monosporic development**

iii. Functional megaspore undergoes **3 mitotic divisions**

iv. Structure of mature female gametophyte:

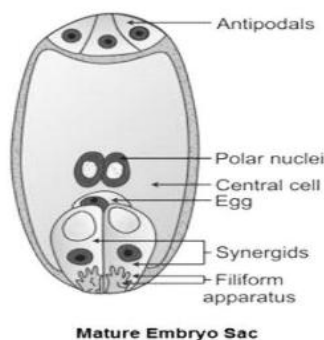


Figure: A fully developed female gametophyte

A mature female gametophyte (embryo sac) in angiosperms is a **7-celled, 8-nucleate structure** enclosed within the ovule. It develops from a functional megaspore via mitotic divisions, consisting of an egg apparatus (one egg, two synergids) at the micropylar end, three antipodal cells at the chalazal end, and a central cell with two polar nuclei.

	<p>ii)</p> <p>I. The Megaspore mother cell (P) undergoes meiosis to form Megaspore tetrad (Q). <i>(½ M)</i></p> <p>II. A single megaspore (Q) forms the embryo sac. This type of development is called "monosporic development". <i>(1 M)</i></p> <p>III. The functional megaspore undergoes three free nuclear mitotic divisions to form the embryo sac. <i>(½ M)</i></p> <p>IV. A mature female gametophyte, or embryo sac, consists of 7 cells and 8 nuclei. It includes one egg cell and two synergids at the micropylar end, along with three antipodal cells at the chalazal end. The central cell contains two polar nuclei. The synergids have a filiform apparatus to guide the pollen tube. <i>(2 M)</i></p>	
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