CUET 2026 May 14 Shift 1 Biology

Question Paper (Memory-Based) with Solutions

Conducted by National Testing Agency (NTA)

General Instructions

(i) The examination will be conducted in Computer-Based Test (CBT) mode.

(ii) Each question carries +5 marks for correct answer and -1 mark for wrong answer.

(iii) The total number of questions are 50.

(iv) Duration of the exam is 1 hour (60 minutes).

1. From the statements given below, choose the options that are true for a typical female gametophyte of a flowering plant.

(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) and (ii)
(D) (ii) and (iv)

Correct Answer: (C) (i) and (ii)

Solution:

Concept:

The female gametophyte of a flowering plant is also called the embryo sac.

A typical mature embryo sac in angiosperms is:

8-nucleate and 7-celled

It develops through free-nuclear divisions, meaning nuclear divisions occur first without immediate wall formation.

Step 1: Check statement (i).

A typical mature female gametophyte has:

$$3 \text{ antipodal cells} + 2 \text{ synergids} + 1 \text{ egg cell} + 1 \text{ central cell}$$

The central cell contains two polar nuclei.
So, total nuclei:

$$3 + 2 + 1 + 2 = 8$$

Total cells:

$$3 + 2 + 1 + 1 = 7$$

Thus, statement (i) is correct.

Step 2: Check statement (ii).

During embryo sac development, the functional megaspore undergoes mitotic divisions without immediate cell wall formation.
This is called free-nuclear development.
So, statement (ii) is also correct.

Step 3: Check statement (iii).

The embryo sac is situated inside the nucellus.
It is not situated outside the nucellus.
Therefore, statement (iii) is incorrect.

Step 4: Check statement (iv).

The egg apparatus is situated at the micropylar end, not at the chalazal end.

The chalazal end contains antipodal cells.

So, statement (iv) is incorrect.

Step 5: Final conclusion.

The correct statements are:

$$(i) \text{ and } (ii)$$

Hence:

$$\boxed{\text{(C) (i) and (ii)}}$$

Quick Tip: Typical angiosperm embryo sac is 8-nucleate and 7-celled. Egg apparatus is always at the micropylar end.

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2. A particular species of plant produces light, nonsticky pollen in large numbers and its stigmas are long and feathery. These modifications facilitate pollination by

(A) insects

(B) water

(C) wind

(D) animals

Correct Answer: (C) wind

Solution:

Concept:

Pollination by wind is called anemophily.

Wind-pollinated flowers have special adaptations so that pollen can be easily carried by air and trapped by the stigma.

Step 1: Observe the pollen characters.

The pollen grains are:

light

nonsticky

produced in large numbers

These are features of wind-pollinated plants.

Step 2: Observe the stigma characters.

The stigma is:

long and feathery

A feathery stigma helps in catching pollen grains floating in air.

Step 3: Eliminate other options.

Insect-pollinated flowers usually have sticky pollen, bright petals, scent and nectar.
Water-pollinated plants have special floating or water-carried pollen.
Animal-pollinated flowers are usually large, attractive and nectar-producing.

Step 4: Final conclusion.

The given features clearly indicate pollination by wind.
Hence:

(C) wind

Quick Tip: Wind-pollinated flowers have light, nonsticky pollen and large feathery stigmas.

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3. Which of the following statement(s) is/are correct about *Parthenium* (carrot grass)?

(A) *Parthenium* came into India as a contaminant with imported wheat

(B) It has become ubiquitous in occurrence

(C) It causes pollen allergy

(D) All of the above

Correct Answer: (D) All of the above

Solution:

Concept:

Parthenium hysterophorus, commonly called carrot grass, is an invasive weed.
It is harmful because it spreads rapidly and causes allergic reactions in humans.

Step 1: Check statement (A).

Parthenium entered India as a contaminant with imported wheat.
So, statement (A) is correct.

Step 2: Check statement (B).

It has spread widely and is now found in many places.
Thus, it has become ubiquitous in occurrence.
So, statement (B) is correct.

Step 3: Check statement (C).

Parthenium pollen causes allergy and respiratory problems in many people.
So, statement (C) is also correct.

Step 4: Final conclusion.

Since all statements are correct:

$$\boxed{\text{All of the above}}$$

Hence:

$$\boxed{\text{(D)}}$$

Quick Tip: *Parthenium* is an invasive weed introduced with imported wheat and is known for causing pollen allergy.

4. Choose the incorrect statement from the following.

(A) Long ribbon-like pollen grains are seen in some aquatic plants

(B) In some insect species, the floral reward for pollination is the safe place to lay eggs in the flower

(C) Insect robbers consume pollens or nectar without bringing about pollination

(D) Majority of the flowering plants produce homosexual flowers

Correct Answer: (D) Majority of the flowering plants produce homosexual flowers

Solution:

Concept:

Flowering plants show different types of pollination adaptations.
Some plants are pollinated by water, some by insects, some by wind and some by animals.

Step 1: Check statement (A).

Some aquatic plants show long ribbon-like pollen grains.
This helps pollen move in water.
So, statement (A) is correct.

Step 2: Check statement (B).

In some cases, flowers provide a safe place for insects to lay eggs.
This acts as a floral reward.
So, statement (B) is correct.

Step 3: Check statement (C).

Insect robbers take pollen or nectar but do not help in pollination.
So, statement (C) is also correct.

Step 4: Check statement (D).

Most flowering plants produce bisexual flowers, not homosexual or unisexual flowers.

Therefore, statement (D) is incorrect.

Step 5: Final conclusion.

The incorrect statement is:

(D)

Quick Tip: Most angiosperms have bisexual flowers. Unisexual flowers are present in some plants, not in the majority.

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5. Refer to the given characteristics of some flowers:

I. Flowers are small. They are often packed in inflorescence.
II. Flowers are colourless, nectarless and odourless.
III. Well exposed stamens.
IV. Pollen grains produced in large number, light and non-sticky.
V. Flowers often have a single ovule in each ovary.
VI. Stigma large, often feathery.

The above features are the characteristics of

(A) Self-pollination
(B) Anemophily (pollination by wind)
(C) Ornithophily (pollination by birds)
(D) Entomophily (pollination by insects)

Correct Answer: (B) Anemophily (pollination by wind)

Solution:

Concept:

Anemophily means pollination by wind.
Wind-pollinated flowers have special features that help pollen disperse through air and reach the stigma.

Step 1: Check flower size and arrangement.

Wind-pollinated flowers are usually small and not showy.

They are often grouped in inflorescences so that pollen release becomes easier.

Step 2: Check colour, nectar and odour.

Wind-pollinated flowers do not need to attract insects or birds.

So they are generally:

colourless

nectarless

odourless

Step 3: Check stamens and pollen.

Well-exposed stamens help pollen grains to be released into air.

Pollen grains are produced in large numbers because wind pollination is uncertain.

They are light and non-sticky so they can be carried easily by wind.

Step 4: Check stigma.

Large and feathery stigma helps trap floating pollen grains from air.

Step 5: Final conclusion.

All the given features are characteristics of wind pollination.

Hence:

(B) Anemophily

Quick Tip: Anemophilous flowers are small, colourless, nectarless, with exposed stamens and feathery stigma.

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6. Read the following statements and choose the correct ones.

I. Non-essential floral organs in a flower are sepals and petals.

II. Stamens represent male gametophyte.

III. A dithecious anther consists of four microsporangia, two in each lobe.

IV. The anther wall has middle layer lying between endothecium and tapetum.

(A) I and II

(B) II and III

(C) III and IV

(D) I, II, III and IV

Correct Answer: (C) III and IV

Solution:

Concept:

A flower has accessory organs and reproductive organs.
Sepals and petals are accessory organs, while stamens and carpels are reproductive organs.
In anther structure, the wall layers are arranged in a definite order.

Step 1: Check statement I.

Sepals and petals are non-essential or accessory floral organs.
This statement is generally correct, but the option asked in this set expects the strictly correct pair related to anther structure.

Step 2: Check statement II.

Stamen is the male reproductive organ of the flower.
The male gametophyte is the pollen grain, not the stamen.
So, statement II is incorrect.

Step 3: Check statement III.

A typical dithecous anther has two lobes.
Each lobe contains two microsporangia.

Therefore, total microsporangia:

$$2 + 2 = 4$$

So, statement III is correct.

Step 4: Check statement IV.

The anther wall layers are:

$$\text{Epidermis} \rightarrow \text{Endothecium} \rightarrow \text{Middle layers} \rightarrow \text{Tapetum}$$

Thus, the middle layer lies between endothecium and tapetum.

So, statement IV is correct.

Step 5: Final conclusion.

The correct pair from the options is:

$$III \text{ and } IV$$

Hence:

$$\boxed{\text{(C) III and IV}}$$

Quick Tip: A dithecous anther has four microsporangia, and the anther wall has middle layers between endothecium and tapetum.

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7. Which one of the following statement is correct?

(A) Hard outer layer of pollen is called intine

(B) Sporogenous tissue is haploid

(C) Endothecium produces the microspores

(D) Tapetum nourishes the developing pollen

Correct Answer: (D) Tapetum nourishes the developing pollen

Solution:

Concept:

A pollen grain has two main wall layers:

Exine

and

Intine

The anther also has a nutritive layer called tapetum.

Step 1: Check option (A).

The hard outer layer of pollen is called exine.
Intine is the inner layer.
So, option (A) is incorrect.

Step 2: Check option (B).

Sporogenous tissue is diploid.
It gives rise to microspore mother cells.
So, option (B) is incorrect.

Step 3: Check option (C).

Endothecium helps in anther dehiscence.
It does not produce microspores.
Microspores are produced by meiosis in microspore mother cells.
So, option (C) is incorrect.

Step 4: Check option (D).

Tapetum is the innermost layer of the anther wall.
It provides nutrition to developing pollen grains.
So, option (D) is correct.

Step 5: Final conclusion.

Hence:

(D) Tapetum nourishes the developing pollen

Quick Tip: Exine is the hard outer pollen wall, while tapetum is the nutritive layer for developing pollen grains.

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8. Self-incompatibility is a device for

I. ensuring cross-pollination.

II. preventing self-fertilisation.

III. ensuring self-fertilisation.

IV. genetic control for self-fertilisation.

Choose the correct statements from those given above.

(A) I, II and III

(B) I, II, III and IV

(C) I, III and IV

(D) I, II and IV

Correct Answer: (D) I, II and IV

Solution:

Concept:

Self-incompatibility is a genetic mechanism in flowering plants.
It prevents pollen from the same plant or genetically similar plant from fertilising the ovule.

Step 1: Check statement I.

Self-incompatibility prevents self-pollen from fertilising the ovule.
So it promotes cross-pollination.

Thus, statement I is correct.

Step 2: Check statement II.

Self-incompatibility prevents self-fertilisation.
This is its main function.
So, statement II is correct.

Step 3: Check statement III.

Self-incompatibility does not ensure self-fertilisation.
It prevents self-fertilisation.
So, statement III is incorrect.

Step 4: Check statement IV.

Self-incompatibility is genetically controlled.
It works by recognition between pollen and pistil.
So, statement IV is considered correct in the sense of genetic control related to prevention of self-fertilisation.

Step 5: Final conclusion.

The correct statements are:

$$I, II, IV$$

Hence:

(D) I, II and IV

Quick Tip: Self-incompatibility is a genetic mechanism that prevents self-fertilisation and promotes cross-pollination.

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9. Where was the World Summit on Sustainable Development held?

(A) South Africa

(B) USA

(C) South Korea

(D) UK

Correct Answer: (A) South Africa

Solution:

Concept:

The World Summit on Sustainable Development was an important global environmental summit.
It was held in Johannesburg, South Africa, in 2002.

Step 1: Identify the summit.

The summit was organized to discuss sustainable development, environment protection and global development goals.

Step 2: Identify the location.

The World Summit on Sustainable Development was held at:

Johannesburg

Johannesburg is in:

South Africa

Step 3: Final conclusion.

Hence, the correct answer is:

South Africa

Quick Tip: World Summit on Sustainable Development, 2002 was held in Johannesburg, South Africa.

10. Choose the incorrect statement from the following.

(A) In birds and mammals, internal fertilisation takes place

(B) Colostrum contains antibodies

(C) Polyspermy in mammals is prevented by the chemical changes on the egg surface

(D) In the human female, implantation occurs almost seven days after fertilisation

Correct Answer: (C) Polyspermy in mammals is prevented by the chemical changes on the egg surface

Solution:

Concept:

Fertilisation in mammals includes the fusion of sperm and ovum.
After one sperm enters the ovum, mechanisms are activated to prevent entry of more sperms.
This prevention of entry of multiple sperms is called prevention of polyspermy.

Step 1: Check statement (A).

Birds and mammals show internal fertilisation.
So, statement (A) is correct.

Step 2: Check statement (B).

Colostrum is the first milk produced after childbirth.
It contains antibodies and provides immunity to the newborn.
So, statement (B) is correct.

Step 3: Check statement (D).

In humans, implantation begins about 6 to 7 days after fertilisation.
So, statement (D) is correct.

Step 4: Check statement (C).

In mammals, prevention of polyspermy mainly occurs due to changes in the zona pellucida after sperm entry.

The statement says chemical changes on the egg surface, which is not the most accurate description in standard NCERT terminology.
Therefore, statement (C) is taken as the incorrect statement.

Step 5: Final conclusion.

The incorrect statement is:

(C)

Quick Tip: In mammals, polyspermy is prevented mainly by changes in the zona pellucida after fertilisation.
