

CBSE CLASS X  
**Science (086)**  
QUESTION PAPER  
*AI-generated question paper*

Code: XFBLYX

Questions: 31

Maximum Marks: 70

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**SELECTIONS USED**

Subject	Science
Lessons	7 How do Organisms Reproduce?
Level of understanding	Exam-ready
Question selection	CBSE board paper, whole lesson (~80 marks across Sections A-E)
Model	claude-sonnet-4-6

Composition — Difficulty: 9 straightforward · 17 medium · 5 deep | Types: 9 MCQ · 7 Short · 5 Assertion–reason · 4 Very short · 3 Long · 3 Case-based | Sections: A 14Q/14m · B 4Q/8m · C 7Q/21m · D 3Q/15m · E 3Q/12m

**Q1.** straightforward exam-ready

[1]

Asexual reproduction by budding occurs in which of the following organisms?

- (A) Planaria
- (B) Yeast
- (C) Plasmodium
- (D) Spirogyra

- A Planaria
- B Yeast
- C Plasmodium
- D Spirogyra

◆ How do Organisms Reproduce?

**Q2.** straightforward exam-ready

[1]

In Leishmania, binary fission occurs in a definite orientation. Which feature of the cell determines this orientation?

- (A) The nucleus
- (B) The cell wall
- (C) The whip-like structure at one end
- (D) The food vacuole

- A The nucleus
- B The cell wall
- C The whip-like structure at one end
- D The food vacuole

◆ How do Organisms Reproduce?

**Q3.** straightforward exam-ready**[1]**

The male germ-cells (sperms) in humans are produced in the testes, which are located outside the abdominal cavity. What is the primary reason for this?

- (A) To allow easier transfer of sperms
- (B) Sperm formation requires a temperature lower than normal body temperature
- (C) To keep sperms away from digestive enzymes
- (D) To increase blood supply to the testes

- A To allow easier transfer of sperms
- B Sperm formation requires a temperature lower than normal body temperature
- C To keep sperms away from digestive enzymes
- D To increase blood supply to the testes

**◆ How do Organisms Reproduce?****Q4.** medium exam-ready**[1]**

A contraceptive copper-T device is placed inside the uterus to prevent pregnancy. However, it does NOT protect against sexually transmitted infections (STIs). Which contraceptive method provides some protection against both pregnancy AND STIs?

- (A) Oral contraceptive pills
- (B) Condom
- (C) Copper-T
- (D) Surgical blockage of fallopian tubes

- A Oral contraceptive pills
- B Condom
- C Copper-T
- D Surgical blockage of fallopian tubes

**◆ How do Organisms Reproduce?****Q5.** straightforward exam-ready**[1]**

In tissue culture, cells from the growing tip of a plant are placed in an artificial medium where they first divide to form a callus. What does the callus develop into when transferred to a medium containing growth and differentiation hormones?

- (A) Spores
- (B) Pollen grains
- (C) Plantlets
- (D) Sporangia

- A Spores
- B Pollen grains
- C Plantlets
- D Sporangia

**◆ How do Organisms Reproduce?**

**Q6.** straightforward exam-ready**[1]**

Which of the following is an example of a bisexual (hermaphrodite) flower?

- (A) Papaya
  - (B) Watermelon
  - (C) Mustard
  - (D) Corn (maize)
- A Papaya  
B Watermelon  
C Mustard  
D Both (A) and (B)

**◆ How do Organisms Reproduce?****Q7.** medium exam-ready**[1]**

Spores of Rhizopus are covered by thick walls. What is the primary advantage of this thick covering?

- (A) It helps in dispersal by wind
  - (B) It provides nutrition to the developing spore
  - (C) It protects the spore until it reaches a moist surface
  - (D) It allows the spore to attach to host organisms
- A It helps in dispersal by wind  
B It provides nutrition to the developing spore  
C It protects the spore until it reaches a moist surface  
D It allows the spore to attach to host organisms

**◆ How do Organisms Reproduce?****Q8.** medium exam-ready**[1]**

Oral contraceptive pills prevent pregnancy primarily by:

- (A) Creating a mechanical barrier to stop sperm reaching the egg
  - (B) Changing the hormonal balance so that eggs are not released
  - (C) Destroying sperms as soon as they enter the vagina
  - (D) Preventing implantation of the embryo by irritating the uterus
- A Creating a mechanical barrier to stop sperm reaching the egg  
B Changing the hormonal balance so that eggs are not released  
C Destroying sperms as soon as they enter the vagina  
D Preventing implantation of the embryo by irritating the uterus

**◆ How do Organisms Reproduce?****Q9.** medium exam-ready**[1]**

Menstruation occurs approximately every month. Which of the following correctly describes why the uterine lining breaks down during menstruation?

- (A) The ovary releases too many eggs at once
  - (B) Fertilisation has occurred and the embryo rejects the lining
  - (C) The egg has not been fertilised, so the thickened uterine lining is no longer needed
  - (D) Hormones from the placenta cause the lining to shed
- A The ovary releases too many eggs at once  
B Fertilisation has occurred and the embryo rejects the lining  
C The egg has not been fertilised, so the thickened uterine lining is no longer needed  
D Hormones from the placenta cause the lining to shed

**◆ How do Organisms Reproduce?**

**Q10.** medium exam-ready

[1]

Assertion (A): Variations are essential for the long-term survival of a species.

Reason (R): If all individuals in a population are identical and the environment changes drastically, the entire population could be wiped out.

- A Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).
- B Both Assertion (A) and Reason (R) are true, but Reason (R) is NOT the correct explanation of Assertion (A).
- C Assertion (A) is true, but Reason (R) is false.
- D Assertion (A) is false, but Reason (R) is true.

◆ How do Organisms Reproduce?

**Q11.** medium exam-ready

[1]

Assertion (A): Regeneration in organisms such as Hydra and Planaria is not considered a primary mode of reproduction.

Reason (R): Regeneration requires the organism to be cut or broken up into pieces, and most organisms would not normally depend on this to reproduce.

- A Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).
- B Both Assertion (A) and Reason (R) are true, but Reason (R) is NOT the correct explanation of Assertion (A).
- C Assertion (A) is true, but Reason (R) is false.
- D Assertion (A) is false, but Reason (R) is true.

◆ How do Organisms Reproduce?

**Q12.** deep exam-ready

[1]

Assertion (A): Plants raised by vegetative propagation bear flowers and fruits earlier than plants grown from seeds.

Reason (R): Vegetatively propagated plants are genetically identical to the parent and do not need to undergo the juvenile phase associated with seed germination and early seedling development.

- A Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).
- B Both Assertion (A) and Reason (R) are true, but Reason (R) is NOT the correct explanation of Assertion (A).
- C Assertion (A) is true, but Reason (R) is false.
- D Assertion (A) is false, but Reason (R) is true.

◆ How do Organisms Reproduce?

**Q13.** deep exam-ready

[1]

Assertion (A): In sexual reproduction, each new generation does not end up with twice the DNA content of the previous generation.

Reason (R): Germ-cells are produced by a specialised division that halves the chromosome number, so that when two germ-cells fuse, the original chromosome number is restored.

- A Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).
- B Both Assertion (A) and Reason (R) are true, but Reason (R) is NOT the correct explanation of Assertion (A).
- C Assertion (A) is true, but Reason (R) is false.
- D Assertion (A) is false, but Reason (R) is true.

◆ How do Organisms Reproduce?

**Q14.** straightforward exam-ready [1]

Assertion (A): Reproduction is not essential for the survival of an individual organism.

Reason (R): Processes like nutrition, respiration and excretion are essential for an individual's life, but reproduction only helps to increase the population of the species.

A Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).

B Both Assertion (A) and Reason (R) are true, but Reason (R) is NOT the correct explanation of Assertion (A).

C Assertion (A) is true, but Reason (R) is false.

D Assertion (A) is false, but Reason (R) is true.

◆ How do Organisms Reproduce?

**Q15.** straightforward exam-ready [2]

Distinguish between cross-pollination and self-pollination on the basis of: (i) the source of pollen, and (ii) the genetic variation produced in offspring.

◆ How do Organisms Reproduce?

**Q16.** straightforward exam-ready [2]

Name the structures that produce spores in bread mould (Rhizopus). Why can these spores survive harsh conditions?

◆ How do Organisms Reproduce?

**Q17.** straightforward exam-ready [2]

What are the two functions of the ovaries in the human female reproductive system?

◆ How do Organisms Reproduce?

**Q18.** medium exam-ready [2]

Why do multicellular organisms with specialised tissues and organs need more complex methods of reproduction than simple organisms like Spirogyra?

◆ How do Organisms Reproduce?

**Q19.** medium exam-ready [3]

Explain the role of DNA copying in reproduction. Why is it important that DNA copies are similar but allowable to be slightly different?

◆ How do Organisms Reproduce?

**Q20.** medium exam-ready [3]

Describe the journey of a pollen grain from the anther to the formation of a zygote inside the ovule of a flower.

◆ How do Organisms Reproduce?

**Q21.** medium exam-ready [3]

Compare binary fission in Amoeba with multiple fission in Plasmodium. How are these two methods different in process and outcome?

◆ How do Organisms Reproduce?

**Q22.** medium exam-ready [3]

What happens to the ovule, ovary, and the other floral parts (petals, sepals, stamens, style, stigma) after fertilisation in a flowering plant?

◆ How do Organisms Reproduce?

**Q23.** deep exam-ready [3]

Explain why sexual reproduction generates more variation in offspring than asexual reproduction. Why is this increased variation considered advantageous for a species?

◆ How do Organisms Reproduce?

**Q24.** medium exam-ready [3]

Describe the path taken by a sperm from the site of its formation until it meets the egg in the human female body. Name all the structures it passes through in order.

◆ How do Organisms Reproduce?

**Q25.** deep exam-ready [3]

Surgical contraception involves blocking either the vas deferens in males or the fallopian tubes in females. Explain why blocking each of these structures prevents fertilisation, and state one concern associated with surgical contraceptive methods.

◆ How do Organisms Reproduce?

**Q26.** deep exam-ready [5]

- Distinguish between a male gamete and a female gamete in terms of size, motility, and food reserves.
- Why is the difference in size and structure between the two types of gametes an advantage in complex organisms that reproduce sexually?
- Name the cell formed by the fusion of the two gametes and state the significance of this fusion in maintaining the chromosome number across generations.

◆ How do Organisms Reproduce?

**Q27.** medium exam-ready [5]

- Draw a neat labelled diagram of the longitudinal section of a flower, labelling any four reproductive parts.
- Define pollination and fertilisation. State one difference between them.
- Trace the fate of the ovule and the ovary after fertilisation in a flowering plant.

◆ How do Organisms Reproduce?

**Q28.** medium exam-ready [5]

- List the components of the human male reproductive system and state the function of each.
- Testosterone is produced by the testes. State any two effects of testosterone on the male body.
- Differentiate between the role of the vas deferens and the urethra in the male reproductive system.

◆ How do Organisms Reproduce?

**Q29.** medium exam-ready**[4]**

Read the following passage and answer the questions that follow:

A biology student observes two different organisms under a microscope. In the first organism, the single cell simply splits into two equal halves, with the division occurring in any plane. In the second organism, the cell develops multiple nuclei, and then each nucleus is surrounded by a small amount of cytoplasm to produce many daughter cells simultaneously. The student notes that the first organism has no specific body orientation, whereas a third organism similar to the first shows division only along a specific axis due to a structural feature at one end of its body.

- (i) Identify the type of reproduction shown by the first organism and name one example of such an organism. (1 mark)
- (ii) What is the mode of reproduction shown by the second organism? Name one example of this organism and state one situation in nature when this mode is particularly advantageous. (1 mark)
- (iii) Name the 'structural feature' that causes the third organism to divide along a specific axis and name one organism that shows this. (1 mark)
- (iv) All the above are forms of asexual reproduction. State one key difference between asexual and sexual reproduction in terms of the number of parents and genetic variation in offspring. (1 mark)

◆ How do Organisms Reproduce?

**Q30.** medium exam-ready**[4]**

Read the following passage and answer the questions that follow:

After a flower is successfully pollinated, a pollen tube grows from the pollen grain through the style and reaches the ovary. Fertilisation occurs, producing a zygote. The zygote divides repeatedly to form an embryo. Meanwhile, a tough coat forms around the ovule. The ovary wall begins to thicken and ripen. The seed, containing the embryo, eventually ends up inside this ripened structure. Under suitable conditions of moisture, warmth and oxygen, the seed can develop into a new plant.

- (i) What is the name of the ripened ovary? What is the name given to the process by which the seed develops into a new plant? (1 mark)
- (ii) What does the tough coat around the ovule eventually become, and what is its function? (1 mark)
- (iii) A flower that contains only the pistil (no stamens) cannot undergo self-pollination. Explain one way in which pollen can still reach the stigma of such a flower. (1 mark)
- (iv) State one advantage of seed formation for the dispersal and survival of the plant species. (1 mark)

◆ How do Organisms Reproduce?

Q31. medium exam-ready

[4]

Read the following passage and answer the questions that follow:

During the development of an embryo inside the mother's uterus, the embryo requires a constant supply of glucose and oxygen, and must also get rid of metabolic waste products. A specialised disc-like structure embedded in the uterine wall accomplishes this. On the embryo's side, this structure has finger-like projections that increase the surface area for exchange, while on the mother's side, there are spaces filled with blood that surround these projections. The entire development of the child inside the mother's body takes approximately nine months.

- (i) Name the specialised disc-like structure described above and name the finger-like projections on the embryo's side. (1 mark)
- (ii) How does the embryo receive glucose and oxygen through this structure, and how are waste products removed? (1 mark)
- (iii) What is the term for the stage of development when the embryo attaches to the uterine wall? Describe one change the uterine lining undergoes to prepare for this. (1 mark)
- (iv) If the egg is not fertilised, what event occurs approximately every month in the uterus? What does this event involve, and approximately how long does the complete cycle take? (1 mark)

◆ How do Organisms Reproduce?

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