

UNIQUE STUDY POINT

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Class: X	Subject: Science	Session: 2025-26
Chapter: 07 - How do Organisms Reproduce?	Time: 1½ Hours	Max. Marks: 40

General Instructions:

1. All questions are compulsory.
2. This question paper contains 20 questions divided into five sections A, B, C, D and E.
3. Section A contains 10 MCQs of 1 mark each.
4. Section B contains 4 questions of 2 marks each.
5. Section C contains 3 questions of 3 marks each.
6. Section D contains 1 question of 5 marks.
7. Section E contains 2 Case Study Based questions of 4 marks each.

SECTION A - Multiple Choice Questions (1 mark each)

- Q1.** Which of the following organisms reproduces through binary fission?
- (a) Hydra
 - (b) Amoeba
 - (c) Planaria
 - (d) Spirogyra
- Q2.** The process by which Plasmodium reproduces is called:
- (a) Binary fission
 - (b) Multiple fission
 - (c) Budding
 - (d) Fragmentation
- Q3.** Which part of the flower develops into a fruit after fertilization?
- (a) Stigma
 - (b) Style
 - (c) Ovary
 - (d) Ovule
- Q4.** The male germ cells in humans are produced in:
- (a) Vas deferens
 - (b) Testes
 - (c) Prostate gland
 - (d) Urethra
- Q5.** Which contraceptive method prevents the release of eggs in females?
- (a) Condom
 - (b) Copper-T

- (c) Oral pills
- (d) Surgical method

Q6. The term used for transfer of pollen grains from anther to stigma of the same flower is:

- (a) Cross-pollination
- (b) Self-pollination
- (c) Fertilization
- (d) Germination

Q7. The period during adolescence when reproductive tissues mature is called:

- (a) Puberty
- (b) Menstruation
- (c) Fertilization
- (d) Menopause

Q8. Which of the following is an example of vegetative propagation?

- (a) Production of seeds in mango
- (b) Growth of money plant from a cutting
- (c) Formation of spores in Rhizopus
- (d) Binary fission in Amoeba

Q9. The tissue that provides nourishment to the developing embryo in the mother's uterus is:

- (a) Ovary
- (b) Fallopian tube
- (c) Placenta
- (d) Cervix

Q10. DNA copying is essential during reproduction because:

- (a) It helps in evolution
- (b) It maintains body design features
- (c) It creates variations
- (d) All of the above

SECTION B - Short Answer Questions (2 marks each)

Q11. Differentiate between asexual and sexual reproduction. Give one example of each.

Q12. What is regeneration? Name two organisms that can regenerate.

Q13. Why are testes located outside the abdominal cavity in the scrotum?

Q14. What happens to the lining of the uterus if the egg is not fertilized?

SECTION C - Short Answer Questions (3 marks each)

Q15. Explain the process of budding in Hydra with the help of a diagram.

Q16. Describe the male reproductive system in human beings.

Q17. What is the importance of variation in reproduction? Explain with an example.

SECTION D - Long Answer Question (5 marks)

Q18. Describe the process of sexual reproduction in flowering plants. Explain what happens from pollination to seed formation.

SECTION E - Case Study Based Questions (4 marks each)

Q19. Case Study 1:

Riya observed bread kept in a cool, moist and dark place for a week. She noticed thread-like structures and tiny blob-on-a-stick structures growing on the bread surface. Her teacher told her that these are hyphae and sporangia of bread mould (Rhizopus).

Based on this case study, answer the following:

- (a) What are sporangia? (1 mark)
- (b) What is the role of spores in reproduction? (1 mark)
- (c) Why are spores covered with thick walls? (1 mark)
- (d) Name the type of reproduction taking place in Rhizopus. (1 mark)

Q20. Case Study 2:

Dr. Sharma explained to his patients about different contraceptive methods. He told them that condoms prevent pregnancy and also protect from sexually transmitted diseases. Oral pills change hormonal balance but may have side-effects. Copper-T is placed in the uterus, and surgical methods create permanent blocks in reproductive ducts.

Based on this case study, answer the following:

- (a) Which contraceptive method provides protection from STDs? (1 mark)
- (b) Why can oral pills have side-effects? (1 mark)
- (c) What is the function of Copper-T? (1 mark)
- (d) Name the surgical method used in males. (1 mark)

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DETAILED ANSWER KEY - PAPER 01

SECTION A - Answers to MCQs

Answer 1: (b) Amoeba

Amoeba reproduces through binary fission where the cell splits into two equal halves.

Answer 2: (b) Multiple fission

Plasmodium (malarial parasite) divides into many daughter cells simultaneously through multiple fission.

Answer 3: (c) Ovary

The ovary grows rapidly and ripens to form a fruit after fertilization.

Answer 4: (b) Testes

Sperms (male germ cells) are produced in the testes which are located in the scrotum.

Answer 5: (c) Oral pills

Oral contraceptive pills change the hormonal balance of the body so that eggs are not released and fertilization cannot occur.

Answer 6: (b) Self-pollination

When pollen transfer occurs in the same flower, it is referred to as self-pollination.

Answer 7: (a) Puberty

The period during adolescence when reproductive tissues begin to mature is called puberty.

Answer 8: (b) Growth of money plant from a cutting

Vegetative propagation involves parts like root, stem and leaves developing into new plants. Growing money plant from a cutting is an example of this.

Answer 9: (c) Placenta

Placenta is a special tissue through which the embryo gets nutrition from the mother's blood.

Answer 10: (d) All of the above

DNA copying maintains body design features, creates variations, and helps in evolution. All these aspects make DNA copying essential during reproduction.

SECTION B - Answers to Short Answer Questions

Answer 11:

Asexual Reproduction: New generations are created from a single individual. Example: Binary fission in Amoeba.

Sexual Reproduction: Involves two individuals for the creation of a new individual. Example: Reproduction in human beings where both male and female gametes are required.

Answer 12:

Regeneration: It is the ability of an organism to develop complete individual from its broken body parts. If

an organism is cut into pieces, each piece can grow into a complete organism.

Examples: Hydra and Planaria can regenerate.

Answer 13:

Testes are located outside the abdominal cavity in the scrotum because sperm formation requires a lower temperature than the normal body temperature. The scrotum provides an optimal temperature for sperm production.

Answer 14:

If the egg is not fertilized, it lives for about one day. The thick and spongy lining of the uterus, which was prepared to receive a fertilized egg, is not needed anymore. This lining slowly breaks and comes out through the vagina as blood and mucous in a process called menstruation.

SECTION C - Answers to Short Answer Questions

Answer 15:

Budding in Hydra:

- Hydra uses regenerative cells for reproduction through budding
- A bud develops as an outgrowth due to repeated cell division at one specific site on the parent body
- These buds develop into tiny individuals
- When fully mature, the buds detach from the parent body and become new independent individuals

Diagram: [Students should draw a Hydra with bud at different stages showing the outgrowth developing and finally detaching]

Answer 16:

Male Reproductive System:

- **Testes:** Located in scrotum, produce sperms and testosterone hormone
- **Vas deferens:** Tube that delivers sperms, unites with urinary bladder tube
- **Urethra:** Common passage for both sperms and urine
- **Seminal vesicles and Prostate gland:** Add secretions to make fluid for sperm transport and provide nutrition
- **Penis:** Organ for transfer of sperms during sexual reproduction

Answer 17:

Importance of Variation:

- Variation is beneficial for the survival of species over time
- If environmental conditions change drastically, variations help some individuals survive
- DNA copying during reproduction creates variations

Example: In a population of bacteria living in temperate waters, if water temperature increases due to global warming, most bacteria would die. However, a few variants resistant to heat would survive and grow further. Thus, variation ensures species survival during environmental changes.

SECTION D - Answer to Long Answer Question

Answer 18:

Sexual Reproduction in Flowering Plants:

1. Pollination:

- Transfer of pollen grains from anther (male part) to stigma (female part)
- Can be self-pollination (same flower) or cross-pollination (different flower)
- Achieved by agents like wind, water, or animals

2. Pollen Tube Growth:

- After landing on stigma, pollen grain grows a tube
- The pollen tube travels through the style to reach the ovary

3. Fertilization:

- Male germ-cell from pollen fuses with female gamete (egg cell) in the ovule
- This fusion forms a zygote

4. Seed Formation:

- Zygote divides several times to form an embryo within the ovule
- Ovule develops a tough coat and converts into a seed
- The seed contains the embryo (future plant)

5. Fruit Formation:

- Ovary grows rapidly and ripens to form a fruit
- Petals, sepals, stamens, style and stigma shrivel and fall off

6. Germination:

- Under appropriate conditions, the embryo in the seed develops into a seedling
- This process is known as germination

SECTION E - Answers to Case Study Based Questions

Answer 19:

(a) What are sporangia?

Sporangia are the tiny blob-on-a-stick structures involved in reproduction. They are the reproductive parts that contain cells or spores.

(b) Role of spores in reproduction:

Spores can eventually develop into new Rhizopus individuals when they come into contact with a moist surface and begin to grow.

(c) Why are spores covered with thick walls?

Spores are covered by thick walls to protect them until they come into contact with another moist surface where they can begin to grow.

(d) Type of reproduction:

Spore formation (asexual reproduction)

Answer 20:

(a) Which method provides protection from STDs?

Condoms provide protection from sexually transmitted diseases (STDs) as they create a mechanical barrier.

(b) Why can oral pills have side-effects?

Oral pills change the hormonal balance of the body to prevent egg release. Since they alter hormones, they can cause side-effects.

(c) Function of Copper-T:

Copper-T is placed in the uterus to prevent pregnancy by preventing implantation of the fertilized egg.

(d) Surgical method in males:

Vasectomy - blocking of vas deferens to prevent sperm transfer

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