7. How do Organisms Reproduce? - Board Exam Questions

2 Mark Questions

1) *Some unicellular organisms such as Plasmodium and Leishmania differ in the manner in which they reproduce. Name and explain the reproductive process taking place in them.*

Plasmodium: Multiple fission. One cell divides into many daughter cells at the same time.

Leishmania: Binary fission. One cell splits into two daughter cells, in a definite direction.

2) *Write the main steps to culture yeast in the laboratory.*

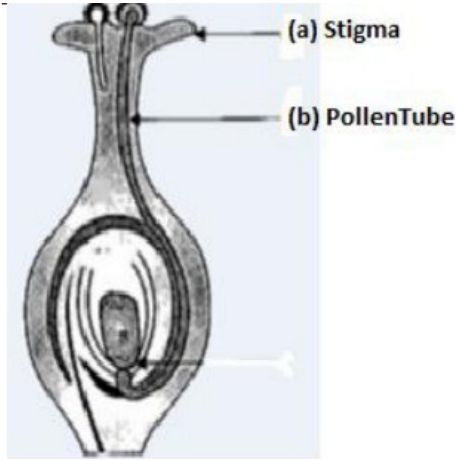
• Take 10 g of sugar in a test tube. Add 100 ml of water and a pinch of yeast granules.

• Keep it in a warm place for 1 to 2 hours.

3) *State two differences between pollination and fertilization.*

Pollination	Fertilization
Pollen grains move from the anther to the stigma.	The male gamete fuses with the female gamete.
It happens only in plants.	It happens in both plants and animals.

4) *Draw a neat diagram to show germination of pollen on the female reproductive part of the flower. Name and label only the following parts: (a) The part that receives the pollen grain. (b) The structure that carries the male germ cell to reach the female germ cell.*



(a) Stigma
(b) Pollen tube

5) *State the post-fertilisation changes that lead to fruit formation in plants.*

• The zygote divides many times and forms an embryo inside the ovule.
• The ovule gets a tough coat and slowly becomes a seed.
• The ovary grows fast and ripens into a fruit.
• The petals, sepals, stamens, style and stigma dry up and fall off.

6) *Write one function each of the following, in a seed: (i) Seed coat (ii) Cotyledon (iii) Radicle (iv) Plumule*

(i) Seed coat: protects the seed.
(ii) Cotyledon: stores food for the seed.
(iii) Radicle: grows into the root.
(iv) Plumule: grows into the shoot.

7) *Give reasons: (a) The male reproductive organ responsible for formation of germ cells is located outside the abdominal cavity. (b) The roles of the glands, present along the path of the vas-deferens, are very significant.*

(a) The testes are in the scrotum, outside the body. Sperms need a temperature lower than the body temperature to form.
(b) The glands (seminal vesicles and prostate) add a fluid to the sperms. The fluid makes it easy for the sperms to move and also gives them food.

8) *What changes are observed in the uterus subsequent to implantation of the young embryo in a human female?*
• The lining of the uterus becomes thick and gets a rich blood supply to feed the embryo.
• A placenta forms, which joins the embryo to the uterus.

9) *"Stability of DNA in a species is ensured during sexual reproduction." Justify the statement.*

Each germ cell gets only one chromosome from each pair, from the mother or the father.

When the two germ cells fuse, the zygote gets the full number of chromosomes again. So the DNA stays the same in every generation.

10) *"Variation is useful for the survival of species over time." Explain this statement with the help of an example.*

Variation gives a species a chance to survive when the surroundings change badly.

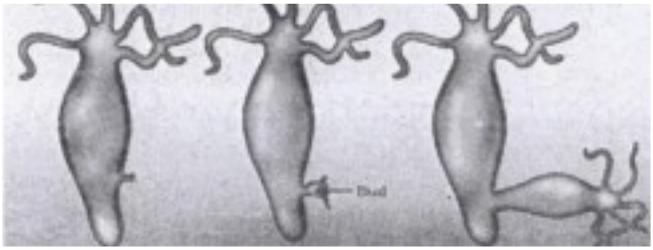
Example: Bacteria live in cool water. If the water becomes hot because of global warming, most of them die. But a few bacteria that can bear heat survive and multiply. So the species survives.

<u>3 Mark Questions</u>

1) *Explain with the help of a labelled diagram, the process of reproduction in Hydra by budding. Name the cells used for reproduction in this process.*

In Hydra, cells divide again and again at one place. This makes a small outgrowth called a bud.

The bud grows into a tiny Hydra. When it is fully grown, it breaks away from the parent and lives on its own.



Cells used: Regenerative cells

2) *(a) Define fertilisation. (b) What happens to Zygote, Ovule, Ovary and Stamens after fertilisation in a flowering plant?*

(a) Fertilisation is the fusion of the male and female gametes to form a zygote.

(b) Zygote: becomes the embryo.
Ovule: becomes the seed.
Ovary: becomes the fruit.
Stamens: dry up and fall off.

3) *List two roles of each of the following in human reproductive system: (i) Seminal vesicles and prostate gland (ii) Oviduct (iii) Testis*

(i) They give a fluid that feeds the sperms. The fluid also makes it easy for the sperms to move.

(ii) It carries the egg from the ovary to the uterus. Fertilisation takes place here.

(iii) It makes sperms. It also makes the hormone testosterone.

4) *Explain the events that take place once a sperm reaches the oviduct till it becomes a foetus. Write the role of placenta in pregnancy.*

• In the oviduct, the sperm meets the egg, and fertilisation takes place.

• The fertilised egg (zygote) divides and forms a ball of cells, called the embryo.

• The embryo fixes itself in the lining of the uterus. It grows there and forms organs. Now it is called a foetus.

Role of placenta:

(i) It has a large surface. Glucose and oxygen pass through it from the mother to the embryo.

(ii) Waste from the embryo passes through it into the mother's blood.

4 Mark Questions (Case Study)

1) *All the reproductive methods of living organisms are broadly categorized into two types: 1. Asexual reproduction, and 2. Sexual reproduction. Asexual reproduction involves the participation of a single parent without the formation of gametes, fertilisation and transfer of genetic material. This method is a common means of rapidly increasing offsprings under favourable conditions.*

(a) Name the type of fission that occurs in Leishmania and Plasmodium. (1)

(refer 1st 2 mark question)

(b) Write one advantage of sexual mode of reproduction over asexual reproduction. (1)

Sexual reproduction gives more variations. Variations help the species to survive.

(c) Give reasons why: (i) Colonies of yeast fail to multiply in water but multiply in sugar solution. (ii) Rhizopus individuals do not grow on a dry slice of bread. (2)

(i) Sugar solution gives yeast the food it needs to grow and multiply. Plain water has no food.

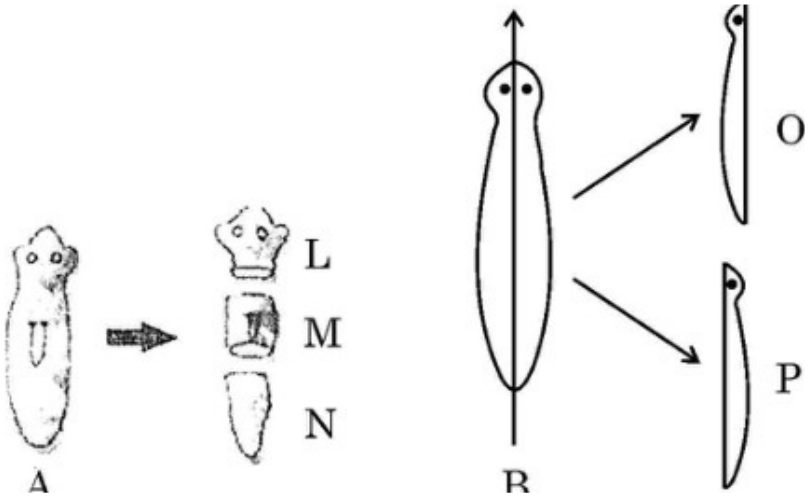
(ii) Rhizopus needs moisture to grow. A dry slice of bread has no moisture.

OR (c) Name the filamentous structures a student could identify when he collected water from a pond that appeared dark green. How do these organisms multiply? Explain.

Spirogyra. It multiplies by fragmentation.

When it is mature, it breaks into small pieces. Each piece grows into a new Spirogyra.

2) *Asexual reproduction involves a single parent to produce offsprings without the formation of gametes. It occurs by the following ways: Fission, Budding, Fragmentation, Spore formation and Regeneration. In one of the methods like regeneration, Planaria A is cut horizontally into three pieces – L, M and N and Planaria B is cut vertically into two equal halves – O and P.*



(a) Which of the cut pieces of the two Planaria could regenerate to form a complete organism? (1)

All the pieces (L, M, N, O and P) can grow into complete Planaria.

(b) Give an example of another organism which follows the same mode of reproduction as Planaria. (1)

Hydra

(c) What is the meaning of 'development' in regeneration? (2)

Special cells divide and make a large number of cells. These cells then change into different types of cells and tissues. These changes happen in a fixed order. This is called development.

OR (c) Differentiate between regeneration and fragmentation.

In regeneration, special cells divide to make new cells, and these form a new organism.

In fragmentation, each broken piece simply grows by cell division into a new organism.

3) *Pollination is an important process in sexual reproduction of plants. It is an essential process that facilitates fertilisation in plants. Pollinating agents can be wind, water, insects and birds. Several changes take place in the flower after the fertilization has taken place.*
(a) Write the main difference between self-pollination and cross-pollination. (1)

In self-pollination, pollen goes from the anther to the stigma of the same flower. In cross-pollination, pollen goes from the anther of one flower to the stigma of another flower.

(b) Name the part of the flower which attracts insects for pollination. What happens to this part after fertilisation? (1)

Petals. They dry up and fall off after fertilisation.

(c) (i) Define fertilisation. What is the fate of ovules and the ovary in a flower after fertilisation? (2)
(refer 2nd 3 mark question)
OR (c) (ii) In a germinating seed, which parts are known as future shoot and future root? Mention the function of cotyledon.
(refer 6th 2 mark question)

4) *When a girl is born, the ovaries already contain thousands of immature eggs. On reaching puberty, some of these start maturing. One matured egg is released every month by one of the ovaries. The two oviducts unite into an elastic bag-like structure known as uterus.*
(a) Write the site of fertilization in human female. (1)

Oviduct (fallopian tube)

(b) How does the uterus prepare itself to receive and nurture the growing embryo? Explain. (1)

The lining of the uterus becomes thick and gets a rich blood supply to feed the growing embryo.

(c) (i) What happens when the egg is not fertilized? (2)

The thick lining of the uterus is not needed. It slowly breaks down and comes out as blood and mucus, along with the egg. This is called menstruation.

OR (c) (ii) How does the developing embryo get nutrition from the mother's blood? Explain.

(refer 4th 3 mark question)

5 Mark Questions

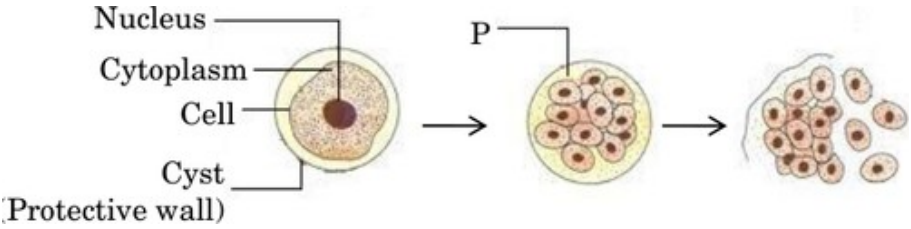
1) *Observe the given diagram and answer the questions that follow:*

(i) Give the name and type of reproduction shown in the above diagram.

(ii) Comment on the processes taking place in stage P.

(iii) Name an organism which reproduces by the above mentioned method.

(iv) Name the method that can be used to raise plants that have lost their capacity to produce seeds. List any two advantages of growing plants by such a method.



(i) Multiple fission. It is asexual reproduction.

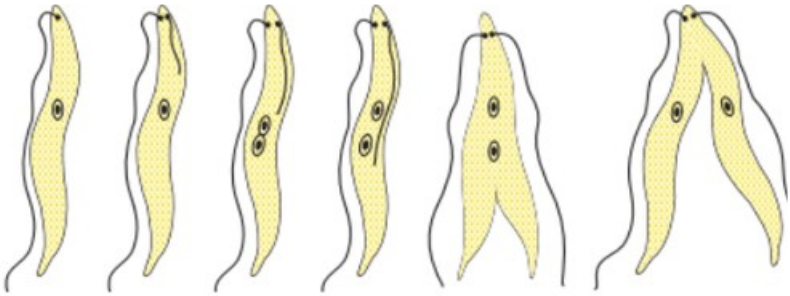
(ii) In stage P, one cell divides into many daughter cells at the same time.

(iii) Plasmodium

(iv) Vegetative propagation. Advantages:

• All the new plants are like the parent plant.
• The plants bear flowers and fruits earlier than plants grown from seeds.

2) *(i) Name the type of asexual mode of reproduction shown in the given figure.*
(ii) Identify the unicellular organism in the diagram.
(iii) List any two advantages of asexual reproduction over sexual reproduction.
(iv) Name and explain any one mode of asexual reproduction observed in Hydra.



Identify the unicellular organism in the diagram.

(i) Binary fission
(ii) Leishmania
(iii) It gives many young ones in a short time. It gives a better chance of survival in bad conditions.
(iv) (refer 1st 3 mark question)

3) *(i) Name and explain the two modes of asexual reproduction observed in hydra.*
(ii) What is vegetative propagation? List two advantages of using this technique.

(i) Budding: A bud grows out of the body and becomes a tiny Hydra. When fully grown, it breaks away and lives on its own.

Regeneration: If Hydra is cut into many pieces, each piece grows into a complete Hydra.

(ii) Growing new plants from a part of a plant like the root, stem or leaf is called vegetative propagation. Advantages:

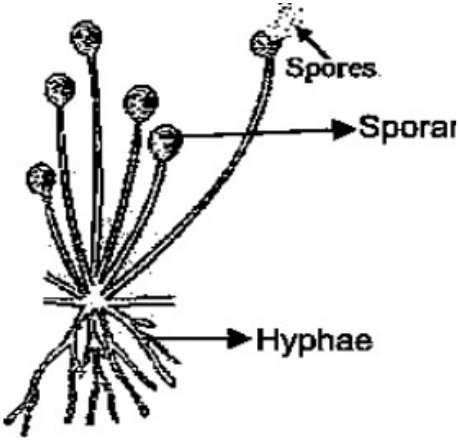
• The plants bear flowers and fruits earlier than plants grown from seeds.

• Plants that have lost the ability to make seeds, like banana, orange, rose and jasmine, can be grown.

4) *(i) Draw a diagram showing spore formation in Rhizopus and label the (a) reproductive and (b) non-reproductive parts. Why does Rhizopus not multiply on a dry slice of bread?*

(ii) Name and explain the process by which reproduction takes place in Hydra.

(i)



(a) Reproductive part: sporangia (b) Non-reproductive part: hyphae

A dry slice of bread has no moisture and food that the spores need to grow.

(ii) (refer 1st 3 mark question)

5) *(i) What are spores? On which structures are they formed? How do they overcome unfavourable conditions? Name the organism which multiplies with the help of these structures.*
(ii) Give two reasons why some plants are grown by the method of vegetative propagation. List two methods used to grow plants vegetatively.

(i) Spores are small reproductive bodies. They come out of the parent and grow into new organisms.

They are formed in sporangia.

They have a thick wall that protects them in bad conditions.

Organism: Rhizopus

(ii) Reasons: Some plants have lost the ability to make seeds. Plants grown this way bear flowers and fruits earlier.

Methods: Layering and grafting

6) *(i) What is regeneration? Give one example of an organism that shows this process and one organism that does not. Why does regeneration not occur in the latter?*
(ii) Water in a pond appears dark green and contains filamentous structures. Name these structures and the method by which they reproduce. Explain the process.

(i) Regeneration is the ability to grow a new organism from a part of the body.

Shows regeneration: Planaria. Does not: Spirogyra.

Spirogyra does not have the special cells that can divide and make new types of cells and tissues.

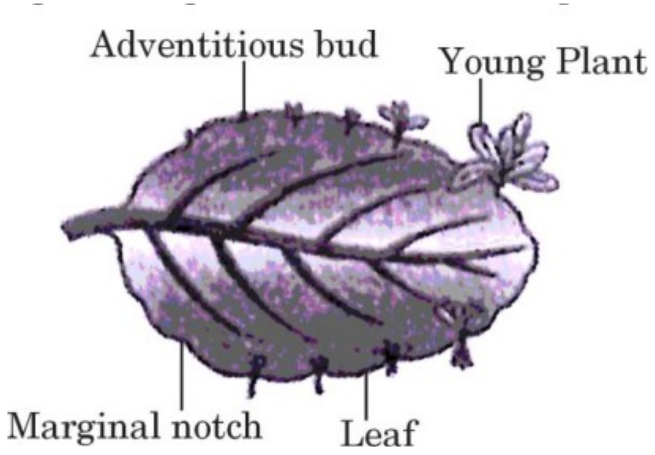
(ii) Spirogyra. It reproduces by fragmentation. When it is mature, it breaks into small pieces, and each piece grows into a new Spirogyra.

7) *(i) What happens when: (1) Leaves of Bryophyllum fall on the soil? (2) Planaria is cut into many pieces? (3) Sporangia of Rhizopus on maturation*

liberate spores? Mention the modes of reproduction in each of the above three cases.
(ii) Write the changes that occur in a flower once the fertilisation has taken place.

(i) (1) Buds in the notches of the leaf grow into new plants. Vegetative propagation.
(2) Each piece grows into a complete Planaria. Regeneration.
(3) The spores fall on a moist surface and grow into new Rhizopus. Spore formation.
(ii) (refer 5th 2 mark question)

8) *Observe the given diagram and answer the questions that follow:*
(i) Give the name of the structure and type of reproduction shown in the above diagram.
(ii) State one advantage and one disadvantage of the above mentioned method of reproduction.
(iii) Give reason: Asexual reproduction lacks genetic variation.
(iv) Why have higher organisms resorted to sexual reproduction in spite of its complexity?

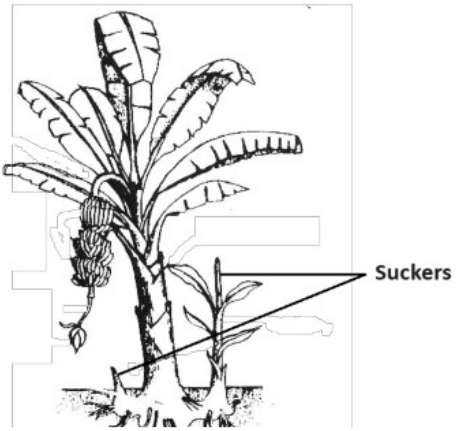


(i) Bryophyllum leaf. Vegetative propagation.

(ii) Advantage: The new plants are exactly like the parent, so the good qualities are kept.
Disadvantage: There is no variation.
(iii) Only one parent's DNA is used, and no gametes fuse.
(iv) Sexual reproduction gives variation. Variation helps the organisms survive when the surroundings change.

9) *(i) Sugarcane does not produce seeds so name the process through which it will be able to reproduce.*
(ii) List any two advantages of this method.
(iii) Besides sugarcane, give two more examples of plants that reproduce by this method.
(iv) Why regeneration is not possible in all the types of animals?
(i) Vegetative propagation
(ii) The plants bear flowers and fruits earlier than plants grown from seeds. The new plants are like the parent plant.
(iii) Rose and grapes
(iv) Regeneration is done by special cells. Only animals that have these cells can regenerate.

10) *The image below shows a banana plant which is growing with the help of suckers. These suckers are small plant stem outgrowths which can be separated from the main plant and planted separately and they will grow into a new plant subsequently.*
(i) Give the name and type of reproduction that is shown in the image above.
(ii) List two advantages the farmer will have on using the type of reproduction mentioned above.
(iii) The above plant produces male flowers. Explain how this plant will be involved in the process of pollination.
(iv) Why is the offspring of this banana plant not absolutely identical to its parent plant?



(i) Vegetative propagation. It is asexual reproduction.
(ii) He gets more crops in the same time. All the plants are like the parent plant.
(iii) Cross-pollination: Pollen from its anther is carried to the stigma of another banana plant by wind, water or insects.
(iv) Small changes happen when the DNA is copied. So there is a little variation.

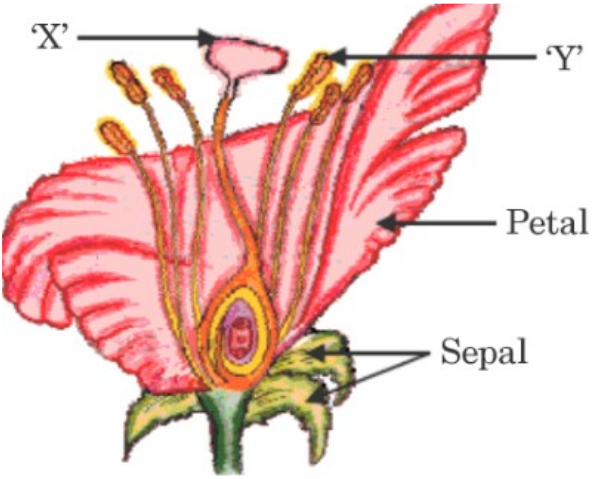
11) *Puneet wanted to grow banana plants.*
(i) Based on your knowledge on plant reproduction should he opt for seeds or any alternate method of reproduction. Justify your answer.
(ii) Offsprings of a banana plant usually show very little variation. What causes variation and are variations good or bad? Justify.
(i) He should not use seeds, because banana plants have lost the ability to make seeds. He should use vegetative propagation (stem cutting).
(ii) Errors in copying DNA cause variation.

Good: When conditions become bad, some variants can survive, so the population is saved.

Bad: The good qualities of the parents may be lost.

12) *(i) In an angiospermic flower, fertilization is said to take place when male gametes carried in the pollen tube fuse with the female gamete, present in the embryo sac. This results in lot of changes in different parts of the flower. State the changes taking place in the following structures of flower post fertilization: (a) Zygote (b) Ovule (c) Ovary (d) Sepals*
(ii) Define germination.
(i) (refer 5th 2 mark question)
(ii) Germination is the process in which a mature seed grows into a small plant (seedling) when it gets the right conditions.

13) *(i) Identify the parts 'X' and 'Y' in the figure given below.*
(ii) Name the yellowish coloured structures produced by the part labelled as 'Y'.
(iii) Write the name of the process by which these are transferred to the part labelled as 'X'.
(iv) Explain the process of seed formation in a flowering plant.



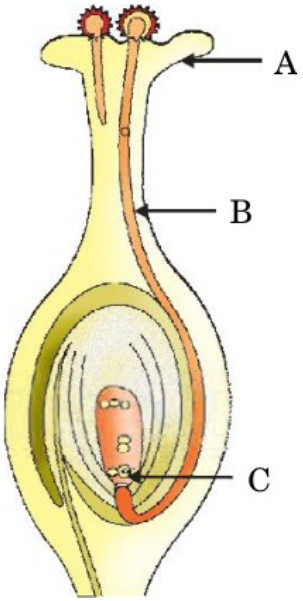
(i) X: stigma Y: anther
(ii) Pollen grains
(iii) Pollination
(iv) After pollination, a pollen tube grows out of the pollen grain. It goes down through the style and reaches the ovary.

The male germ cell fuses with the female germ cell and forms a zygote.

The zygote divides many times and forms an embryo inside the ovule.

The ovule gets a tough coat and slowly becomes a seed.

14) *(i) Differentiate between self-pollination and cross-pollination.*
(ii) Identify A, B and C in the diagram given below and write one function of each.



(i) Self-pollination: Pollen goes from the stamen to the stigma of the same flower.

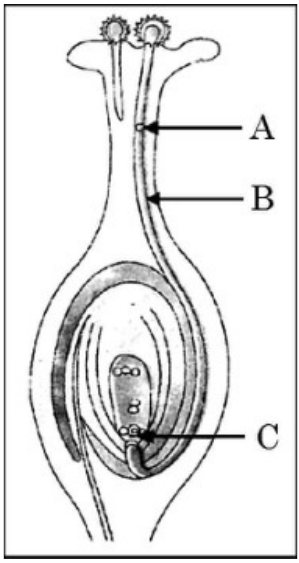
Cross-pollination: Pollen goes from the stamen of one flower to the stigma of another flower of the same kind.

(ii) A - Stigma: receives the pollen and helps it to grow.

B - Pollen tube: carries the male germ cells to the female gamete in the ovary.

C - Egg cell (female germ cell): fuses with the male gamete to form a zygote.

15) *(i) Study the diagram given below and name the parts marked as A, B and C. What happens when B reaches C in the ovary? Mention its significance.*
(ii) Write the post fertilisation changes that occur in a flower.



(i) A: male germ cell B: pollen tube C: female germ cell

B carries A to C. The male germ cell fuses with the female germ cell and forms a zygote.

Significance: The zygote grows into a new plant.

(ii) (refer 5th 2 mark question)

16) *(a) Name the parts of a bisexual flower that are not directly involved in reproduction.*
(b) Differentiate between self pollination and cross pollination. List any two significance of pollination.
(c) What is the fate of ovules and ovary after fertilization in a flower?

(a) Sepals and petals

(b) Self-pollination: Pollen goes from the anther to the stigma of the same flower, or of another flower on the same plant.

Cross-pollination: Pollen goes from the anther of a flower to the stigma of a flower on a different plant.

Significance: It is needed to form seeds. It helps the fruit to develop.

(c) (refer 2nd 3 mark question)

17) *Annie was conducting research on the number of fruits produced by watermelon under different conditions. She grew 25 watermelon plants each in both glass house A and B. She introduced pollinators in glass house A only.*

(i) What difference will she observe in the number of fruits produced in the two glass houses? Explain with reason.

(ii) List 3 changes that will occur in a flower once it gets fertilized.

(i) Watermelon has unisexual flowers. The male and female flowers are separate.

Pollinators carry pollen from male flowers to female flowers. So more flowers get fertilised in glass house A, and it will have more fruits.

In glass house B, pollen is less likely to reach the stigma, so there will be fewer fruits.

(ii) (refer 5th 2 mark question)

18) *(i) Name an organ that helps in the formation of male germ cells in humans and also mention the condition that favours the formation of male germ cells.*

(ii) In male reproductive system, write the pathway followed to deliver male germ cells to the site of fertilisation.

(iii) Mention the main physical feature of the male germ cell that helps it move towards the female germ cell.

(i) Testes. Sperms form at a temperature lower than the body temperature.

(ii) Testes → vas deferens → urethra

(iii) The sperm has a long tail.

19) *(i) Name the part performing following functions in human male reproductive system: (a) Carries sperm (b) Production of male gametes (c) Whose secretion makes the transport of sperms easier (d) Provide suitable temperature for sperm formation*
(ii) Write any two characteristics of sperms.
(iii) What are surgical contraceptive methods? Give the side effect caused by this procedure.
(i) (a) Vas deferens (b) Testes (c) Prostate gland (d) Scrotum
(ii) A sperm carries genetic material. It has a tail to move.
(iii) The vas deferens in males or the fallopian tube in females is blocked, so that fertilisation cannot happen.
Side effect: It can cause infection if it is not done properly.

20) *(i) Where are testes located in the human males and why? State two function of the testes.*
(ii) In the human female, one of the ovaries releases an egg every month. State the changes that take place if (1) the egg is fertilized, and (2) the egg is not fertilized.
(iii) What is done during the surgical method in males and females to prevent pregnancy?
(i) In the scrotum, outside the body. Sperms need a temperature lower than the body temperature to form.
Functions: They make sperms. They make the hormone testosterone.
(ii) (1) The zygote divides and forms an embryo. The embryo fixes itself in the lining of the uterus.
(2) The lining of the uterus slowly breaks down and comes out through the vagina as blood and mucus.
(iii) Males: the vas deferens is blocked (vasectomy). Females: the fallopian tube is blocked (tubectomy).

21) *(a) Define Puberty. List any two changes seen in boys at the time of puberty.*
(b) Why are testes in human males located outside the abdominal cavity in scrotum?
(c) List any three techniques of contraception used by humans. Which one of these is not meant for males?
(a) Puberty is the time in adolescence when body growth slows down and the reproductive organs begin to mature.

Changes in boys: The voice starts to crack. Thick hair grows on the face.
(b) (refer 7th 2 mark question)
(c) Condom (barrier), oral pills (chemical), copper-T (placed in the uterus).

Not meant for males: oral pills

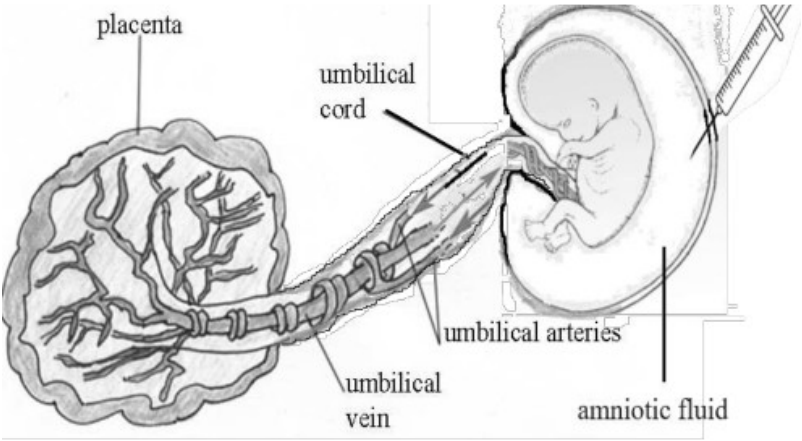
22) *(i) Write the functions of the following parts of human female reproductive system: (I) Ovary (II) Fallopian tube (III) Uterus*
(ii) State briefly two contraceptive methods used by human males.
(i) (I) Ovary: makes the eggs and the female hormone (oestrogen).
(II) Fallopian tube: fertilisation takes place here.
(III) Uterus: the embryo fixes itself and grows here.
(ii) Condom: a barrier that stops the sperms.

Vasectomy: the vas deferens is blocked by surgery.

23) *(a) Name the part performing following functions in human female reproductive system: (i) production of eggs (ii) site of fertilization (iii) site of implantation (iv) entry of the sperms*
(b) What changes are observed in the uterus: (i) subsequent to implantation of zygote and (ii) if an egg does not get fertilized?
(a) (i) Ovary (ii) Oviduct (fallopian tube) (iii) Uterus (iv) Vagina
(b) (i) (refer 8th 2 mark question)

(ii) The lining of the uterus slowly breaks down and comes out as blood and mucus, along with the egg.

24) *The image below shows a developing fetus in the mother's womb. The developing fetus is connected to the placenta by means of umbilical cord. The Umbilical vein and artery run inside the umbilical cord.*
(i) Name two substance that moves through the blood vessels.
(ii) If the placenta has less villi how will it affect the baby's growth?
(iii) Name the region where the embryo develops inside the female body. Explain how this region is adapted for nourishing the baby.
(iv) Some of the fetal cells fall off into the amniotic fluid and can be collected by careful procedure. The cells were screened and found to contain XY chromosome. a) What is the sex of the foetus? b) How is this prenatal sex determination misused?



(i) Nutrients and glucose
(ii) With fewer villi, there is less surface for food to pass from the mother to the baby. So the baby grows slowly.
(iii) Uterus. It has a thick lining with a rich blood supply to feed the baby.
(iv) a) Male
b) If the foetus is a girl, some people get it aborted. This is female foeticide.

25) *(i) Name three techniques/devices used by human females to avoid pregnancy. Mention the side effects caused by each.*
(ii) What will happen if in a human female (a) fertilisation takes place, (b) an egg is not fertilised?
(i) Oral pills: they change the hormone balance of the body.
Copper-T: it can irritate the uterus.
Surgery (fallopian tube blocked): it may cause infection.
(ii) (a) The zygote fixes itself in the lining of the uterus and starts dividing.
(b) The thick lining of the uterus breaks down and comes out through the vagina as blood and mucus.

26) *Radha has three children. She does not want to have more children. Radha visits a nearby hospital, to know the methods to prevent pregnancy.*
(i) Mention the name of any two ways other than the surgical methods, following which Radha can avoid unwanted pregnancies.
(ii) Name the surgical methods to prevent pregnancy.
(iii) Give one example each of sexually transmitted diseases caused by bacteria and virus.
(i) Barrier method (condom) and oral pills
(ii) Vasectomy (vas deferens blocked in the male) and tubectomy (fallopian tube blocked in the female)
(iii) Bacteria: gonorrhoea Virus: warts

27) *Given below are certain situations. Analyze and describe its possible impact on a person:*
a) Testes of a male boy are not able to descend into scrotum during his embryonic development.
b) Vas deferens of a man is plugged.
c) Prostate and seminal vesicles are not functional.

d) Egg is not fertilised in a human female.
e) Placenta does not attach to the uterus optimally.

a) Sperms will not form properly, because they need a temperature lower than the body temperature.

b) The vas deferens is the path for sperms. So the sperms cannot move out.

c) There will be no fluid to feed the sperms and help them move.

d) The egg lives for about one day. Then the thick lining of the uterus breaks down and comes out as blood and mucus, with the egg. This is menstruation.

e) The growing embryo will not get enough food and oxygen. Its growth will be affected.

28) *Given below are certain situations. Analyse each and describe its possible impact:*
(i) A population of bacteria living in temperate waters whose temperature increased by global warming.
(ii) The sperm encounters the egg when it reaches the oviduct in human females.
(iii) Self pollination does not occur in a flower that contains only pistil.
(iv) Egg does not get fertilised in a human female.
(v) When the seed is placed under appropriate condition of water and air in the soil?

(i) Most of the bacteria will die. But a few that can bear heat will survive and multiply.
(ii) Fertilisation takes place, and a zygote is formed.
(iii) Cross-pollination may happen, and a fruit can form.
(iv) The thick lining of the uterus breaks down and comes out as blood and mucus (menstruation).
(v) The seed grows into a seedling.

29) *Given below are certain situations. Analyse and describe what would happen when:*
(i) Spores are liberated from blob-like structures of the bread mould?
(ii) Leaves of bryophyllum fall on wet soil?
(iii) A pollen from different species land on the stigma of totally unrelated species?
(iv) Copper-T is placed in the uterus of a human female?
(v) Spirogyra breaks into smaller fragments upon maturation?
(i) The spores fall on a moist, warm surface and grow into new Rhizopus.
(ii) New plants grow from the buds in the notches of the leaf.
(iii) No pollen tube will be formed.
(iv) Pregnancy will be prevented.
(v) Each piece grows into a new Spirogyra.

30) *Give reason for the following:*
(a) During reproduction inheritance of different proteins will lead to altered body designs.
(b) Fertilization cannot take place in flowers if pollination does not occur.
(c) All multicellular organisms cannot give rise to new individuals through fragmentation or regeneration.
(d) Vegetative propagation is practised for growing only some type of plants.
(e) The parents and off-springs of organisms reproducing sexually have the same number of chromosomes.
(a) DNA has the information to make proteins. If the information changes, different proteins are made, and the body design changes.
(b) Without pollination, the male gametes cannot reach the flower.
(c) In many multicellular organisms, special cells form tissues, and tissues form organs at fixed places in the body. So they cannot grow again from a small piece.

(d) Plants grown this way bear flowers and fruits earlier than plants grown from seeds.
(e) (refer 9th 2 mark question)

31) *(a) Why is it not possible to reconstruct the whole organism from a fragment in complex multicellular organisms?*
(b) Sexual maturation of reproductive tissues and organs are necessary link for reproduction. Elucidate.
(a) Complex organisms are not just a heap of cells. Special cells form tissues, and tissues form organs, which must be at fixed places in the body. So a whole organism cannot grow from a piece by simple cell division.
(b) Sexual reproduction needs special germ cells. The body first grows to its adult size. Then body growth slows down and the reproductive organs begin to mature.

The body also changes in shape and gets new features. This time in adolescence is called puberty.

In girls, the breasts begin to grow and periods (menstruation) start. In boys, thick hair grows on the face and the voice begins to crack.

32) *(a) How are variations useful for species if there is drastic alteration in the niches?*
(b) Explain how the uterus and placenta provide necessary conditions for proper growth and development of the embryo after implantation?
(a) (refer 10th 2 mark question)
(b) The lining of the uterus becomes thick and gets a rich blood supply to feed the embryo.

The embryo gets food from the mother's blood through the placenta, which is fixed in the wall of the uterus.

The placenta has villi on the embryo's side, and blood spaces on the mother's side around the villi.

This gives a large surface for glucose and oxygen to pass from the mother to the embryo, and for waste to pass from the embryo to the mother's blood.

The baby is born when the muscles of the uterus contract again and again.