

SCIENCE
WORKSHEET_090323
CHAPTER 07 HOW DO ORGANISMS REPRODUCE?

SUBJECT: SCIENCE

MAX. MARKS : 40

CLASS : X

DURATION : 1½ hrs

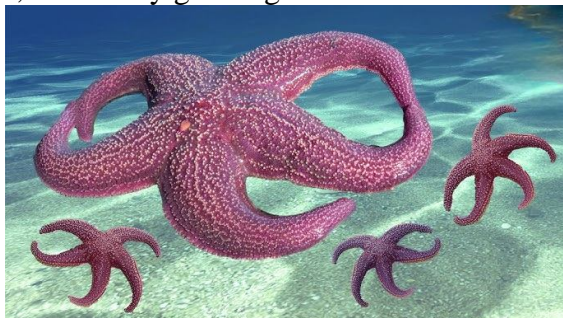
General Instructions:

- (i). All questions are compulsory.
- (ii). This question paper contains 20 questions divided into five Sections A, B, C, D and E.
- (iii). **Section A** comprises of 10 MCQs of 1 mark each. **Section B** comprises of 4 questions of 2 marks each. **Section C** comprises of 3 questions of 3 marks each. **Section D** comprises of 1 question of 5 marks each and **Section E** comprises of 2 Case Study Based Questions of 4 marks each.
- (iv). There is no overall choice.
- (v). Use of Calculators is not permitted

SECTION – A

Questions 1 to 10 carry 1 mark each.

1. Asexual reproduction in starfish takes place by fission or through autotomy of arms. In fission, the central disc breaks into two pieces and each portion then regenerates the missing parts. In autotomy, an arm is shed with part of the central disc attached, which continues to live independently as a “comet”, eventually growing a new set of arms.

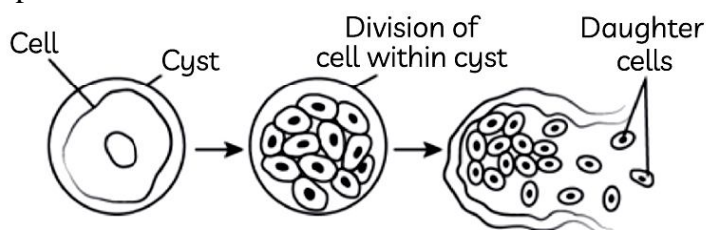


Offspring formed by asexual method of reproduction have greater similarity among themselves because:

- (I) asexual reproduction involves only one parent.
- (II) asexual reproduction does not involve gametes.
- (III) asexual reproduction occurs before sexual reproduction.
- (IV) asexual reproduction occurs after sexual reproduction.

Options:

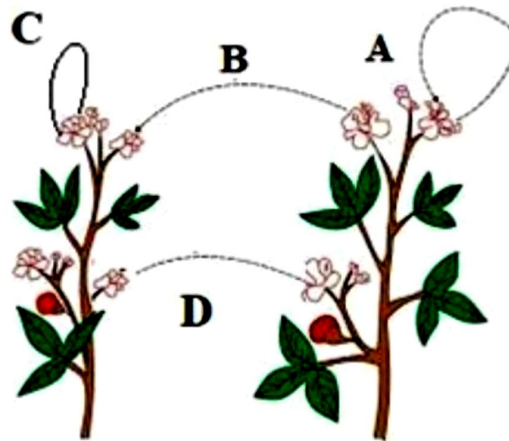
- (a) (I) and (II) (b) (I) and (III) (c) (II) and (IV) (d) (III) and (IV)
2. Select the INCORRECT match (between the plant and its vegetative part) from the following:
(a) Bryophyllum, leaf (b) Potato, stem (c) Money-plant, stem (d) Rose, root
3. The number of chromosomes in parents and offsprings of a particular species remains constant due to:
(a) doubling of chromosomes after zygote formation
(b) halving of chromosomes during gamete formation
(c) doubling of chromosomes after gamete formation
(d) halving of chromosomes after gamete formation
4. The image shows the process of division in Plasmodium.



What can be concluded about the division in Plasmodium?

- (a) The cyst divides repeatedly to form many daughter cells.
- (b) The cell divides multiple times giving rise to many daughter cells.
- (c) The nucleus divides repeatedly inside the cell to form new daughter cells.
- (d) The cyst enlarges in size and then bursts producing many new daughter cells.

5. The diagram shown below depicts pollination. Choose the options that will show a maximum variation in the offspring.



- (a) A, B and C (b) B and D (c) B, C and D (d) A and C

6. The table lists some changes that occur inside the female body after fertilisation of egg with sperm.

- (A) Rhythmic contractions of uterus muscle for child birth.
- (B) Formation of placenta.
- (C) Implantation of embryo.
- (D) Development of organs in foetus.
- (E) Cell division of zygote.

Which option correctly sequences these events?

- (a) C→B→E→A→D (b) E→C→D→B→A (c) E→C→B→D→A (d) C→E→A→B→D

7. The image shows the production of a new sugarcane from an existing sugarcane plant. The method is called vegetative propagation. Which option supports the name of this process?

- (a) It is a sexual method of producing new plants.
- (b) It is an asexual method of producing new plants.
- (c) It does not require a parent plant for reproduction.
- (d) It involves fusion of two parts of a single parent for reproduction.

8. A farmer wants to grow banana plants genetically similar enough to the plants already available in his field. Which one of the following methods would you suggest for this purpose?

- (a) Regeneration (b) Budding (c) Vegetative propagation (d) Sexual reproduction

In the following questions 9 and 10, a statement of assertion (A) is followed by a statement of reason (R). Mark the correct choice as:

- (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.

9. **Assertion (A):** Pollen grains are produced by all flowers.

Reason (R): Stamen is the male reproductive part of a flower and produces pollen grains.

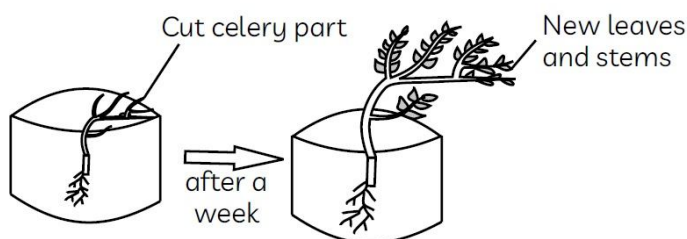
10. **Assertion (A):** A basic event in reproduction is the creation of a DNA copy.

Reason (R): The DNA in the cell's nucleus is the information source for making proteins.

SECTION – B

Questions 11 to 14 carry 2 marks each.

11. Medha cut a celery plant into two pieces. She placed the lower part of the cut celery in a jar of water.



The pictures below show what Medha observed after a week.
What can Medha conclude from her activity?

12. Give an example each of unisexual and bisexual flowers.
13. What would be the ratio of chromosome numbers between an egg and a zygote? How is the sperm genetically different from the egg?
14. Rajesh observed a patch of greenish black powdery mass on a stale piece of bread.
(a) Name the organism responsible for this and its specific mode of asexual reproduction.
(b) Name its vegetative and reproductive parts.

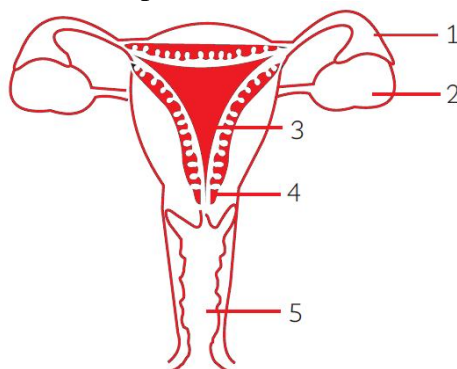
SECTION – C

Questions 15 to 17 carry 3 marks each.

15. Sneha was taught by her teacher that “Variation is useful for the survival of species.” She passed on the same information to her friend, Abdul. Support the view of both Sneha and her teacher by giving a suitable justification for the same.
16. (i) What are sexually transmitted diseases (STD)? List two viral and two bacterial STDs.
(ii) Give two reasons for avoiding frequent pregnancies by women.
17. What are chromosomes ? Explain how in sexually reproducing organisms the number of chromosomes in the progeny is maintained.

OR

- (a) Identify the given diagram. Name the parts 1 to 5.



- (b) What is contraception? List three advantages of adopting contraceptive measure.

SECTION – D

Questions 18 carry 5 marks.

18. (i) Draw a diagram to show spore formation in Rhizopus.
(ii) With the help of an example differentiate between the process of budding and fragmentation.
(iii) Why is vegetative propagation practiced for growing some type of plants?

OR

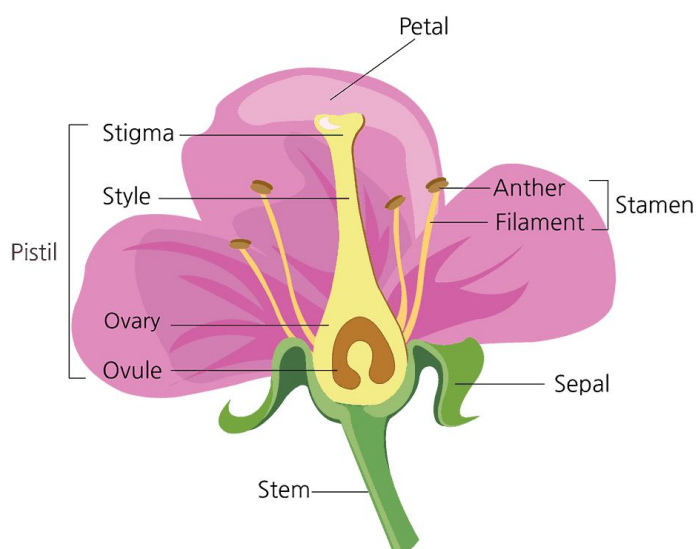
- (a) Write the functions of each of the following parts in a human female reproductive system:
 (i) Ovary (ii) Uterus (iii) Fallopian tube
 (b) Write the structure and functions of placenta in a human female.

SECTION – E (Case Study Based Questions)

Questions 19 to 20 carry 4 marks each.

- 19. Read the given passage and answer the questions based on passage and related studied concepts.**

The reproductive parts of angiosperms are located in the flower. The different parts of a flower are sepals, petals, stamens and carpels. Stamens and carpels are the reproductive parts of a flower which contain the germ cells. The flower may be unisexual (papaya, watermelon) when it contains either stamens or carpels or bisexual (Hibiscus, mustard) when it contains both stamens and carpels. Stamen is the male reproductive part and it produces pollen grains that are yellowish in colour. Carpel is present in the centre of a flower and is the female reproductive part.



- (a) (i) Where are the plant's sex organs located? (1)
 (ii) What is the function of a flower? (1)
 (b) Where are the male and female gametes formed in flowering plants? (1)
 (c) What changes take place in the flower after fertilisation which lead to the formation of seeds and fruit? (1)
- 20.** An all India lockdown was announced throughout the country in March 2020 to control the spread of Corona virus. During the lockdown period, Megha developed an interest in gardening and successfully propagated several money plants through cutting.



- (a) Which part of money plant did Megha use to propagate money plant? What name is given to such type of methods?
 (b) Can you grow Peepal or Neem by the method which is used by Megha?
 (c) Which part of the plant you would use to grow the following plants?
 Bryophyllum, Potato, Dahlia, Onion, Sweet-potato, Mint
 Is there any disadvantage of growing the above mentioned plants by this method?