	INDIAN SCHOOL AL WADI AL KABIR	
Class: X	**DEPARTMENT OF SCIENCE -2022-23** **SUBJECT: BIOLOGY**	DATE OF COMPLETION: 14.09.2022
WORKSHEET NO:4 WITH ANSWERS	**CHAPTER: HOW DO ORGANISMS REPRODUCE? – PART I (ASEXUAL REPRODUCTION)**	**A4 FILE FORMAT**
CLASS & SEC:	**NAME OF THE STUDENT:**	**ROLL NO.**

I OBJECTIVE TYPE QUESTIONS

Ia. Multiple choice questions:

1. The production of new plant from the roots, stem or leaves is called
   (a) Vegetative propagation
   (b) Asexual reproduction
   (c) Sexual propagation
   (d) Budding
2. The process of reproduction involving only one cell or parent is called
   (a) Sexual reproduction
   (b) Asexual reproduction
   (c) Spore formation
   (d) Zygote formation
3. The type of reproduction in malarial parasite is
   (a) Fragmentation
   (b) Binary fission
   (c) Multiple fission
   (d) Budding
4. The basis of variations in offsprings is due to the errors in
   (a) Evolution
   (b) Asexual reproduction
   (c) DNA copying
   (d) Sexual reproduction
5. Binary fission through specific plain takes place in
   (a) Amoeba
   (b) Leishmania
   (c) Plasmodium
   (d) Both (a) and (b)

6. The asexual reproduction in the *Spirogyra* involves:
(a) Breaking up of filaments into smaller bits
(b) Division of a cell into many cells
(c) Division of a cell into two cells
(d) Formation of a large number of buds

7. A feature of reproduction that is common to *Amoeba*, Yeast and *Spirogyra* is that:

(a) they reproduce asexually

(b) they reproduce by layering

(c) they reproduce only sexually

(d) they are all multicellular

8. Vegetatively propagated plants

(a) do not bear roots

(b) do not bear buds

(c) are genetically similar

(d) are genetically dissimilar

9. *Bryophyllum* can be vegetatively propagated by

(a) Stem

(b) Leaf

(c) Flower

(d) Root

10. The process of the division of cell into several cells during reproduction in *Plasmodium* is termed as:

(a) Fragmentation

(b) Budding

(c) Multiple fission

(d) Binary fission

11. In a potato, vegetative propagation takes place by:

(a) Stem tuber

(b) Leaf

(c) Grafting

(d) Root tuber

12. Plants like banana, rose, jasmine, orange have lost the capacity to produce

(a) Buds

(b) Seeds

(c) Flower

(d) Roots

Ib. Assertion and Reason:

For the questions 13to 14, two statements are given-one labelled Assertion (A) and the other labelled Reason(R). Select the correct answer to these questions from the options (i), (ii), (iii) and (iv)as given below:

(i) Both A and R are true and R is the correct explanation of the assertion.
(ii) Both A and R are true but R is not the correct explanation of the assertion.
(iii) A is true but R is false.
(iv) A is false but R is true.

13. **Assertion**: In multi-cellular organisms with relatively simple body organisation, simple reproductive methods can still work.
Reason: Many multi-cellular organisms, as we have seen, are not simply a random collection of cells

14. Assertion: The spores are covered by thick walls.
Reason: They protect them until they come into contact with another moist surface and can begin to grow.

II. VERY SHORT ANSWERS TYPE QUESTIONS (1 Mark)

15. What is the basic difference between asexual and sexual reproduction?
16. What is the most common type of asexual reproduction in *Amoeba*/unicellular organisms?
17. What happens if a *Planaria* is cut into two or three pieces?
18. Name the structure where spores are produced?
19. Why regeneration is not considered a general method of reproduction?

III. SHORT ANSWER TYPE QUESTIONS (3 Marks)

20. With the help of neat labelled diagrams explain the process of binary fission in *Amoeba*

21. What is vegetative propagation? List any two methods of artificial vegetative propagation. Name the method used in propagating (i) Rose and (ii) Guava

22. With the help of an experiment demonstrate how new plants arise from buds in vegetative propagation.

IV. LONG ANSWER TYPE QUESTIONS (5 Marks)

23. Explain budding in *Hydra* along with diagrams.
24. Enumerate the steps in the production of new plants through micro propagation or tissue culture. What is its significance?

25. What is fission in relation to reproduction? Describe the different types?
26. Why are budding, fragmentation and regeneration considered as asexual types of reproduction? With the help of neat diagrams explain the process of regeneration in *Planaria*.
27.(i) What is spore formation?
(ii) Draw a diagram showing spore formation in *Rhizopus*.
(iii) List two advantages for organisms which reproduce through spores.

V. BOARD BASED QUESTIONS.

28. Write one main difference between asexual and sexual mode of reproduction. Which species is likely to have comparatively better chances of survival – the one reproducing asexually or the one reproducing sexually? Give reason to justify your answer
29. How do Plasmodium and Leishmania reproduce? Write one difference in their mode of reproduction
30. List in tabular form the two differences between asexual and sexual mode of reproduction. Name and explain with the help of labelled diagram the process by which Hydra reproduces asexually.

ANSWERS

1.	(a) Vegetative reproduction
2.	(b) Asexual reproduction
3.	(c) Multiple fission
4.	(c) DNA copying
5.	(b) Leishmania
6.	(a) Breaking up of filaments into smaller bits
7.	(a) they reproduce asexually
8.	(c) are genetically similar
9.	(b) Leaf
10.	(c) Multiple fission
11.	(a) Stem tuber
12.	(b) Seeds
13.	(ii)Both A and R are true but R is not the correct explanation of the assertion.
14.	(i)Both A and R are true but R is the correct explanation of the assertion.
15.	Asexual reproduction does not involve gametes whereas sexual reproduction involves gametes
16.	Binary Fission
17.	Each piece will regenerate into new Planaria.
18.	Sporangium
19.	Regeneration is not the same as reproduction. This is because most organisms would not normally depend on being cut up to be able to reproduce
20.	Diagrams – Fig. 8.1, page no.129
21.	Vegetative propagation is that mode of asexual reproduction in which new plants are obtained from parts of parent plant like the root, stem or leaf, without the help of any

	reproductive organs. The two methods of artificial vegetative propagation are cutting and layering. (i) Rose – Cutting (ii) Guava – Layering
22.	• Take a potato and observe its surface. We can see notches on its surface • Cut the potato into small pieces such that some pieces contain a notch or bud and some do not. • Spread some cotton on a tray and wet it. Place the potato pieces on this cotton. Note where the pieces with the buds are placed. • Observe changes taking place in these potato pieces over the next few days. Make sure that the cotton is kept moistened. • Observation – We can see that those pieces which contain a notch or bud produce new plants. • Inference – This proves that new plants arise from buds in vegetative propagation
23.	Hydra use regenerative cells for reproduction in the process of budding. In Hydra, a bud develops as an outgrowth due to repeated cell division at one specific site. These buds develop into tiny individuals and when fully mature, detach from the parent body and become new independent individuals. Diagram -Fig. 8.4, page 131
24.	In tissue culture, new plants are grown by removing tissue or separating cells from the growing tip of a plant. i. The cells are then placed in an artificial medium where they divide rapidly to form a small group of cells or callus. ii. The callus is transferred to another medium containing hormones for growth and differentiation. iii. The plantlets are then placed in the soil so that they can grow into mature plants
25.	Fission – It is a method of asexual reproduction, where the parent organism divides into two or more and each one grows into an adult organism. It is of two types – i. Binary Fission ii. Multiple Fission Binary fission - It is a type of reproduction in which the parent organism divides into two daughter organisms. It is a type of asexual reproduction most commonly seen in prokaryotes like bacteria and some single-celled eukaryotes like protozoa like *Amoeba*, *Leishmania*. Multiple Fission – It is the process in which an organism divides to produce large number of identical daughter cells. Plasmodium a single-celled organism, is a malarial parasite which divides into many daughter cells simultaneously by multiple fission.
26.	Budding, fragmentation and regeneration are considered as asexual types of reproduction because gamete formation does not happen during these modes of reproduction and a single parent carries out the process of reproduction Regeneration in *Planaria* - *Planaria* can be cut into any number of pieces and each piece grows into a complete organism. This is known as regeneration (Fig. 8.3, page 131). Regeneration is carried out by Specialised cells
27.	(i) Spore formation is a type of asexual reproduction found among most of the non-flowering plants and eukaryotic organisms like fungi *Rhizopus* (ii) (Fig. 8.6, page 132).

	(iii) Advantages of Spore Formation: Spores give certain survival benefits to the organisms which reproduce by spores: - • Spores can be disseminated through air and water or even through some other carriers; like animals. • This helps an organism to spread its presence to a wider geographical area. • Spores can also remain dormant for a long time, till favorable conditions are found.
28.	Asexual reproduction does not involve the fusion of gametes and is uniparental while sexual reproduction involves the fusion of gametes and two parents are involved. The organisms reproducing sexually have better chances of survival because it promotes diversity of characters in an offspring due to combinations of genes which can lead to variation whereas in asexual reproduction evolutionary change is not possible as only one parent is involved therefore no variation takes place.
29.	*Plasmodium* reproduce by multiple fission and *Leishmania* reproduces by binary fission. In binary fission one parent organism divides to produce two identical daughter organisms whereas in multiple fission the nucleus divides repeatedly within the parent cell and produces large number of daughter organisms
30.	Asexual Reproduction — Sexual Reproduction 1. It involves only single parent — 1. It involves two parents 2. It does not involve fusion of gametes — 2. It involves fusion of gamete

PREPARED BY **MS. REJITHA SAJITH**	**CHECKED BY** **HOD - SCIENCE**