BIOLOGY

BOOKS - PRADEEP BIOLOGY (HINGLISH)

REPRODUCTION IN ORGANISMS

Curiosity Questions

1. Why the plants have greater life span as compared to animals ?

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2. Why asexual reproduction is called agamogeny ?

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3. Why the unicellular organisms, which repreduce by binary fission, are considered immortal ?

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4. It is a common observation that some plants flower in winters and some in summers. Why?

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Ncert Exercises With Answers

1. Why is reproduction essential for organisms?

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2. Which is a better mode of reproduction sexual or asexual Why?

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3. Why is the offspring formed by asexual reproduction referred to as clone ?

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4. Offspring formed due to sexual reproduction referred to as clone ?

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5. How does the progeny formed from asexual reproduction differ from those formed by sexual reproduction ?

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6. Distinguish between asexual and asexual and sexual reproduction. Why is vegetative reproduction also considered as a type of asexual reproduction ?

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7. What is vagetative propagation ? Give two suitable examples.

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8. Define : (i) Juvenile phase, (ii) Reproductive phase, (iii) Senescent phase.

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9. Higher organisms have resorted to sexual reproduction in spite of its complexity. Why?

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10. Explain why meiosis and gametogenesis are always interlinked?

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11. Identify each part and write whether it is haploid (n) or diploid (2n), in a flowering plant.

(a) Ovary (b) Anthre (c) egg (d) pollen (e) male gamete (f) zygote

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12. Define external fertilisation. Mention its disadvantages.

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13. Differentiate between a zoospore and a zygote.

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14. Differentiate between gametogenesis and embryogenesis.

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15. Describe the post fertilisation changes in a flower.

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16. What is a bisexual flower ? Collect five bisexual flowers from your neighbourbood and with the help of your teacher find out their common and scientific names.

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17. Examine a few flowers of any cucurbit plant and try to identify the staminate and pistillate flowers. Do you know any other plant that bears unisexual flowers?

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18. Why offspring of oviparous animals are at a greater risk as compared to offspring of viviparous animals ?

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Additional Questions Very Short Answer Questions

1. What is reproduction ?

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2. What is life span?

3. Give two examples which reproduce asexually by binary fission.

4. Name a unicelluar fungi which reprodues asexually by budding.

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5. Name a multicellular invertibrate which reproduces asexually by budding.

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6. How many kinds of natural vegetative reproduction take place in flowering plants?

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7. Name the artificial means of vegetative reproduction.

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8. Fill in the blanks : (a) Fusion of two ..... results in the formation of zygote. (b) Development of ..... from the ..... is called embryogenesis. (c) ..... animals lay eggs. (d) After fertilization, ... are transformed into seeds.

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9. What are secondary sexual characters ?

10. What is a clone

11. Select the organisms which reproduce by binary fission : Amoeba, Hydra, Penicillium, Paramecium, Sponge.

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12. What are vegetative propagules ?

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13. What is the major difference you observe in the offsprings produced by asexual reproduction and in the progeny produced by sexual reproduction ?

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14. What are the main causative factors which regulate the reproductive processes and related behavioural expressions in organisms ?

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15. Name the last phase of life span that ultimately leads to death. Give the important changes that occur in the body during this phase.

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16. Mention the site where syngamy occurs in amphibians and reptiles respectively.

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17. Mention a characteristic feature and a function of zoospores in some algae.

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18. Name the phase all organisms have to pass through before they can reproduce sexually.

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19. Name an orgainsm where cell division in itself is a mode of reproduction

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20. Name an alga that reproduce asexually through zoospores. Whya are these reproductive units so called?

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21. Name the phenomenon and one bird where the female gamete directly develops into a new organism.

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22. Name any two means of vegetative propagation in pineapple plant.

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Additional Questions Short Answer Questions

1. What is asexual reproduction ?

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2. What is sexual repoduction?

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3. Write one difference between binary fission and budding.

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4. What are spors ? Name at least types of spores.

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5. How do roots take part in vegeative propagation ?

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6. Give the significane of asexual reproduction.

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7. Differentiate between parthenocarpy and pathenogenesis. Give one example of each.

8. Name at least three changes seen in human males that are indicative of reproductive maturity.

9. Name at least three changes seen in human females that are indicative of reproductive maturity.

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10. Coconut palm is monoecious while date palm is dioecious. Why are they called so?

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11. What is fission ? Name the types of fission.

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12. Differentiate between the following :

(a) Zoospore and zygote (b) Syngamy and fertilization

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13. Fill in the blanks : A. The development of ..... from the zygote is called .....

B. Embryonal protection and care are better in ..... animals .

C. ..... animals lay eggs.

D. In followering plants, after ..... ovary develops into fruit and ..... mature into seeds.

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14. Although potato tuber is an underground part, it is considered as a stem. Give two reasons.

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15. Rearrange the following events of sexual reproduction in the sequence in which they occur in a flowering plant embryogenesis, fertilisation, gametogenesis, pollination.

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16. Which of the following are monoecious and dioecious organisms ?

(a) Earthworm..... , (b) Chara .....

(c) Marchantia ..... , (d) Cockroach .....

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17. Match the organisms given in column I with the vegetative propagules given in column II.

	Column I		Column II
A.	*Bryophyllum*	1.	Offset
B.	*Agave*	2.	Eyes
C.	Potato	3.	Leaf buds
D.	Water hyacinth	4.	Bulbils

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18. What do the following parts of a flower develop into after fertilisation ?

(a) Ovary ..... , (b) Ovules .....

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19. Mention two advantages of micropropagation technique.

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20. A Moss Plant is unable to complete its life-cycle in a dry environment. State two reasons.

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21. Why do moss plants produce very large number of male gametes ? Provide one reasons. What are these gametes called ?

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22. Briefly explain gemmule formation is sponges. Write its significance.

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23. (A) Why do organisms like algae and fungi shift from asexual mode of reproduction to sexual mode ?

(b) What is a juvenile phase in organisms ?

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24. Describe the importance of vegetative propagation in economically important plants.

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25. Distinguish between asexual and sexual reproduction.

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26. Describe how the organisms maintain chromosome numbers during multiplication by sexual reproduction.

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27. Distinguish between oviparous and viviparous animals.

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28. Write the modes of asexual reproduction is the following organisms

Bryophyllum, Potato, Yeast, Rhizopus, Penicillium.

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29. Match the items in column (A) with column (B). Each point in column (A) has minimum one match in column (B) and maximum two matches

Column (A)	Column (B)
(1) Binary fission	(a) Penicillium
(2) Budding	Bryophyllum
(3) Zoospore	(c) Potato
(4) Conidia	(d) Algae
(5) Tuber	(e) Yeast
(6) Leaf buds	Amoeba
	(f) Hydra
	(h) Paramecium

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30. In haploid organisms that undergo sexual reproduction, name the stage in the life cycle when meiosis occurs. Give reasons for your answer.

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31. With which type of reproduction do we associate the reduction division? Analyse the reason for it.

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32. Suggest a possible explanation why the seeds in a pea pod are arranged in a row, whereas those in tomato are scattered in the juicy pulp.

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33. Draw the sketch of a zoospore and a conidium. Mention two dissimilarities between them and atleast one feature common to both structures.

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34. Write a note on micropropagation.

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35. Write a short note on sporulation and budding.

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Additional Questions Long Answer Ouestions

1. Describe the major events in sexual reproduction.

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2. Describe the various modes of asexual reproduction in the living organisms.

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3. Write shrot notes on : (a) Embryogenesis (b) Syngamy

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4. Distinguish between

(a) Asexual and sexual reproduction (b) Gametogenesis and embryogenesis (c) Budding and fission

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5. Describe the improtance of reproduction in living organisms.

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6. Enumerate the differences between asexual and sexual reproduction. Describe the types of asexual reproduction exhibited by unicellular organisms.

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7. Do all the gametes formed from a parent organism have the same genetic composition (identical DNA copies of th parental genome)? Analyse the situation with the background of

gametogenesis and provide or give suitable explanation.

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8. Rose plants produce large, attractive bisexual flowers, but they seldom produce fruits. On the other hand a tomato plant produces plenty of fruits though they have small flowers. Analyse the reasons for failure of fruit formation in rose.

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Analytical Ouestions With Answers

1. Why are the plants raised through micropropagation termed somaclones ?

(b) Mention two advantage of this technique .

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2. Why is water necessary for a moss plant to complete its life cycle ? List two reasons.

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3. In a developing embryo, analyse the consequences if cell divisions are not followed by cell differentiation.

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4. Suggest a possible explanation why the seeds in a pea pod are arranged in a row, whereas, those in tomato are scattered in the juicy pulp.

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5. Which artificial method of vegetative propagation is most commonly applied by farmers for propagating the following :

(i) Grape vine

(ii) Litchi

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6. Why do higher oranisms shift to sexual mode of reproduction is spits of these being complex?

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7. In an experiment, Mr. john dissected a large potato tuber into several small pieces and then placed each piece in a separate pot for gertmination. After few days, he observed that a few pieces germinated and developed new plants. The others did not germinate at all. Give the possible reasons.

8. A gardener graftend a scion of " Dashahri" mango twig to the stokc of Zea mays. He took all

precautions during the grating the process but failed to get positive results as the grafting an internode. Give the possible reason.

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9. Ramesh tried to propagate sugarcane vegetatively by sowing a segment of stem having internodal region only. Suresh tired the same by sowing a segment of stem having an internode and node. who choose the correct segment and why ?

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10. Which one of is advance-external fertilization or internal fertilization? Give reasons in support of your answer.

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11. What will you do to convert a bisexual flower into a female so that it is cross pollinated artificially.

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12. In angiosperms, the pollen germinates to produce pollen tube that carries two gametes. what is the pupose of carrying gamete formation when single gemet can fertilize the egg?

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13. It is obsereved that gemets of both haploid and diploid parents are haploid. Name the kind of cell division during of gemet formation in case of haploid and dipolid organisms.

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14. It is generally observed that the number of male gamtes produced is several thousand times the number of female gametes. What is the reason. behind it ?

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15. Ond day, Ramesh was standing in the kitchen with his mother who was cutting onions for making vegetable. He observed that in some of

the onion bulbs, green leaves appeared on the upper end and roots on the lower end . Next day, he shared his observations with hsi class teacher and asked him the following questions.

(i) What is the name of this type of propagation ?

(ii) Can this mathod be used for raising onion plants at home also?

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16. List the reasons of selecting 'stock and scion' during grafling between two closely related

dicotyledonous plants having vascular cambia by the gradeners.

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17. Which artificial methods of vegetative propagation are commonly used by plant growers for propagating rose plant ?

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18. Which is the quick artificed method of vegetative propgation ? why is it advantageous?

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Practice Questions Multiple Choice Questions I

1. A scion is grafted to a stock. The quality of fruits produced will be determined by the genotype of -

A. Stock

B. Scion

C. Both stock and scion

D. Neither stock or scion

Answer: A

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2. Transerse binary fission occurs in

A. Euglena

B. Amoeba

C. Hydra

D. Paramecium

Answer: D

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3. In which of the following organisms, self fertilization is seen ?

A. Fish

B. Roundworm

C. Earthworm

D. Liver fluke

Answer: D

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4. Which of the following animals is having longitudinal binary fission

A. Euglena

B. Plasmodium

C. Planaria

D. Paramecium

Answer: A

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5. Spermatids are transformed into spermatozoa by

A. Spermiation

B. Spermatogenesis

C. Meiosis

D. Spermiogenesis

Answer: E

6. Which one of the following is hermaphrodite

A. Ant

B. Aphids

C. Earthworm

D. Cockroach

Answer: C

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7. Study of pollen grain is called

A. Taxonomy

B. Palynology

C. Demography

D. Zoology

Answer: B

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8. When seeds are attached to parent plant the type of germination is know as

A. Ovipary

B. Epigeal

C. Vivipary

D. Hypogeal

Answer: C

9. Sexual reporduction in fungi may occur by means of

A. Zporagiospore, oospore and ascospore

B. Zoospore, oospor, and ascopsor

C. Sporangiospor, ascospore and baisdiospore

D. Oospore, ascospore and basidiospor

Answer: D

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10. External fertilization occurs in majority of

A. Alage

B. Fungi

C. Liverworts

D. Mosses

Answer: A

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11. Vegetative propagation in mint occurs by

A. Offset

B. Rhizome

C. Sucker

D. Runner

Answer: C

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12. Which of the following statements, support the view that elaborate sexual reproductive process appeared much later in the organic evolution ?

(i) Lower groups of organisms have simpler body design.

(ii) Asexual reproduction is common in lower groups.

(iii) Asexual reproduction is common in higher groups of organisms.

(iv) The high incidence of sexual reproduction in angiosperms and vertebrates.

Choose the correct answer given below.

A. (i) and (ii)

B. (i) and (iii)

C. (ii) and (iv)

D. (ii) and (iii)

Answer: C

13. Offspring formed by sexual reproduction exhibit more variation than those formed by asexual reproduction because

A. Sexual reproduction is a lengthy process

B. Gametes of parents have qualitatively different genetic composition.

C. Genetic material comes from parents of two different composition

D. Greater amount of DNA is involved in sexual reproduction.

Answer: B

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14. Choose the correct statement from amongst the following.

A. Dioecious (hermaphrodite) organisms are seen only in animals

B. Dioecious organisms are seen onyl in plants

C. Dioecious organisms are seen in both plants and animals.

D. Dioecious organisms are seen only in vertebrates

Answer: C

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15. There is no natural death in single celled organisms like Amoeba and bacteria because

A. They cannot reproduced sexually

B. They reproduced by binaary fission

C. Parental body is distributed among the offsprings

D. They are microscopic

Answer: C

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16. There are various types of reproduction. The type of reproduction adopted by an organism depends on

A. The habitat and morphology of the organisms

B. Morphology of the organism

C. Morphology and physiology of the organisms

D. The organism's habitat, physiology and genetic makeup

Answer: D

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17. Identify the incorrect statement.

A. In asexual reproduction, the offsprings, produced are morphologically indentical to the parent.

B. Zoospores are sexual reproductive structures

C. In asexual reporduction, a single parent produces offsprings with or without the formation of gemetes

D. Conidia are asexual structures in Pencillium

Answer: B

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18. Which of the following is a post-fertilization even in flowering plants?

A. Transfer of pollen grains

B. Embryo development

C. Formation of flower

D. Formation of pollen grains

Answer: B

19. The number of chromosomes in the shoot tip cells of a maize plant is 20. The number of chromosomes in the microspore mother cells of the same plant shall be

A. 20

B. 10

C. 40

D. 15

Answer: A

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20. Vegetative propagation in Pistia occurs by

A. Stolon

B. Offset

C. Runner

D. Sucker

Answer: B

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21. Which one of the following processes results in the formation of clone of bacteria?

A. Trasformation

B. Transduction

C. Binary Fission

D. Conjugation

Answer: C

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22. Micropropagation is a technique

A. for production of true to type plants

B. for production of haploid plants

C. for production of somatic hybrids

D. for production of somaclonal plants

Answer: A

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23. Example of corms is

A. Ginger

B. Colocasia

C. Onion

D. Potato

Answer: B

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24. What is common between vegetative reproduction and Apomixis

A. both are applicable to only dicot plants

B. both bypass the flowerings phase

C. both occur round the year

D. both proudced progency identical to the parent

Answer: D

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25. Which part would be most suitable for raising virus free plants for micropropagation?

A. Bark

B. Vascular tissue

C. Meristem

D. Node

Answer: C

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26. Which one of the following is common to multicellular fungi, filamentous algae and protonema of mosses

A. Diplontic life cycle

B. Members of kingdom plantae

C. Mode of Nutrition

D. Multiplication by fragmenatation

Answer: D

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27. Banna is vegetatively propagated by

A. tubers

B. rhizomes

C. bulbs

D. suckers

Answer: B

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28. Product of sexual reproducation generally generates

A. prolonged dormancy

B. new genetic combination leading to variation

C. large biomass

D. longer vability of seeds

Answer: B

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29. To obtain virus free healthy plants from a diseased one by tissue culture technique, which part/parts of the diseased plant will be taken ?

A. Apical meristem only

B. Palisade parenchyma

C. Both apical and axillary meristems

D. Epidemis only

Answer: C

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30. Wich of the follwoing paris of is not correctly matched?

A.

	Mode of reproduction	Example
(a)	Rhizome	Banana

B.

	Mode of reproduction	Example
(b)	Binary fission	Sargassum

C.

	Mode of reproduction	Example
(c)	Conidia	Penicillium

D.

	Mode of reproduction	Example
(d)	Offset	Water hyacinth

Answer: D

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31. Which one of the following statements is not correct?

A. Offsprings produced by the sexual reproduction are called clone

B. Microscopic, motile asexual reproductive structures are called zoospores.

C. In potato, banana and ginger, the plantlets, arise from the internodes in the modified stem

D. Water hyacinth, growing in the standing water, drains oxygen from water that lead to the death of fishes

Answer: C

32. Which one of the following generates new genetic combinations leading to mutations

A. Vegetative reproduction

B. Parthenogensis

C. Sexual reproduction

D. Nucellar polyembryony

Answer: C

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33. Which one is wrongly matched?

A. Uniflagellate gametes- Polysiphonia

B. Biflagellate zoospores- Brown alage

C. Gemma cups- Marchantia

D. Unicellular organism -Chlorella

Answer: A

34. Offsets are produced by

A. meiotic divisions

B. mitotic divisions

C. parthenocarpy

D. parthenogenesis

Answer: B

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Practice Questions Assertion Reason Type Questions Ii

1. Assertion : Grafting is not usually possible in monocots.

Reasons : Sucessfule grafting requires that

cambia of both stock and scion fuse to form new vascular tissues.

A. If both Assertion and Reasons are true and the Reason is a correct explanatin of the Assertion.

B. If both Assertion and Reasons are true but Reason is a correct explanatin of the Assertion.

C. If Assertion is true but the Reasons is false.

D. If both Assertion and Reasons are false.

Answer: A

2. Assertion: A plant biotype can be retained and multiplied identifinitely without any change or variation by the method of asexual reproduction Reason: Asexual reproduction does not involve meiosis and syngamy

A. If both Assertion and Reasons are true and the Reason is a correct explanatin of the

Assertion.

B. If both Assertion and Reasons are true but Reason is a correct explanatin of the Assertion.

C. If Assertion is true but the Reasons is false.

D. If both Assertion and Reasons are false.

Answer: A

3. Assertion : In angiosperms, the ovlue delelopes into a seed after fertilization.

Reason : Fertilization is not essential for the developement of fruit.

A. If both Assertion and Reasons are true and the Reason is a correct explanatin of the Assertion.

B. If both Assertion and Reasons are true but Reason is a correct explanatin of the Assertion.

C. If Assertion is true but the Reasons is false.

D. If both Assertion and Reasons are false.

Answer: B

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4. Assertion : An ovlue is tranformed into a fruit after fertilization.

Reason : The fruits are formed ony from ovules.

A. If both Assertion and Reasons are true and the Reason is a correct explanatin of the

Assertion.

B. If both Assertion and Reasons are true but Reason is a correct explanatin of the Assertion.

C. If Assertion is true but the Reasons is false.

D. If both Assertion and Reasons are false.

Answer: D

5. Assertion : Viviparous animals give better protection to their offsprings.

Reason : They lay their eggs in safer places in the environment.

A. If both Assertion and Reasons are true and the Reason is a correct explanatin of the Assertion.

B. If both Assertion and Reasons are true but Reason is a correct explanatin of the Assertion.

C. If Assertion is true but the Reasons is false.

D. If both Assertion and Reasons are false.

Answer: C

6. Assertion : Zygote is the only cell that gives a vital link between two generations of an organism.

Reasons : The two gametes fuse to form a single zygote.

A. If both Assertion and Reasons are true and the Reason is a correct explanatin of the Assertion.

B. If both Assertion and Reasons are true but Reason is a correct explanatin of the Assertion.

C. If Assertion is true but the Reasons is false.

D. If both Assertion and Reasons are false.

Answer: B

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7. Assertion : Zoospores in Chlamydomonas are frequently formed in the night during favourable conditions.

Reason : Zoospore swims for a certain for a certain time and then grows into a new plants.

A. If both Assertion and Reasons are true and the Reason is a correct explanatin of the Assertion.

B. If both Assertion and Reasons are true but Reason is a correct explanatin of the

Assertion.

C. If Assertion is true but the Reasons is false.

D. If both Assertion and Reasons are false.

Answer: B