

DPP - Daily Practice Problems

Chapter-wise Sheets

Date : Start Time : End Time :

BIOLOGY

CB23

SYLLABUS : Reproduction in Organism

Max. Marks : 180

Marking Scheme : + 4 for correct & (-1) for incorrect

Time : 60 min.

INSTRUCTIONS : This Daily Practice Problem Sheet contains 45 MCQ's. For each question only one option is correct. Darken the correct circle/ bubble in the Response Grid provided on each page.

- Which one of the following is not a method of vegetative propagation?
(a) Budding (b) Layering
(c) Sowing (d) Tissue culture
- A population of genetically identical individuals, obtained from asexual reproduction is
(a) Callus (b) Clone
(c) Deme (d) Aggregate
- Natural parthenogenesis occurs in:
(a) Protozoans (b) Earthworm
(c) All insects (d) Honeybee
- Retention of larval characters even after sexual maturity is called
(a) Parthenogenesis (b) Ontogenesis
(c) Paedogenesis (d) Neoteny
- Asexual reproduction is an effective strategy in stable environments because
(a) gametogenesis is most efficient under these conditions.
(b) the offspring, genetically identical to their parents, are preadapted to the environment.
(c) asexual parthenogenesis produces a large amount of genetic diversity.
(d) animal cells tend to be more totipotent under stable conditions.
- If you compared the genetic makeup of an animal produced by parthenogenesis with that of its mother, which of the following would you expect?
(a) About 100 percent genetic similarity
(b) About 50 percent genetic similarity
(c) No genetic similarity
(d) Parthenogenetic animals have no mother

**RESPONSE
GRID**

1. (a)(b)(c)(d) 2. (a)(b)(c)(d) 3. (a)(b)(c)(d) 4. (a)(b)(c)(d) 5. (a)(b)(c)(d)
6. (a)(b)(c)(d)

Space for Rough Work

7. Which of the following statements about animals that utilize external fertilization is *false*?
- They are divided equally between terrestrial and aquatic species.
 - Many produce large numbers of gametes to ensure successful reproduction.
 - The behaviours associated with mating are often highly synchronized.
 - The probability of any one egg being fertilized and developing into an adult can be low.
8. Which of the following statements about animal reproduction is *false* ?
- Species that reproduce sexually cannot also reproduce asexually.
 - Viviparity, but not ovoviviparity, is common in mammals.
 - Male insects can remove spermatophores deposited in a female by other males.
 - Oogenesis and spermatogenesis both occur in simultaneous hermaphrodites.
9. Which of the following animals qualifies as a sexually reproducing, oviparous species ?
- Human
 - Chicken
 - Kangaroo
 - Sea star
10. Benefits of asexual reproduction include all of the following except
- it often allows for the production of many more offspring at the same time
 - it is advantageous in changing environments in which population variety is the key to successful propagation of a species
 - it is easier in certain environments to have offspring without searching for a mate
 - allowing the conservation of resources otherwise allocated to finding mates and performing ritualized courtship.
11. All the 'eyes' of a potato tuber are taken out and it is sown in the ground normally. New plants will
- Not emerge
 - Emerge normally
 - Be weaker
 - Be healthier
12. Basal half of an onion bulb is removed and upper half is sown in the ground. New plant will
- Emerge normally
 - Not emerge
 - Be without leaves
 - Be without flowers
13. A small portion of cane-sugar stem between the two successive nodes is cut off and sown in the soil normally. New plants will
- Be formed normally
 - Not be formed
 - Be without juice
 - Without nodes
14. A cutting of rose plant is thoroughly waxed and planted in the soil normally, It will form
- New rose plant
 - A dead piece of rose stem after some time
 - A rose plant of improved variety
 - None of these
15. When an ovary develops into a fruit, without fertilization, it is called
- apospory
 - apogamy
 - parthenocarpy
 - porogamy
16. Asexual reproduction is the best strategy for plants
- that are well adapted to their stable environment.
 - as winter approaches
 - when new genes must be introduced
 - that have underground stems.
17. Bamboo reproduces by
- rhizomes
 - tubers
 - corms
 - stolons
18. Grafting is an example of asexual reproduction. Which of the following choices is an example of asexual reproduction involving nonvegetative parts of a plant ?
- Apomixis
 - Production of corms
 - Production of bulbs
 - Production of rhizomes
19. What is necessary for successful grafting to occur ?
- Each section must be able to form roots.
 - The grafted section must be able to form seeds.
 - Fusion of the two vascular tissues must occur.
 - Fusion of the two cambial tissues must occur.
20. Banana fruits are seedless, because
- auxins are sprayed for rapid development of fruit.
 - vegetative propagation of plant.
 - they are triploid plants.
 - fruits are artificially ripened.

RESPONSE
GRID

7. (a)(b)(c)(d) 8. (a)(b)(c)(d) 9. (a)(b)(c)(d) 10. (a)(b)(c)(d) 11. (a)(b)(c)(d)
 12. (a)(b)(c)(d) 13. (a)(b)(c)(d) 14. (a)(b)(c)(d) 15. (a)(b)(c)(d) 16. (a)(b)(c)(d)
 17. (a)(b)(c)(d) 18. (a)(b)(c)(d) 19. (a)(b)(c)(d) 20. (a)(b)(c)(d)

Space for Rough Work



21. Consider the following statements and choose the correct option.
- The genetic constitution of a plant is unaffected in vegetative propagation.
 - Rhizome in ginger serves as an organ of vegetative reproduction.
 - Totipotency of cells enables us to micropropagate plants.
- Statements (i) and (ii) alone are true
 - Statements (ii) and (iii) alone are true
 - Statement (ii) alone is true
 - All the three statements (i), (ii) and (iii) are true
22. Plants identical to mother plants can be obtained from
- seeds
 - stem cutting
 - Both (a) and (b)
 - None of these
23. Ploidy of ovary, anther, egg, pollen, male gamete and zygote are respectively-
- $2n, 2n, n, 2n, n, 2n$
 - $2n, 2n, n, n, n, 2n$
 - $2n, n, n, n, n, n$
 - $2n, 2n, n, 2n, 2n, 2n$
24. Offsprings of oviparous animals are at greater risk as compared to offsprings of viviparous animals because-
- Proper embryonic care and protection is lesser
 - Embryo is not developed
 - Progenies are with more variation
 - Progenies are larger
25. The parameter(s) of senescence or old age is/are-
- End of the reproductive phase
 - Concomitant change in body (like slowing metabolism)
 - Failure of metabolism decreases
 - Both (a) and (b)
26. The terms homothallic and monoecious are used to denote
- bisexual condition
 - unisexual condition
 - staminate flowers
 - pistillate flowers
27. During regeneration, modification of an organ to other organ is known as
- Morphogenesis
 - Epimorphosis
 - Morphallaxis
 - Accretionary growth
28. Cells become variable in morphology and function in different regions of the embryo. The process is
- differentiation
 - metamorphosis
 - organisation
 - rearrangement
29. Earthworms, sponges, tapeworms are
- bisexual animals
 - unisexual animals
 - hermaphrodites
 - Both (a) and (c)
30. The site of origin of the new plantlets in potato, dahlia, ginger and banana is-
- Floral buds present on stem
 - Internodes of modified stem
 - Nodes of modified stem
 - Adventitious buds present on root
31. Among the following which one is not a method of vegetative propagation?
- Budding
 - Layering
 - Sowing
 - Tissue culture
32. Vegetative propagation in mint occurs by:
- offset
 - rhizome
 - sucker
 - runner
33. What is common between vegetative reproduction and apomixis?
- Both are applicable to only dicot plants
 - Both bypass the flowering phase
 - Both occur round the year
 - Both produces progeny identical to the parent
34. Individuals of a clone-
- Are genetically similar but morphologically different
 - Are morphologically similar but genetically different
 - Are morphologically and genetically similar
 - Are genetically and phenotypically different
35. Some organisms are capable of asexual or sexual reproduction. Under favourable conditions, reproduction proceeds asexually. When conditions become more stressful reproduction switches to a sexual mode. Why?
- Sexual reproduction is simple and more rapid allowing larger numbers of offspring to be produced
 - Sexual reproduction requires two separate individuals, who can mutually provide nutrient support during stress
 - Sexual reproduction produces individuals with new combinations of recombined chromosomes increasing diversity
 - Asexual reproduction requires more energy

RESPONSE
GRID

- | | | | | |
|---------------------|---------------------|---------------------|---------------------|---------------------|
| 21. (a) (b) (c) (d) | 22. (a) (b) (c) (d) | 23. (a) (b) (c) (d) | 24. (a) (b) (c) (d) | 25. (a) (b) (c) (d) |
| 26. (a) (b) (c) (d) | 27. (a) (b) (c) (d) | 28. (a) (b) (c) (d) | 29. (a) (b) (c) (d) | 30. (a) (b) (c) (d) |
| 31. (a) (b) (c) (d) | 32. (a) (b) (c) (d) | 33. (a) (b) (c) (d) | 34. (a) (b) (c) (d) | 35. (a) (b) (c) (d) |

Space for Rough Work



36. Apomixis in plant means development of a plant
 (a) from root cuttings
 (b) without fusion of gametes
 (c) from fusion of gametes
 (d) from cuttings of stem
37. Which of the following is not vegetative propagule ?
 (a) Rhizome and sucker
 (b) Tuber and offset
 (c) Bulbil (e.g. in *Agave*), leaf buds and bulb
 (d) Antherozoid
38. Which of the following is false about external fertilization?
 (a) Organisms showing external fertilization exhibit great synchrony between the sexes and release gametes.
 (b) Gametes are produced in large number in water to enhance the chances of fertilization.
 (c) A large number of gametes are wasted.
 (d) A major advantage is that the offspring are protected from predators and there is a great chance of their survival upto adulthood.
39. Modified stem present in *Gladiolus* is:
 (a) bulb (b) rhizome
 (c) corm (d) bulbil
40. Which of the following are seasonal breeders?
 (a) Frogs (b) Birds
 (c) Lizards (d) All of these
41. Select the wrong statement:
 (a) Anisogametes differ either in structure, function or behaviour.
 (b) In oomycetes female gamete is smaller and motile, while male gamete is larger and non-motile.
 (c) *Chlamydomonas* exhibits both isogamy and anisogamy and *Fucus* shows oogamy.
 (d) Isogametes are similar in structure, function and behaviour.
42. Monoecious plant of *Chara* shows occurrence of :
 (a) stamen and carpel of the same plant
 (b) upper antheridium and lower oogonium on the same plant
 (c) upper oogonium and lower antheridium on the same plant
 (d) antheridiophore and archegoniophore on the same plant
43. Which of the following statement(s) is/are false about internal fertilization?
 (i) Male gametes are motile.
 (ii) Male gametes are non-motile.
 (iii) Male gametes are produced in large number.
 (iv) Male gametes are produced in small number.
 (v) There is a significant reduction in the number of eggs produced.
 (a) (i), (iii) and (v) (b) (iii) and (iv)
 (c) (ii) and (iv) (d) Only (v)
44. Syngamy can occur outside the body of the organism in
 (a) Fungi (b) Mosses
 (c) Algae (d) Ferns
45. Select the correct sequence from the following.
 (i) Juvenile phase → Senescent phase → Reproductive phase
 (ii) Juvenile phase → Reproductive phase → Senescent phase
 (iii) Reproductive phase → Juvenile phase → Senescent phase
 (iv) Vegetative phase → Reproductive phase → Senescent phase
 (a) (i) and (ii) (b) (i) and (iv)
 (c) (iii) and (iv) (d) (ii) and (iv)

RESPONSE
GRID

36. (a)(b)(c)(d) 37. (a)(b)(c)(d) 38. (a)(b)(c)(d) 39. (a)(b)(c)(d) 40. (a)(b)(c)(d)
 41. (a)(b)(c)(d) 42. (a)(b)(c)(d) 43. (a)(b)(c)(d) 44. (a)(b)(c)(d) 45. (a)(b)(c)(d)

Space for Rough Work

DAILY PRACTICE PROBLEM DPP CHAPTERWISE 23 - BIOLOGY

| | | | |
|---|----|------------------|-----|
| Total Questions | 45 | Total Marks | 180 |
| Attempted | | Correct | |
| Incorrect | | Net Score | |
| Cut-off Score | 55 | Qualifying Score | 65 |
| Success Gap = Net Score – Qualifying Score | | | |
| Net Score = (Correct × 4) – (Incorrect × 1) | | | |



HINTS & SOLUTIONS

DPP/CB23

1. (c)
2. (b) Cloning is a technique by which genetically same individuals can be produced without including any sexual reproduction eg. Dolly sheep.
3. (d)
4. (d)
5. (b) The parents that have survived to reproduce asexually are able to survive in the current stable environment. Therefore, the offspring should be preadapted for this stable environment.
6. (a) Species that exhibit parthenogenesis develop from unfertilized eggs produced by the mother. Therefore, the genetic make-up should be 100 percent the same as the mother.
7. (a) Since external fertilization can only take place in an aquatic habitat, there are no terrestrial animals that use it.
8. (a) Many animals reproduce both by asexual and sexual means.
9. (b) All these animals can reproduce sexually. However, only the chicken lays an external egg.
10. (b) All of these statements concerning asexual reproduction are correct, except that asexual reproduction is best in favorable, stable environments, ones that don't change rapidly. The reason for this is that asexual reproduction, in contrast to its sexual counterpart, results in the formation of identical offspring. Although asexual organisms can often produce many more offspring in a single reproductive event than sexual organisms, these asexually produced young do not usually have the genetic variation caused by meiosis and crossing-over to be able to survive a rapidly changing environment or times of environmental stress.
11. (a) Buds in 'eyes' form new plants.
12. (b) Bud giving rise to new plant is present towards base.
13. (b) New plants in cane-sugar are formed from nodes which are absent.
14. (b) Water absorption & gaseous exchange stop due to presence of wax
15. (c) Parthenocarpy is the development of a fruit without the formation of seeds as a result of lack of pollination, lack of fertilization and lack of development. This condition can be artificially induced by application of hormones.
16. (a)
17. (a)
18. (a)
19. (d)
20. (c) Most of banana varieties are triploid and triploidy is associated with seedlessness.
21. (d)
22. (b)
23. (b)
24. (a)
25. (d)
26. (a) Homothallic and monoecious are terms used to denote bisexual condition. The example includes fungi and plants. Heterothallic and dioecious are terms used to denote unisexual condition.
27. (b) Morphallaxis is a mechanism of regeneration involving reorganization of body cells. In epimorphosis, new cells proliferate from the surface of the wound to form the missing structure. In accretionary growth some specialized cells retain the ability to divide and produce new cells to replace the worn-out.
28. (a) Cells become variable in shape, size & getting their specialization for the formation of particular tissue or organ in future foetus. They place themselves at some specific regions in embryo for further organogeny.
29. (d) Earthworm, sponges, tapeworms are bisexual animals and hermaphrodites as they possess both male and female reproductive organs.
30. (c)
31. (c) Sowing is related with sexual reproduction.
32. (c) Vegetative propagation in mint occurs through sucker. Vegetative reproduction is a type of asexual reproduction for plants, and is also called vegetative propagation, vegetative multiplication, or vegetative cloning. It is a process by which new plant "individuals" arise or are obtained without production of seeds or spores. It is a natural process in many plant species (as well as non-plant organisms such as bacteria and fungi) and used or encouraged by horticulturists to obtain quantities of economically valuable plants. A related technique used in cultivation is tissue culture, which involves vegetative reproduction under sterile conditions.
33. (d) Vegetative reproduction and apomixis, both are asexual methods of reproduction, which gives the progeny genetically similar to parent.
34. (c)
35. (c)
36. (b)
37. (d)
38. (d)
39. (c)
40. (d)
41. (b) In oomycetes female gamete is large and non motile while male gamete is small & motile.
42. (c) Male sex organ is called antheridium or globule while female sex organ is called oogonium. They develop on the same branchlet in the same plant in *chara*.
43. (c)
44. (c) In most aquatic organisms, such as a majority of algae and fishes as well as amphibians, syngamy occurs in the external medium (water), *i.e.*, outside the body of the organism. This type of gametic fusion is called external fertilisation.
45. (d)

