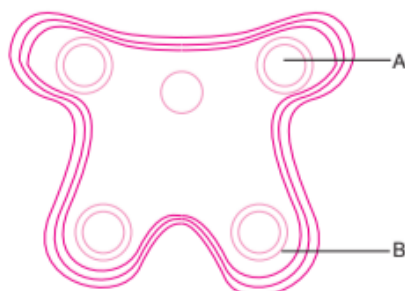


Time allowed: 45 minutes

Maximum Marks: 200

*General Instructions: Same as Practice Paper-1.**Choose the correct option:*

- The term 'clone' cannot be applied to offspring formed by sexual reproduction because
 - offspring do not possess exact copies of parental DNA.
 - DNA of only one parent is copied and passed on to the offspring.
 - offspring are formed at different times.
 - DNA of parent and offspring are completely different.
- Identify 'A' and 'B' in the given diagram of a transverse section of a young anther.



- A—Tapetum
 - A—Sporogenous tissue
 - A—Connective
 - A—Endothecium
 - B—Sporogenous tissue
 - B—Tapetum
 - B—Epidermis
 - B—Tapetum
- _____ is one of the most resistant organic material.
 - Lipoprotein
 - Sporopollenin
 - Cellulose
 - Hemicellulose

- Match the terms in column I with the items in column II.

Column I	Column II
(1) Autogamy	(A) Transfer of pollen grains from anther to stigma of the same flower
(2) Geitonogamy	(B) Transfer of pollen grains from anther to stigma of a different plant's flower
(3) Xenogamy	(C) Transfer of pollen grains from the anther to the stigma of another flower of same plant

- 1—A, 2—C, 3—B
- 1—C, 2—B, 3—A
- 1—A, 2—B, 3—C
- 1—B, 2—A, 3—C

5. Which of the following is not a method to prevent autogamy in plants?
 - (a) Pollen release and stigma receptivity are not synchronised.
 - (b) Anther and stigma are placed at different positions.
 - (c) Self incompatibility
 - (d) Bisexual flowers
6. The Leydig cells are a source of
 - (a) fructose
 - (b) androgens
 - (c) progesterone
 - (d) mucus
7. The function of corpus luteum is to produce
 - (a) estrogen
 - (b) progesterone
 - (c) HCG
 - (d) relaxin
8. Choose the incorrect statement from the following.
 - (a) In birds and mammals internal fertilisation takes place.
 - (b) Colostrum contains antibodies and nutrients.
 - (c) Polyspermy in mammals is prevented by the chemical changes in the egg surface.
 - (d) In the human female implantation occurs almost seven days after fertilisation.
9. Identify the correct statement from the following.
 - (a) High levels of estrogen triggers the ovulatory surge.
 - (b) Oogonial cells start to proliferate and give rise to functional ova in regular cycles from puberty onwards.
 - (c) Sperms released from seminiferous tubules are non-motile.
 - (d) Progesterone level is high during the post-ovulatory phase of menstrual cycle.
10. Tubectomy is a method of sterilisation in which
 - (a) nucleus is removed
 - (b) ovaries are removed
 - (c) small part of fallopian tube is removed
 - (d) small part of vas deferens is removed
11. Inheritance of skin colour in humans is an example on
 - (a) point mutation
 - (b) polygenic inheritance
 - (c) co-dominance
 - (d) chromosomal aberration
12. All genes located on the same chromosome
 - (a) form different groups depending upon their relative distance.
 - (b) form one linkage group.
 - (c) will not form any linkage groups.
 - (d) form interactive groups that affect the phenotype.
13. Conditions of a karyotype $2n + 1$, $2n - 1$ and $2n + 2$, $2n - 2$ are called
 - (a) aneuploidy
 - (b) polyploidy
 - (c) allopolyploidy
 - (d) monosomy
14. If a plant heterozygous for tallness is selfed, the F_2 generation has both tall and dwarf plants. It proves the principle of
 - (a) dominance
 - (b) segregation
 - (c) independent assortment
 - (d) incomplete dominance
15. ZZ/ZW type of sex determination is seen in
 - (a) platypus
 - (b) snails
 - (c) cockroach
 - (d) peacock
16. Polysome is formed by
 - (a) a ribosome with several subunits.
 - (b) ribosomes attached to each other in a linear arrangement.
 - (c) several ribosomes attached to a single mRNA.
 - (d) many ribosomes attached to a strand of endoplasmic reticulum.

- 17. What is not true for genetic code?**
 (a) It is nearly universal.
 (b) It is degenerate.
 (c) It is unambiguous.
 (d) A codon in mRNA is read in a non-contiguous fashion.
- 18. Gene controls**
 (a) protein synthesis but not heredity.
 (b) protein synthesis and heredity.
 (c) heredity but not protein synthesis.
 (d) biochemical reaction of some enzymes.
- 19. The promoter site and the terminator site for transcription are located at**
 (a) 3' (downstream) end and 5' (upstream) end, respectively of the transcription unit
 (b) 5' (upstream) end and 3' (downstream) end, respectively of the transcription unit
 (c) the 5' (upstream) end
 (d) the 3' (downstream) end
- 20. The human chromosome with the highest and least number of genes in them are respectively**
 (a) chromosome 21 and Y
 (b) chromosome 1 and X
 (c) chromosome 1 and Y
 (d) chromosome X and Y
- 21. Thorn of *Bougainvillea* and tendril of *Cucurbita* are examples of**
 (a) vestigial organs
 (b) retrogressive evolution
 (c) analogous organs
 (d) homologous organs
- 22. Darwin's finches are an excellent example of**
 (a) brood parasitism
 (b) connecting links
 (c) adaptive radiation
 (d) seasonal migration
- 23. Evolution of different species in a given area starting from a point and spreading to other geographical areas is known as**
 (a) adaptive radiation
 (b) natural selection
 (c) migration
 (d) divergent evolution
- 24. The sporozoites that cause infection when a female *Anopheles* mosquito bites a person, are formed in**
 (a) liver of the person
 (b) RBCs of mosquito
 (c) salivary glands of mosquito
 (d) gut of mosquito
- 25. Many diseases can be diagnosed by observing the symptoms in the patient. Which group of symptoms are indicative of pneumonia?**
 (a) Difficulty in respiration, fever, chills, cough, headache
 (b) Constipation, abdominal pain, cramps, blood clots
 (c) Nasal congestion and discharge, cough, constipation, headache
 (d) High fever, weakness, stomach pain, loss of appetite and constipation
- 26. Cancer causing genes are called:**
 (a) structural genes
 (b) expressor genes
 (c) oncogenes
 (d) regulatory genes
- 27. 'Smack' is a drug obtained from the**
 (a) latex of *Papaver somniferum*
 (b) leaves of *Cannabis sativa*
 (c) flowers of *Datura*
 (d) fruits of *Erythroxyl coca*
- 28. 'Himgiri' developed by hybridisation and selection for disease resistance against rust pathogens is a variety of**
 (a) chilli
 (b) maize
 (c) sugarcane
 (d) wheat

- 29. In plant breeding programmes, the entire collection (of plants seeds) having all the diverse alleles for all genes in a given crop is called**
 (a) evaluation and selection of parents (b) germplasm collection
 (c) selection of superior recombinants (d) cross-hybridisation among the selected parents
- 30. A protoplast is a cell**
 (a) undergoing division (b) without cell wall
 (c) without plasma membrane (d) without nucleus
- 31. Methanogenic bacteria are not found in**
 (a) rumen of cattle (b) gobar gas plant
 (c) bottom of water-logged paddy fields (d) activated sludge
- 32. Match the following list of bacteria and their commercially important products**
- | Bacterium | Product |
|---------------------------------|-------------------|
| A. <i>Aspergillus niger</i> | (i) Lactic acid |
| B. <i>Acetobacter aceti</i> | (ii) Butyric acid |
| C. <i>Clostridium butylicum</i> | (iii) Acetic acid |
| D. <i>Lactobacillus</i> | (iv) Citric acid |
- Choose the correct match.**
 (a) A—(ii), B—(iii), C—(iv), D—(i) (b) A—(ii), B—(iv), C—(iii), D—(i)
 (c) A—(iv), B—(iii), C—(ii), D—(i) (d) A—(iv), B—(i), C—(iii), D—(ii)
- 33. Masses of bacteria associated with fungal filaments are**
 (a) flocs (b) sediment
 (c) activated sludge (d) mycorrhiza
- 34. 'Restriction' in restriction enzyme refers to**
 (a) cleaving of phosphodiester bond in DNA by the enzyme
 (b) cutting of DNA at specific position only
 (c) prevention of the multiplication of bacteriophage by the host bacteria
 (d) All of the above
- 35. Which of the following is not required in the preparation of a recombinant DNA molecule?**
 (a) Restriction endonuclease (b) DNA ligase
 (c) DNA fragments (d) *E.coli*
- 36. While isolating DNA from bacteria, which of the following enzymes is not required?**
 (a) Lysozyme (b) Ribonuclease
 (c) Deoxyribonuclease (d) Protease
- 37. An antibiotic resistance gene in a vector usually helps in the selection of**
 (a) competent cells (b) transformed cells
 (c) recombinant cells (d) none of the above
- 38. α -1-antitrypsin is**
 (a) an antacid (b) an enzyme
 (c) used to treat arthritis (d) used to treat emphysema
- 39. A probe which is a molecule used to locate homologous sequences in a mixture of DNA or RNA molecules could be:**
 (a) a ssRNA (b) a ssDNA
 (c) either RNA or DNA (d) can be ssDNA but not ssRNA

- 40. Choose the correct option regarding retrovirus.**
 (a) An RNA virus that synthesises DNA during infection.
 (b) A DNA virus that synthesises RNA during infection.
 (c) A ssDNA virus.
 (d) A dsRNA virus.
- 41. The prickly pear cactus introduced into Australia in the early 1920's caused havoc by spreading rapidly into millions of hectares of rangeland because**
 (a) it was an exotic species
 (b) the invaded land did not have its natural predators
 (c) both (a) and (b)
 (d) it lost its thorns
- 42. Why doesn't any cattle or goats browse on *Calotropis*?**
 (a) The plant contains ticks which are harmful to them.
 (b) The plant produces compounds which cannot be digested by them.
 (c) The plant produces poisonous cardiac glycosides.
 (d) The plant bears thorns.
- 43. Choose the correct statement(s).**
 1. Several plant and animal species present together at a place constitute a genus.
 2. The branch of science which studies the interactions among organisms and between organisms and physical environment is called as etiology.
 3. Seasonal variations on earth occur due to its tilted axis and rotation of planet around the sun.
 4. Both the partners are adversely affected in predation.
 (a) 1 and 2
 (b) 3 and 4
 (c) 1, 3 and 4
 (d) Only 3
- 44. Which one of the following is not a functional unit of an ecosystem?**
 (a) Energy flow
 (b) Decomposition
 (c) Productivity
 (d) Stratification
- 45. The upright pyramid of number is absent in**
 (a) pond
 (b) forest
 (c) lake
 (d) grassland
- 46. The rate of formation of new organic matter by rabbits in a grassland, is called**
 (a) net productivity
 (b) secondary productivity
 (c) net primary productivity
 (d) gross primary productivity
- 47. Select the correct statement about biodiversity.**
 (a) The desert areas of Rajasthan and Gujarat have a very high level of desert animal species as well as numerous rare animals.
 (b) Large scale planting of Bt cotton has no adverse effect on biodiversity.
 (c) Sri Lanka has a very high degree of species richness.
 (d) Conservation of biodiversity is just a fad pursued by the developed countries.
- 48. Biodiversity of a geographical region represents**
 (a) genetic diversity present in the dominant species of the region.
 (b) species endemic to the region.
 (c) endangered species found in the region.
 (d) the diversity in the organisms living in the region.
- 49. The two gases making highest relative contribution to greenhouse gases are**
 (a) CO₂ and CH₄
 (b) CH₄ and N₂O
 (c) CFCs and N₂O
 (d) CO₂ and N₂O
- 50. Eutrophication is often seen in**
 (a) deserts
 (b) freshwater lakes
 (c) ocean
 (d) mountains

Answers

PRACTICE PAPER – 2

- | | | | | | | |
|---------|---------|---------|---------|---------|---------|---------|
| 1. (a) | 2. (b) | 3. (b) | 4. (a) | 5. (d) | 6. (b) | 7. (b) |
| 8. (c) | 9. (d) | 10. (c) | 11. (b) | 12. (b) | 13. (a) | 14. (b) |
| 15. (d) | 16. (c) | 17. (d) | 18. (b) | 19. (b) | 20. (c) | 21. (d) |
| 22. (c) | 23. (a) | 24. (d) | 25. (a) | 26. (c) | 27. (a) | 28. (d) |
| 29. (b) | 30. (b) | 31. (d) | 32. (c) | 33. (a) | 34. (c) | 35. (d) |
| 36. (c) | 37. (b) | 38. (d) | 39. (c) | 40. (a) | 41. (c) | 42. (c) |
| 43. (d) | 44. (d) | 45. (b) | 46. (b) | 47. (c) | 48. (d) | 49. (a) |
| 50. (b) | | | | | | |