PRACTICE PAPER

8

BIOLOGY

Time allowed: 45 minutes **Maximum Marks: 200**

General Instructions: *Same as Practice Paper–1.*

Choose the correct option:

1. **Which of the following situations correctly describe the similarity between an angiosperm egg and a human egg?**
   (*i*) Eggs of both are formed only once in a lifetime
   (*ii*) Both the angiosperm egg and human egg are stationary
   (*iii*) Both the angiosperm egg and human egg are mobile
   (*iv*) Syngamy in both results in the formation of zygote

   Choose the correct answer from the options given below.
   (*a*) (*ii*) and (*iv*) (*b*) (*iv*) only
   (*c*) (*iii*) and (*iv*) (*d*) (*i*) and (*iv*)

2. **Which of the following statements is true?**
   (*a*) Generative cell is larger than vegetative cell.
   (*b*) Vegetative cell is larger than generative cell.
   (*c*) Both have same size.
   (*d*) Size of both cells are variable.

3. **Synchrony in pollen release and stigma receptivity is must in**
   (*a*) herkogamy (*b*) heterogamy
   (*c*) xenogamy (*d*) autogamy

4. **In flowering plants, archesporium gives rise to**
   (*a*) wall of sporangium (*b*) wall and sporogenous tissue
   (*c*) tapetum and sporogenous (*d*) tapetum and endothecium

5. **Gietonogamy involves**
   (*a*) one flower only (*b*) one plant only
   (*c*) two plants (*d*) all of these

6. **Which of the following statement is true about chorionic villi?**
   (*a*) Chorionic villi appear on morula after implantation.
   (*b*) The chorionic villi and uterine tissue become interlocked and forms the placenta between developing embryo and maternal body.
   (*c*) Both (*a*) and (*b*)
   (*d*) The blastomeres in blastocyst are arranged into an outer layer. The layer is the chorionic villi.

7. The embryonic stage that gets implanted in the uterine wall of human female is

(*a*) morula (*b*) trophoblast

(*c*) blastocyst (*d*) gastrula

8. Choose the correct statement(s).

(*i*) Androgens are produced by Sertoli cells.

(*ii*) Oogenesis takes place in corpus luteum.

(*iii*) Menstrual cycle stops during pregnancy.

(*iv*) Presence/absence of hymen is not a reliable indicator of virginity.

(*a*) (*i*) (*b*) (*iii*), (*iv*)

(*c*) (*iii*), (*ii*) (*d*) (*i*), (*iii*), (*ii*)

9. When does oogenesis and spermatogenesis initiate in

(A) human males and	**(B) females, respectively?**
(*a*) Foetal stage	Puberty
(*b*) Puberty	Puberty
(*c*) Puberty	Foetal stage
(*d*) Foetal stage	Foetal stage

10. Lactational amenorrhoea means

(*a*) absence of menstruation during pregnancy

(*b*) absence of menstruation during lactation

(*c*) excessive bleeding during menstruation

(*d*) no production and secretion of milk

11. The F_1 generation in Mendelian crosses is always

(*a*) homozygous (*b*) heterozygous

(*c*) both (*a*) and (*b*) (*d*) none of the above

12. Genome is

(*a*) diploid set of chromosomes (*b*) haploid set of chromosomes

(*c*) another term for gene pool (*d*) none of the above

13. Which of the following is the only universally true law of Mendel?

(*a*) Law of dominance (*b*) Law of segregation

(*c*) Law of purity of gametes (*d*) Both (*b*) and (*c*)

14. The number of genotypic recombinations possible due to the 3 alleles in case of human blood group system are

(*a*) 4 (*b*) 6

(*c*) 8 (*d*) 12

15. Segregation of hereditary factors occur in plants during the process of

(*a*) spore formation (*b*) gamete formation

(*c*) fertilisation (*d*) disjunction

16. Which of the following cellular factory is responsible for the protein synthesis?

(*a*) Peroxisome (*b*) Ribosome

(*c*) Mitochondria (*d*) Lysosomes

17. Heterochromatic region in comparison to the euchromatic regions are

(*a*) late replicating (*b*) more loosely coiled

(*c*) store house of genetic information (*d*) confined to sex chromosomes only

18. Replication of DNA in eukaryotes commences from

(*a*) one end of the chromatid extending to the other end.

(*b*) both ends of the chromatid simultaneously.

(*c*) the centromere to either of the ends of chromatids.

(*d*) several sites along the DNA of the chromatid simultaneously.

19. Genetic code was deciphered through chemical synthesis of trinucleotides by

(*a*) Watson and Crick (*b*) Beadle and Tatum

(*c*) Briggs and King (*d*) M.W. Nirenberg

20. Choose the incorrect statement.

(*a*) *lac* operon shows the control of gene expression at the transcription level in *E.coli*.

(*b*) The enzyme DNA polymerase catalyses the polymerisation of nucleotides in the 5' → 3' direction for the lagging strand.

(*c*) The promoter site and the terminator site for transcription are located at 5'(upstream) end and 3'(downstream) end, respectively of the transcription unit.

(*d*) The DNA site where DNA-dependent RNA-polymerase binds for transcription is called regulator.

21. Stabilising selection favours

(*a*) only one extreme form of a trait (*b*) both the extreme forms of a trait

(*c*) intermediate form of a trait (*d*) none of these

22. Which of the following is an example for link species?

(*a*) Lobe fish (*b*) Dodo bird

(*c*) Sea weed (*d*) Chimpanzee

23. The phenomenon of "Industrial melanism" demonstrates

(*a*) natural selection (*b*) induced mutation

(*c*) genetic drift (*d*) geographical isolation

24. Antivenom against snake poison contains:

(*a*) Antigens (*b*) Antigen-antibody complexes

(*c*) Antibodies (*d*) Enzymes

25. The primary lymphoid organ is

(*a*) lymph nodes (*b*) spleen

(*c*) bone marrow (*d*) tonsils

26. Among non-infectious diseases, which of the following is a major cause of death?

(*a*) AIDS (*b*) Cancer

(*c*) Osteoporosis (*d*) Diabetes

27. Site of maturation of T-lymphocytes is

(*a*) Peyer's patches (*b*) thymus

(*c*) spleen (*d*) liver

28. To isolate protoplast one needs

(*a*) pectinase (*b*) cellulase

(*c*) both pectinase and cellulase (*d*) chitinase

29. Which one of the following is a marine fish?

(*a*) *Rohu* (*b*) *Hilsa*

(*c*) *Catla* (*d*) Common Carp

30. Which one of the following products of apiculture is used in cosmetics and polishes?

(*a*) Honey (*b*) Propolis

(*c*) Wax (*d*) Royal jelly

31. Activated sludge should have the ability to settle quickly so that it can

(*a*) be rapidly pumped back from sedimentation tank to aeration tank.

(*b*) absorb pathogenic bacteria present in waste water while sinking to the bottom of the settling tank.

(*c*) be discarded and anaerobically digested.

(*d*) absorb colloidal organic matter.

32. Which of the following is wrongly matched?

(*a*) *Streptomyces*— antibiotics (*b*) Coliform— vinegar

(*c*) Methanogens— gobar gas (*d*) Yeast— ethanol

33. Low BOD in a water body means

(*a*) water is not polluted (*b*) water contains high levels of oxygen

(*c*) water is polluted (*d*) none of the above

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 in bacteria

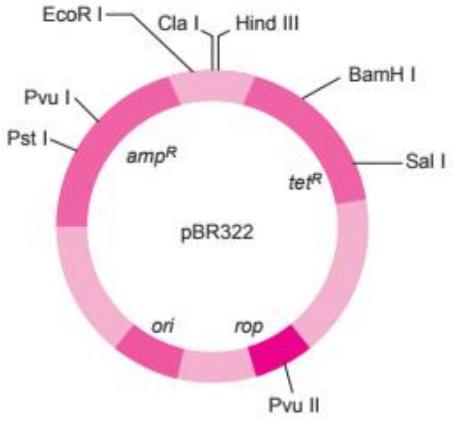
(*d*) all of the above

35. Which enzyme is necessary to isolate DNA from plant cells for biotechnology experiments?

(*a*) Chitinase (*b*) Cellulase

(*c*) Lysozyme (*d*) Permease

36. The given figure is the diagrammatic representation of the *E.coli* vector pBR322. Which one of the given options correctly identifies its certain component(s)?



(*a*) *ori*-original restriction enzyme (*b*) *rop*-reduced osmotic pressure

(*c*) *Hind*III, *Eco*RI-selectable markers (*d*) amp^R , tet^R - antibiotic resistance genes

37. One of the key factors which makes the plasmid the vector in genetic engineering is that

(*a*) it is resistant to antibiotics. (*b*) it is resistant to restriction enzymes.

(*c*) its ability to carry a foreign gene. (*d*) its ability to cause infection in the host.

38. Cultivation of Bt cotton has been much in the news. The prefix Bt means

(*a*) "Barium treated"cotton seeds

(*b*) "Bigger thread" variety of cotton with better tensile strength

(*c*) produced by "Biotechnology" using restriction enzymes and ligases

(*d*) carrying an endotoxin gene from *Bacillus thuringiensis*

39. Choose the incorrect statement.

(*a*) Pathophysiology is the study of altered physiology of host.

(*b*) The trigger for activation of toxin of *Bacillus thuringiensis* is acidic pH of stomach.

(*c*) A transgenic food crop which may help in solving the problem of night blindness in developing countries is Golden rice.

(*d*) A human protein which is being obtained from transgenic animals and is used to treat emphysema is alpha-lactalbumin.

40. Main objective of production/use of herbicide resistant GM crops is to

(*a*) encourage eco-friendly herbicides.

(*b*) reduce herbicide accumulation in food articles for health safety.

(*c*) eliminate weeds from the field without the use of manual labour.

(*d*) eliminate weeds from the field without the use of herbicide.

41. Choose the correct statement(s).

1. Exponential growth is observed in a population when resources in the habitat are unlimited and each species has the ability to realise its full innate potential.

2. Natality has a negative effect on the population growth rate.

3. Percentage of individuals of a given age group in a given population is called as age density.

4. In the polar seas, aquatic mammals like seals have a thick layer of fat (blubber) below their skin that acts as an insulator and reduces loss of body heat.

(*a*) 1 and 4 (*b*) 2 and 4

(*c*) 1 and 2 (*d*) 3 and 4

42. Find the correct match.

1. Snail—hibernation **2. Zooplanktons—diapause**

3. Bacteria—aestivation **4. Bear—hibernation**

(*a*) 1 and 2 (*b*) 2 and 3

(*c*) 2 and 4 (*d*) Only 4

43. If the number of pre-reproductive individuals is almost similar to reproductive individuals, then what type of population is formed?

(*a*) Expanding (*b*) Stable

(*c*) Declining (*d*) Both (*a*) and (*b*)

44. Which of the following type of ecosystem is expected in an area where evaporation exceeds precipitation, and mean annual rainfall is below 100 mm?

(*a*) Grassland (*b*) Shrubby forest

(*c*) Desert (*d*) Mangrove

45. The zone at the edge of a lake or ocean which is alternatively exposed to air and immersed in water is called

(*a*) pelagic zone (*b*) benthic zone

(*c*) lentic one (*d*) littoral zone

46. **Edaphic factor refers to:**

(*a*) water (*b*) soil

(*c*) relative humidity (*d*) altitude

47. **Which of the following has maximum genetic diversity in India?**

(*a*) Mango (*b*) Tea

(*c*) Teak (*d*) Wheat

48. **Which of the following statements is true?**

1. Western Ghats have a greater number of amphibian species than the Eastern Ghats.

2. India with its deserts, rainforests, estuaries, alpine meadows, etc., has a greater ecosystem diversity than a Scandinavian country like Norway.

3. Some examples of recent extinctions include quagga and thylacine.

(*a*) 1 and 2 (*b*) Only 1

(*c*) Only 3 (*d*) 1, 2 and 3

49. **Among the following which one causes maximum indoor chemical pollution?**

(*a*) Burning coal (*b*) Burning cooking gas

(*c*) Burning mosquito coil (*d*) Room spray

50. **The green scum seen in the fresh water bodies is:**

(*a*) blue-green algae (*b*) red algae

(*c*) green algae (*d*) both (*a*) and (*c*)

Answers

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

Explanations

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3. (*d*) In autogamy or self-fertilisation the stamens and pistil are present in the same flower.

5. (*b*) Geitonogamy is the transfer of pollen grains from anther to stigma of the different flower in the same plant.

14. (*b*) Genotypes for Blood Types:

Genotypes		**Phenotypes**
I^AI^A or I^Ai		A Type Blood
I^BI^B or I^Bi	–	B Type Blood
ii	–	O Type Blood
I^AI^B	–	AB Type Blood