

HIGHER SECONDARY HALF YEARLY EXAMINATION - 2017
BIOLOGY

Time Allowed : 3.00 Hours]

[Marks : 150

PART - I (BIO-BOTANY) (Marks : 75)

SECTION - A

Note : (i) Answer all the questions. (ii) Choose the most suitable answer from the given four alternatives and write the option code and the corresponding answer.

1. Meristematic tissue acquire certain changes to become permanent tissue : 4x1=14
(a) Dedifferentiation (b) Totipotency (c) Redifferentiation (d) Differentiation
2. The plant that produces biodegradable plastic is _____
(a) Petunia hybrid (b) Mouse eared cress (c) Beta Vulgaris (d) Avena sativa
3. The plant which has bell shaped and persistent calyx :
(a) Solanum melongena (b) Datura stramonium (c) Nicotiana tabacum (d) Atropa belladonna
4. The 4 carbon compound entering into the bundle sheath cells during Hatch Slack pathway is
(a) Pyruvic acid (b) Oxalo acetic acid (c) Glycolic acid (d) Malic acid
5. Which of the following wavelengths of light is most effective for photosynthesis ?
(a) 100 nm - 200 nm (b) 200 nm - 300 nm (c) 400 nm - 700 nm (d) 700 nm - 900 nm
6. Which antibiotic is useful in the control of sugar for persons suffering from diabetes ?
(a) Chloromycetin (b) Bacitracin (c) Aureomycin (d) Streptomycin
7. Trimerous flowers are seen _____ family.
(a) Malvaceae (b) Euphorbiaceae (c) Musaceae (d) Solanaceae
8. The unit of Mutation is : (a) Muton (b) Cistron (c) Recon (d) Tissue
9. The two protoplast are fused with a fusogen called :
(a) Restriction endonuclease (b) Polyethylene Glycol (c) Macerozyme (d) Cellulose
10. Inflorescence of Ravenala madagascariensis is :
(a) Compound cyme (b) Simple racemose (c) Compound racemose (d) Branched spadix
11. Colchicine is the chemical used to induce :
(a) Callogenesis (b) Polyploid (c) Recombination (d) Heterosis
12. The most stable form of RNA
(a) Ribosomal RNA (b) Soluble RNA (c) Messenger RNA (d) Antisense RNA
13. The tissue is not seen in monocot plants :
(a) Sieve tube (b) Companion cells (c) Phloem parenchyma (d) Phloem fibres
14. Mycorrhizal roots are present in : (a) Vanda (b) Monotropa (c) Viscum (d) Drosera

SECTION - B

Note : Answer any seven questions.

7x3=21

15. What is monocarpic perennial ? Give an example.
16. What is Antisense RNA ?
17. What is apical dominance ?
18. Draw and label the parts of Lamp brush chromosome.
19. State the conditions under which cyclic photo phosphorylation occurs.
20. Draw and label the structure of bicollateral vascular bundle.
21. Write any three differences between photo respiration and dark respiration.
22. What is Polynomial ? Give an example.
23. Write any three anatomical differences between monocot stem and dicot stem.
24. What is recurrent parent ?

SECTION - C

Note : (i) Answer any four questions including question no. 25 which is compulsory.

(ii) Draw diagrams wherever necessary.

25. Bring out the merits of Bentham and Hooker's classification of plants. 4x5=20
26. What is a concentric vascular bundle ? Explain it's types with examples and diagrams.
27. Write any five significance of ploidy.
28. Explain the enzymatic method of isolation of protoplast.
29. Write short notes on Ganong's light screen experiment.
30. Write any five physiological effects of cytokinin.
31. Write the economic importance of Rice.

SECTION - D

Note : (i) Answer any two questions. (ii) Draw diagrams wherever necessary.

32. Describe Musa Paradisiaca in botanical terms. 2x10=20
Draw floral diagram and write floral formula of the bisexual flower.
33. Describe the primary structure of dicot root.
34. Briefly describe single cell protein.
35. Describe Krebs cycle. (Flow chart or explanation)

PART - II (BIO-ZOOLOGY)

SECTION - A (Marks : 75)

Choose the most suitable answer from the given four alternatives and write the option code and the corresponding answer.

16x1=16

1. In western countries, people take Sunbathe. Reason for it.
 - (a) In order to prevent fungal disease on the body.
 - (b) In order to increase the body temperature.
 - (c) When Sunlight strikes on skin, ergosterol present beneath skin will be converted into calciferol. It is good to our body.
 - (d) It is increasing pigments on skin, which gives colour to them.
2. One construction worker can lift 50 kg cement bag effortlessly. The same worker immediately after getting up from the bed, struggles to lift the same 50 kg cement bag. Reason for it.
 - (a) He has not taken breakfast.
 - (b) He is lazy in the morning.
 - (c) After a long rest, muscle contraction ability would be half to the maximum ability.
 - (d) He has no interest to lift the bag.
3. Which one of the following is a correct statement ?
 - (a) In birds, premotor area is well developed.
 - (b) At premotor area of brain, motor impulses are produced, integrated and through post motor nerves, the impulses are taken to muscles.
 - (c) Most of the regions of brain cortex acts as last stage motor area.
 - (d) The visual information is judged instantly. One event creates similar thought in the brains of two persons.
4. Which one of the following is the correct path of sound sensitivity ?
 - (a) Sound waves → vibrate tympanic membrane → vibration of oval window → waves in perilymph → movement in ear ossicles → bending of hair cells → transmission by auditory nerve.
 - (b) Sound waves → vibrate tympanic membrane → movement in ear ossicles → waves in perilymph → waves in endolymph → basilar membrane disturbed → vibration of oval window → bending of hair cells → transmission by auditory nerve.
 - (c) Sound waves → vibrate tympanic membrane → vibration of oval window → waves in perilymph → waves in endolymph → movement in ear ossicles → basilar membrane disturbed → transmission by auditory nerve.
 - (d) Sound waves → vibrate tympanic membrane → movement in ear ossicles → vibration of oval window → waves in perilymph → waves in endolymph → basilar membrane disturbed → bending of hair cells → transmission by auditory nerve.
5. Match the following and find the correct answer.

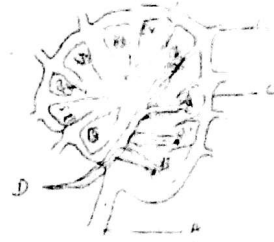
(A) Variola virus	-	(i) rhabdo virus
(B) Rabies virus	-	(ii) jaundice
(C) Epstein - Barr virus	-	(iii) vaccinia virus
(D) HBV	-	(iv) herpes type

(A)	(B)	(C)	(D)
(a) (ii)	(iii)	(iv)	(i)
(b) (iii)	(i)	(iv)	(ii)
(c) (iv)	(iii)	(ii)	(i)
(d) (iii)	(iv)	(ii)	(i)
6. Read the following assertion and reason and select the correct answer.

Assertion : The organisms that belong to phylum protozoa are eukaryotic type.
Reason : These organisms have distinct nucleus.

 - (a) Assertion is wrong, reason is also wrong.
 - (b) Assertion is correct, reason is also correct but reason does not explain the assertion.
 - (c) Assertion is wrong, reason is correct but reason does not explain the assertion.
 - (d) Assertion is correct, reason is also correct, reason explains the assertion perfectly.
7. Which one of the following is correct statement regarding HIV structure ?
 - (a) HIV - Spherical shaped virus.
 - (b) HIV - Externally it looks like a soccer ball made of 12 hexagons and 20 pentagons.
 - (c) HIV - in which double stranded DNA are present.
 - (d) The protein envelope is attached several spicules of lipoprotein.

8. In the above diagram A, B, C and D are represented by :



- | | |
|---------------------------|---------------------------|
| (a) A inlet duct | B outlet duct |
| C capsule | D lymphatic blood vessels |
| (b) A outlet duct | B inlet duct |
| C lymphatic blood vessels | D capsule |
| (c) A outlet duct | B inlet duct |
| C capsule | D lymphatic blood vessels |
| (d) A capsule | B outlet duct |
| C lymphatic blood vessels | D inlet duct |

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

- The cells of tadpole larva of frog are pluripotent.
- Dr. Ian Wilmut produced a cloned sheep called Dolly by nuclear transplantation method.
- The field of developmental biology helps to produce genetically identical organisms.
- The cells of tadpole larva of frog are totipotent.

10. Which one of the following is not a correct pair

- | | | |
|-------------------------|---|--------------------------------------|
| (a) mRNA | - | (i) cDNA |
| (b) genes | - | (ii) codons |
| (c) SNP | - | (iii) single nucleotide polymorphism |
| (d) amino acid sequence | - | (iv) fat molecules |

11. Benefits of watershed management.

- Water can be stored before it becomes flood.
- Ponds formed by these dams provide useful wild life habitat.
- But these dams can be built with costly equipments.
- It eliminates the need for massive construction of huge dams.

- | | |
|------------------------------|-------------------------------|
| (a) (i), (ii) and (iii) only | (b) (ii), (iii) and (iv) only |
| (c) (iii), (iv) and (i) only | (d) (i), (ii) and (iv) only |

12. Are you using refrigerators and other cooling equipments in your house ? If so the coolant, used in the equipments may be released during the repair works. What is the effect of it in the environment?

- | | |
|--|------------------------------|
| (a) Global warming | (b) Depletion of ozone layer |
| (c) Atmospheric carbon dioxide level increases | |

(d) (a) and (b)

13. What is the difference between rearing of our local breed cows and exotic breed cows ?

- Our local breed cows produce small quantity of milk but exotic breeds produce large quantity of milk.
- Our local breed cows do not have protective capacity against diseases, but exotic breeds have the capacity.
- Milk of our local breed cows is pure white in colour, but exotic breed cows may produce yellow colour milk.
- Our local breed cows eat high quantity of food and produce little benefits but exotic breed cows eat small quantity of food and produce more benefits.

14. In our local poultry farms, mostly leghorn breed fowl is reared. Reason for it.

- This is the most preferable breed of fowl among the people.
- The meat of this breed fowl is filled with taste.
- This breed of fowl grows rapidly and gives benefits to us.
- This breed of fowl very huge in weight.

15. A person, who is travelling in a two wheeler met a small accident. He approached doctor and asked medical suggestion. In reply the doctor suggested him to take CT scanner. What type of defect the doctor can diagnose ?

- The doctor can diagnose bleeding on the external parts of the body.
- The doctor can diagnose bleeding at internal part of the body.
- The doctor can diagnose whether bone fracture is there or not in the body.
- (d) (b) and (c)

16. A teacher is having a serious thought of having two faces on his head. One is front and the other at back. Because whenever he turns towards black board, the students can not do any mischievous activities. Followed him, his family subsequent generation members are also having the same thought. This thought may lead to the appearance such a character in course of time. Which concept of Lamarck is represented in it ?
(a) First law (b) Second law (c) Third law (d) Fourth law

SECTION - B

Answer any eight of the following.

8x3=24

17. A person, who have fallen down into a well. Nearby people saved him and brought him up from the well. But the person's body does not show breathing and heart beat activities. What is the name of the first aid to be given ? How to do it ?
18. A person can not see the objects in dim light. If so what is the name of the disease by which he is affected ? What is the reason for it ?
19. Disease like malaria, filaria are seen only among the human beings. What is the type name of the diseases ? Define it.
20. Why do we consider Thymus gland as chief organ of immune system ?
21. Two doctors are examining an AIDS patient. One doctor says that the patient body contains Human leucocyte antigen. Another says that no antibodies are formed. Differentiate the terms antigen from antibody.
22. At the early period of our embryonic growth, one cell (zygote) stage reaches multicellular stage, later many tissues stage. What is the name given to the development of different tissues from the mass of cells ? Define that.
23. In order to avoid short nature of next generation individuals, a short person should select what type of life partner ? What is the name of the branch of genetics which deals this ? Define that.
24. Cloning methods can be used to increase the longevity of human beings. Mention such type of benefits of cloning.
25. What are the energy sources can be used in order to avoid air pollution ?
26. Name the tests that are useful for detecting sugar in urine.
27. Write the principle of computed tomography.
28. Name the equilibrium concept, that is basis for both population genetics and Neo-Darwinism natural selection theory. Define that

SECTION - C

Note : Answer any three questions including question no. 31 which is compulsory

29. Sleep - a state of unconsciousness. Give your opinion. 3 x 5 = 15
30. Excessive usage of antibiotic drugs may lead to gradual development of antibiotic resistance microbes. Thus in the field of medicine, an opinion exist that antibiotics should be used minimal level. How bacteria improve their genetic characters ? Explain.
31. Any injury on our body may lead to inflammation and pain. Explain the significance of inflammation on the basis of immunity.
32. If you want to produce a Cat by means of cloning, what is the method you would use to produce cloned Cat ? Explain its steps.
33. Explain Mac Dougall's experiment in support of Lamarckism.

SECTION - D

Note : Answer any two questions.

2 x 10 = 20

34. Explain the process of protein digestion in our digestive system.
35. If we happened to see a snake in our living habitat, suddenly many changes occur in our body. Chemical co-ordinating system is responsible for the changes. If so explain the changes in detail.
36. 40 years back our country was under the clutches of poverty. But now it transformed into one of wealthy developing countries in the World. If so what are the ways one country should follow in order to come out of poverty. Mention the environmental impacts due to poverty.
37. If you want to have self employment by setting up of a poultry farm in your village, what are the aspects you should know regarding the maintenance of poultry farming ?

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85