Reg. No.															

B.Tech. DEGREE EXAMINATION, NOVEMBER 2019
Third Semester

18BTB101T – BIOLOGY
(For the candidates admitted during the academic year 2018-2019 onwards)

Note:
(i) **Part - A** should be answered in OMR sheet within first 45 minutes and OMR sheet should be handed over to hall invigilator at the end of 45th minute.
(ii) **Part - B** and **Part - C** should be answered in answer booklet.

Time: Three Hours Max. Marks: 100

PART – A (20 × 1 = 20 Marks)
Answer **ALL** Questions

1. Which of the following is NOT the function of smooth endoplasmic reticulum?
   (A) Produce membrane lipids (B) Regulate calcium in muscle cells
   (C) Produce ribosomes (D) Destroy toxic substances

2. Which of the following peptide is being translated from the given stretch of mRNA, 5'AUGUGUGAAGGU 3'.
   (A) Meth-Ser-Asn-Gly (B) Met-Tyr-Gln-Leu
   (C) Met-Phe-Asn-Val (D) Met-Cys-Glu-Gly

3. Theoretical yield of total ATP per glucose during catabolism under aerobic conditions is
   (A) 30 (B) 32
   (C) 36 (D) 38

4. Which check point is being activated when there is a fault in DNA replication and chromosome duplication?
   (A) G_0 check point (B) G_1 check point
   (C) G_2 check point (D) M check point

5. Which of the following disease is due to mutation in the gene coding?
   (A) Scurvy (B) Cystic fibrosis
   (C) Cholera (D) Tuberculosis

6. Waxes are
   (A) Esters of single chain, highly complexed alcohol and long chain fatty acids (B) Esters of trihydric alcohol and fatty acids
   (C) Esters of tetrameric cycloalkyl hydroxyl compounds and fatty acids (D) Esters of flavanols and long chain fatty acids

7. Anti-codon of tRNA is _____that gets paired with tripler codon of mRNA 'CAG' and it attaches _____amino acid to the existing peptide.
   (A) GAG, Glutamic acid (B) GUC, glutamine
   (C) CUG, leucine (D) UGC, cysteine

8. Which of the following is neuro degenerative disease?
   (A) Cerebral palsy (B) Neuralgia
   (C) Neuropathy (D) Parkinson's disease

9. Phenyl ketonuria is due to the deficiency of enzyme
   (A) Dopamine β-hydroxylase (B) Tyrosine hydroxylase
   (C) Phenyl alanine hydroxylase (D) Cholesterol 7-alpha-hydroxylase

10. The amino acids involved in catalytic trial formation in the active site of the serine protease are
   (A) Serine, histidine and aspartic acid (B) Serine, proline and aspartic acid
   (C) Serine, cysteine and aspartic acid (D) Serine, histidine and glycine

11. How many possible restriction recognition sites are present in 17 kilo base pairs of DNA for the restriction endonuclease EcoRI?
   (A) 2 (B) 3
   (C) 4 (D) 5

12. Calvin cycle involves
   (A) Oxidative phosphorylation (B) Oxidative carboxylation
   (C) Reductive carboxylation (D) Reductive phosphorylation

13. Microfilaments are composed of
   (A) Actin (B) Tubulin
   (C) Myosin (D) Fibers

14. The torque-generating unit of bacterial flagellar motor is
   (A) C-ring (B) MS-ring
   (C) HOOK (D) Mot-A

15. Piezo-electric devices detect
   (A) Potential differences (B) Angle of emitted electron waves
   (C) Emitted fluroscence light (D) Electric current

16. Which of the following enzyme activity senses glucose concentration?
   (A) Glucose oxidase (B) Glucose synthase
   (C) Glucose reductase (D) Gluco kinase

17. Axon is surrounded by a fatty material called
   (A) Myelin sheath (B) Pleura
   (C) Mucus (D) Dura

18. Transmission of an electrical signal from one neuron to the next is not effected by
   (A) Glutamate (B) Acetylcholine
   (C) Oxytocin (D) Carbon-di-sulphide

19. The distinctive markers on antigens that trigger an immune response is
   (A) Paratope (B) Epitope
   (C) Idiotope (D) Isotope

20. The immune cell that allow for subsequent recognition of an antigen resulting in secondary response's called
   (A) Antigen presenting cell (B) Plasma cell
   (C) Basophils (D) Memory cell

PART – B (5 × 4 = 20 Marks)
Answer **ANY FIVE** Questions

21. Write the structural components of nucleotides.

22. Write about the structure and functions of mitochondria with a neat diagram.

23. How is matured mRNA being generated after transcription in eukaryotic organisms?

24. Write a note on specificity of enzyme actions.

25. Classify biosensors and write their components with schematic diagram.

26. Explain how impulse is being transported through nerve cells.

27. Write a short note on types of intercellular signaling.

PART – C (5 × 12 = 60 Marks)
Answer **ALL** Questions

28. a. Describe the structure of protein and its functions.

(OR)

b. Explain the autosomal cell division with a neat diagram.

29. a. Discuss about stem cells and their applications.

(OR)

b. Explain the translation of a protein with a neat schematic diagram.

30. a. Write in detail about restriction endonucleases and their applications in rDNA technology.

(OR)

b. Describe the stages involved in photosynthesis.

31. a. Discuss about the structure and mechanism of action of F_0F_1 ATP synthase motor with a neat diagram.

(OR)

b. Explain the types of bioremediations and types of microorganisms involved in them.

32. a. Write in detail about neural network in the brain and discuss about computer based neural networks.

(OR)

b. Explain how acquired immunity is developed in our body.

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