Reg. No.															

B.Tech. DEGREE EXAMINATION, NOVEMBER 2018
1st to 6th Semester

15BT101 – BIOLOGY FOR ENGINEERS
(For the candidates admitted during the academic year 2015 – 2016 to 2017-2018)

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. The process of scientific method was developed by _____.
   (A) Francis Bacon (B) Rudolph Virchow
   (C) Matthias Schleiden (D) Robert Brown

2. All cellular organelles are embedded in _____.
   (A) Nucleoplasm (B) Cytoplasm
   (C) Cell Vacuole (D) Mitochondria

3. The type of cell division which occurs in the somatic cell is called
   (A) Meiosis (B) Pachytene
   (C) Interphase (D) Mitosis

4. The package of DNA wrapping around the histones in a spherical structure is called as
   (A) Nucleosomes (B) Chromatin
   (C) Nucletide (D) Nucleoside

5. The variability of life that exists on the earth is known as _____.
   (A) Ecosystem (B) Biodiversity
   (C) Symbiosis (D) Homogeneity

6. _____ can lead to downfall of a population
   (A) Over–expenditure (B) Over–hunting
   (C) Over–ingestion (D) Over-work

7. All matter is composed of simple unit is called
   (A) Molecules (B) Atoms
   (C) Ions (D) Electrons

8. Biochemistry deals with _____ in the living organisms
   (A) Physical processes (B) Chemical processes
   (C) Physiological Processes (D) Biological processes

9. Enzymes which have different structure but the same function are called
   (A) Apoenzyme (B) Proenzyme
   (C) Isoenzyme (D) Haloenzyme

10. When the temperature increases in the system, it leads to increase in
   (A) Internal and kinetic energy (B) Kinetic and potential energy
   (C) Internal and potential energy (D) Internal energy only

11. Unwanted proteins are degraded to simpler units to amino acid and recycled to form new proteins is referred to as _____.
   (A) Reduction (B) Half life
   (C) Turnover (D) Catalysis

12. An organism that is dependent on inorganic substances for nutrition is called as
   (A) Autotrophs (B) Phototrophs
   (C) Lithotrophs (D) Photoautotrophs

13. Molecular machines are in the range of
   (A) Micrometer (μm) (B) Nanometer (nm)
   (C) Picometer (pm) (D) Millimeter (mm)

14. Intermediate filaments are
   (A) Cylindrical tubules (B) Thin contractile proteins
   (C) Provide tensile strength for the cell (D) Help in cellular movement

15. ENFET biosensors is primarily used for detection of _____.
   (A) pH (B) Temperature
   (C) Glucose concentration (D) Drug concentration

16. Methylotrophs are _____ that utilize methane as its carbon and energy source.
   (A) Anaerobic bacteria (B) Aerobic bacteria
   (C) Facultative bacteria (D) Ligninolytic fungi

17. Which type of glial cells helps in the formation of myelin sheaths?
   (A) Astrocytes (B) Oligodendrocytes
   (C) Ependymal cells (D) Microglia

18. Which among the following characteristics is true about adaptive immune system?
   (A) Antigen specific (B) Rapid response
   (C) Antigen non specific (D) No memory

19. Sebum secreted by hair follicles contains
   (A) Tartaric acid (B) Acetic acid
   (C) Hydrochloric acid (D) Lactic acid

20. Multiple sclerosis is a type of
   (A) Autoimmune disease (B) Viral infection
   (C) Bacterial infection (D) Fungal infection

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

21. Define: Cell and add a note on its discovery

22. Give significances of mitosis

23. Describe types of bonding

24. Explain the catalytic use of enzymes.

25. Explain Calvin's cycle.

26. Role of microorganism in bioremediation.

27. Write detail notes on principles of cell signalling.

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

28. a. Describe meiotic division with labelled diagram.

(OR)

b. Explain in detail the importance of homeostasis.

29. a. How systematically the Biomacromolecules arranged in the living system?

(OR)

b. Explain in detail on the function of tRNA, mRNA and rRNA.

30. a. Write in detail about the factors affecting the enzymes activity.

(OR)

b. Explain the process of photosynthesis.

31. a. Elaborate on the coupling and coordination of motors.

(OR)

b. Explain the biodetectors and their applications.

32. a. Describe about the organization of the nervous system.

(OR)

b. Explain in detail about the acquired immunity.

* * * * *