



Name: Roll No.:

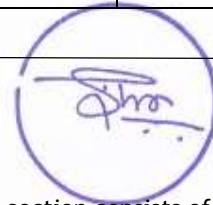
Branch: Signature of Invigilator:

Semester: IVth Date: 26/04/2022 (MORNING)

Subject with Code: BE101 BIOLOGICAL SCIENCE FOR ENGINEERS

Marks Obtained	Section A (30)	Section B (20)	Total Marks (50)

INSTRUCTION TO CANDIDATE



1. The booklet (question paper cum answer sheet) consists of two sections. First section consists of MCQs of 30 marks. Candidates may mark the correct answer in the space provided / may also write answers in the answer sheet provided. The Second section of question paper consists of subjective questions of 20 marks. The candidates may write the answers for these questions in the answer sheets provided with the question booklet.
2. The booklet will be distributed to the candidates before 05 minutes of the examination. Candidates should write their roll no. in each page of the booklet.
3. Place the Student ID card, Registration Slip and No Dues Clearance (if applicable) on your desk. All the entries on the cover page must be filled at the specified space.
4. Carrying or using of mobile phone / any electronic gadgets (except regular scientific calculator)/chits are strictly prohibited inside the examination hall as it comes under the category of unfair means.
5. No candidate should be allowed to enter the examination hall later than 10 minutes after the commencement of examination. Candidates are not allowed to go out of the examination hall/room during the first 30 minutes and last 10 minutes of the examination.
6. Write on both side of the leaf and use pens with same ink.
7. The medium of examination is English. Answer book written in language other than English is liable to be rejected.
8. All attached sheets such as graph papers, drawing sheets etc. should be properly folded to the size of the answer book and tagged with the answer book by the candidate at least 05 minutes before the end of examination.
9. The door of examination hall will be closed 10 minutes before the end of examination. Do not leave the examination hall until the invigilators instruct you to do so.
10. Always maintain the highest level of integrity. Remember you are a BITian.
11. Candidates need to submit the question paper cum answer sheets before leaving the examination hall.

BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)

CLASS: BTech
BRANCH: ALL

SEMESTER: IV
SESSION: SP/22

SUBJECT: BE101 Biological Science for Engineers

TIME: 2 hr

FULL MARKS: 50

INSTRUCTIONS:

1. The question paper contains 30 Multiple choice questions each of 1 mark and 15 Short answer type questions each of 2 marks.
 2. All multiple-choice questions are compulsory to attempt of total 30 marks.
 3. Candidate may attempt any 10 short answer questions of total 20 marks.
 4. The missing data, if any, may be assumed suitably.
 5. Before attempting the question paper, be sure that you have got the correct question paper.
 6. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
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I. Multiple Choice Questions

[1X30]

1. "Formation of a diverse organic molecule from inorganic constituents" The theory proposed by
a. Oparin and Haldane b. Charles Darwin c. Miller and Urey d. Rudolf Virchow
2. The diagnosis of coronavirus is done by
a. RT-PCR b. Urine Test c. LFT test d. Lipid test
3. Connecting link between living and non-living is
a. Bacteria b. Virus c. Fungi d. Protista
4. Five kingdom classification was given by
a. Chaton b. Whittaker c. Haeckel d. Cavalier-Smith
5. Fat soluble vitamins are
a. A & B b. C & D c. A&D d. A, D, E & K
6. Which among these is a purine?
a. Adenine b. Thymine c. Cytosine d. Uracil
7. Sweetest sugar is
a. glucose b. fructose c. sucrose d. Lactose
8. Chemical Bond present between the amino acids in proteins
a. Glycosidic bond b. Phosphodiester bond c. Co-ordinate bond d. Peptide bond
9. Night blindness is caused by deficiency of
a. Calcium b. Iron c. Iodine d. Vit A
10. Which of the following gases is least likely to have existed in the early atmosphere of the earth
a. hydrogen b. nitrogen c. oxygen d. carbon dioxide
11. Which of the following is a universal solvent
a. Ammonia b. Hydrochloric acid c. Water d. Aqua regia
12. Which of the following is a monosaccharide
a. Maltose b. Lactose c. Sucrose d. Glucose
13. The theory of spontaneous generation was disproved by
a. Oparin & Haldane b. Father Saurez c. Linnaeus d. Francesco Redi
14. The mineral required for the development of bones and teeth is

- a. Iron b. Sodium c. Calcium d. Iodine
15. The tool used to cut DNA in Genetic engineering is a
 a. Restriction endonuclease b. Haemoglobin c. Knife d. Gene cutter
16. Which of the following organelle is not a part of an animal cell?
 a. Lysosomes b. ribosomes c. Mitochondria d. Chloroplast
17. Chromosomes align at equatorial position in
 a. Prophase b. Metaphase c. Anaphase d. Telophase
18. Mitochondria is called the power-house of the cell, as it produces?
 a. DNA b. RNA c. AMP d. ATP
19. Protein synthesis occurs in
 a. Nucleus b. Cytoplasm c. Plasma membrane d. Lysosome
20. Large vacuoles are present in
 a. Chloroplast b. Mitochondria c. Plant cell d. Animal cell
21. All enzymes are chemically
 a. Carbohydrates b. Proteins c. Lipids d. Nucleic acids
22. Name an enzyme that is present in detergent (Washing powder)
 a. Lipase b. Sucrase c. Maltase d. Fructose
23. The 'lock and key hypothesis' mechanism is related with
 a. Digestion of fat in the body b. For enzyme specificity
 c. For the formation of vacuole d. Explosives
24. Photosynthesis occurs at its maximum in
 a. Red light b. Green light c. Yellow d. Orange light
25. DNA synthesis takes place in which phase of cell cycle
 a. G₂ b. S phase c. metaphase d. Prophase
26. Which of the following would be complementary to 5'-CAGTTCGGA-3' as a template DNA?
 a. 3'-AGGCTTGAC-4' b. 3'-TCCGAAGCTG-5' c. 3'-GTCAAGCCT-5' d. 3'-CAGTTCGGA-5'
27. The junction between the axon of one neuron and the dendrite of another, through which the two neurons communicate is called
 a. Junction b. Synapse c. Nerve end d. Filament
28. ELISA stands for
 a. Enzyme linked immuno-sorbent assay b. Enzyme linked ion sorbent assay
 c. Enzyme linked inductive assay d. None of these
29. What separates the outer ear from the middle ear?
 a. Auricle b. The ear wall c. Eardrum d. Cochlea
30. In nerve cell myelin sheath act like a
 a. Protective layer b. Insulated cover c. Nourishment d. Guard cells

II. Short answer type questions: (Answer any 10 questions)

[2X10]

1. Define cell. List any four cell organelles with their functions.
2. Discuss any two functions of protein in cell?
3. What are the important gases used in Miller's experiment? Why O₂ is not one of them?
4. Define light and dark reaction of photosynthesis.
5. What are the benefits of enzyme immobilization?
6. Differentiate between prokaryotic cell and eukaryotic cell.
7. Give any two differences between DNA and RNA.
8. Discuss the factors affecting the activity of enzymes.
9. Discuss four stages of mitosis cell division.
10. Describe a technique suitable to grow plants in Mars?
11. Draw a labelled diagram of human eye? How it resembles Camera?
12. Describe nerve electrical signal transmission?
13. List any two application of Polymerase chain Reaction.
14. Draw a schematic diagram describing Miller's Experiment?
15. What are genetically modified organisms. Is it safe for consumption? Give your opinion.



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