B.Tech
1st Semester (*Regular*)
SAS-2022

AUTUMN MID SEMESTER EXAMINATION-2022
Subject: Science Of Living System
Code: LS10001

Full Marks: 20 **Time: 1.5 Hrs**

Answer any FOUR QUESTIONS including question No. 1 which is compulsory. The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable and all parts of a question should be answeredint one place only

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1. Answer the following questions [5×1=5]

   (a) Mention the name of the organelle associated with both the material synthesis and sorting process.
   Ans: Golgi Bodies

   (b) A double-stranded DNA of length 102 nm has 300 H-bonds formed by G-C pairs only. What can be the concentration of Adenine?
   Ans: 33.3 %

   (c) Which cells of human the body violate cell theory?
   Ans: RBC

   (d) What type of chromosome will appear as an "L" shape when observed under a microscope ?
   Ans: Sub metacentric

   (e) Mention name of a microbe used in food industry.
   Ans: Yeast/ Lactobacillus

2. How are the 3 components of homeostasis interrelated ? Explain with an example. [5]

   Ans: Explaining receptor, control centre, effector with and example (4 marks), schematic diagram (1 mark)

3. What are the bonds present in DNA? Explain the importance of phosphodiester bonds. [5]

   Ans: Covalent (phosphodiester bond), hydrogen bond (2 marks); explanation of phosphodiester bond (2 mark), diagram (1mark).

4. How are stem cells classified on basis of source? Explain the importance of therapeutic cloning diagrammatically. [5]

   Ans: Embryonic and adult stem cell and their source of procurement (2 marks): therapeutic cloning explanation with diagram (3 marks).

5. Explain the "non-ambiguous" and "non overlapping" nature of genetic code. How is the process of splicing helpful? [5]

   Ans: Explaining "non-ambiguous" and "non overlapping" nature of genetic code (2 marks); Splicing process along with schematic (2+1 marks)

** ALL THE BEST **