Exam.Code:0906
Sub. Code: 33268

2015

B.E., Second Semester

BTBS-201: Fundamentals of Bioengineering

Time allowed: 3 Hours

Max. Marks: 50

NOTE: *Attempt five questions in all, including Question No. I which is compulsory and selecting two questions from each Unit.*

x-x-x

1. Attempt the following:-
   a) What is the function of transducer in biosensors?
   b) NCBI is an acronym for_____.
   c) Mention two limitations of Beer Lambert Law.
   d) Why is steam more efficient in sterilization process as compared to boiling water?
   e) How can we calculate the age of the fossil using carbon dating?
   f) What is meant by system of units? Name the three system of units.
   g) What is Avogadro Number?
   h) Why is shaking of liquid culture media important when placed in an incubator?
   i) Which chemical is used in electrophoresis to visualize DNA under UV light?
   j) How is pH measured. What is the usual pH range? (10x1)

UNIT - I

2. Write a short note on:
   a) Mole concept
   b) Components of an autoclave
   c) Types of Lyophilizers
   d) Working of a microscope (4x2½)
3. a) Explain different systems of Units. Why it is important to have consistent units worldover? (5)
   b) What is a radionuclides and mention any five applications if radionuclides in field of biomedical sciences. (5)
4. "Chromatography is a powerful analytical tool". Justify the statement using examples. Discuss ion exchange chromatography in detail and use suitable diagrams. (10)

P.T.O.

UNIT - II

5. (a)Using specific examples enlist different types of biosensors based on their principle and diagrammatically show different parts of a biosensor. (5)

   (b) A person is having cardiac arrhythmia. Which instrument a doctor will use to confirm this? Elaborate on PQRST waves. (5)

6. (a) How does size exclusion chromatography work? Explain using a diagram. (5)

   (b) Write a short note on application of nanobiotechnology in medicine and healthcare. (5)

7. (a) "Bioinformatics have revolutionized the field of biology". Justify this statement in light of current developments. (5)

   (b) Draw a labelled diagram of MRI machine and mention its three applications. (5)

x-x-x