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Exam.Code:0906

Sub. Code: 6664

1108

B.E. (Bio-Technology)

Second Semester

BIO-202: Fundamentals of Bio-Technology and Bio-Engineering

Time allowed: 3 Hours

Max. Marks: 50

NOTE: Attempt five questions in all, including Question No. 1 which is compulsory and selecting two questions from each Unit.

x-x-x

I. Attempt the following:-

- a) _____ is a dehydration process typically used to preserve perishable material or make the material more convenient for transport.
- b) 1 gram has _____ milligrams.
- c) Normality is defined as _____.
- d) The pH scale ranges from ___ to ___.
- e) RPM in centrifugation stands for_
- f) What is the function of transducer in biosensors?
- g) Name any database.
- h) Nanoscale ranges from ___ to ___ nm.
- i) What are the ways to determine if autoclaving if the material is done properly or not? (10)

UNIT - I

II. Write a short note on:-

- a) Principle of spectrophotometer
- b) Process of centrifugation
- c) Lyophilization process
- d) Working pH meter

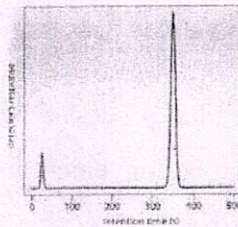
(4x2½)

- III. a) Describe various types of radionuclides and mention any five applications if radionuclides in field of biomedical sciences. (5)

P.T.O.

(2)

- b) In the paper chromatographic separation of a mixture of red and blue inks, the distance travelled by red ink is 13.2cm and the distance travelled by the solvent is 15cm. What is the Rf value of red ink? (2.5)
- c) The chromatography of a mixture was performed and following chromatogram was observed. Explain the results in your own words. (2.5)



- IV. a) Explain the principle and procedure of DNA gel electrophoresis in detail. Use diagram if necessary.
- b) Draw a labeled diagram of an autoclave and discuss the precautions to be taken while handling the autoclave. (2x5)

UNIT - II

- V. a) What are biosensors? Draw a schematic showing all the parts of biosensor. Enlist any two types of biosensor. (1+2+2)
- b) Bioinformatics has become a very useful tool in various fields of biotechnology. Justify this statement in light of recent developments in the field. (5)
- VI. Write a note of any two:-
- Ultrasound
 - ECG
 - EEG
- (2x5)
- VII. a) Explain the design and operations of a bioreactor with the help of a labeled diagram.
- b) Discuss any five applications of nanobiotechnology in medicine and healthcare. (2x5)