

COURSE CODE: 18WBT731

MAX. MARKS: 35

COURSE NAME: Biosensor-Principles & Applications

COURSE CREDITS: 03

MAX. TIME: 2.0 HRS

Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means. Marks are indicated against each question in square brackets.

Answer the following questions.

1. Describe different type of immobilization schemes for biosensors? [3] [CO-2]
2. What two mechanisms are believed to underlie the SERS phenomenon? Which of these two is usually the larger contributor? Explain both the mechanism in detail [6] [CO-4]
3. Explain in detail 1st generation, 2nd generation, and 3rd generation glucose biosensors [5] [CO-3]
4. Draw a neat sketch and explain how to design glucose biosensor using nanoparticles [5] [CO-4]
5. Draw a neat sketch and explain how to design enzymatic biosensor for pesticides detection [6] [CO-2]
6. Answer the following
 - (a) Difference between Raman spectroscopy & IR Spectroscopy [2] [CO-4]
 - (b) Stoke and Antistoke Shift [2] [CO-4]
 - (c) Distinguish between elastic and inelastic scattering [2] [CO-2]
 - (d) Define amperometric sensor and ultrasonic sensor [2] [CO-1]
 - (e) Write down the essential characteristic of biosensors? [2] [CO-1]