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JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATION- October 2019

B. Tech VII Semester

COURSE CODE: L-18B1WBT731

MAX. MARKS: 25

COURSE NAME: Biosensors-Principles & Applications

COURSE CREDITS: 3

MAX. TIME: 1.5 Hr

Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means. XXXXXXXXXXXXXXXXXXXXXXXX

Answer the following Questions.

1. Explain in detail 1st generation, 2nd generation and 3rd generation of glucose biosensor [5] [CO-2]
2. How much charge is required for the reduction of 1 mole of Zn^{+2} to Zn? [2] [CO-3]
3. Calculate the electrode potential at a copper electrode dipped in a $0.1 \mu M$ solution of copper sulphate at $25^{\circ}C$. The standard potential of Cu^{2+}/Cu system is 0.34 volt at 298 K. [3] [CO-3]
4. Write down the working principle of CO_2 gas sensor [3] [CO-3]
5. Draw a neat sketch and explain how to design enzymatic electrochemical biosensor for urea detection. [5] [CO-3]
6. Write a note on the following [1.5x4]
 - a) Auxiliary electrode [CO-2]
 - b) Ion selective electrode [CO-2]
 - c) Immunobiosensor [CO-1]
 - d) Transducer [CO-1]
7. Who is known as "Father of Biosensors" [1] [CO-1]