BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(MID SEMESTER EXAMINATION SP/2024)

CLASS: B.TECH **SEMESTER : IV**
BRANCH: BIOTECHNOLOGY **SESSION : SP/2024**

SUBJECT: BE215R1 CELLULAR ELECTROPHYSIOLOGY

TIME: 02 HOURS **FULL MARKS: 25**

INSTRUCTIONS:
1. The question paper contains 5 questions each of 5 marks and total 25 marks.
2. Attempt all questions.
3. The missing data, if any, may be assumed suitably.
***4*. Tables/Data handbook/Graph paper etc., if applicable, will be supplied to the candidates**

			CO	BL
Q.1(a)	Name four human sensors or transducers and mention what types of information they receive from the external environment.	[2]	CO1	Remember
Q.1(b)	What is action potential? Draw its classic wave for large nerve fiber and name all the important components.	[3]	CO2	Understand
Q.2(a)	Discuss the method of calculation of resting cell potential.	[2]	CO1	Understand
Q.2(b)	Illustrate the concept of intracellular and extracellular cell potential recorder.	[3]	CO4	Apply
Q.3(a)	Write a note on different types of transport mechanisms across the cell.	[2]	CO1	Understand
Q.3(b)	Write four physical laws those are important in calculation of ionic transport across the plasma membrane	[3]	CO2	Understand
Q.4(a)	What information the Nernst-Plank equation provides?	[2]	CO2	Remember
Q.4(b)	Write the Nernst equation and explain it’s relevance in cellular electrophysiology.	[3]	CO2	Analyse
Q.5(a)	Write a note on Donnan’s equilibrium.	[2]	CO2	Understand
Q.5(b)	Illustrate the concept of transport of ions and calculation of permeability of a plasma membrane.	[3]	CO1	Apply

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