Printed Pages : 3

EBM012

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 101652

Roll No.

B. Tech.

(SEM. VI) THEORY EXAMINATION, 2014-15

BIOELECTRICITY

Time : **2** Hours] [Total Marks : **50**

Note : Attempt all questions.

1 Attempt any three questions of following : **4×3=12**

(a) Give an account of propagation of action potential.

(b) With neat diagram explain sodium potassium channels.

(c) Define the terms membrane time and space constant.

(d) Explain how membrane properties influence current voltage relations.

(e) What is Einthoven's triangle ? Explain the electrical activity of the heart.

2 Attempt any three questions of following : **4×3=12**

(a) Explain the behaviour of electrode electrolyte interface.

(b) What are bioelectric sources ? Explain the basis for such sources.

(c) Discuss the different waves and rhythms in electroencephalogram. Explain.

(d) What is gradation of muscular activity ?

(e) Write explanatory notes on a electrical equivalent circuit of Axon.

3 Attempt any three parts of the following : **4×3=12**

(a) Give a scheme for measurement of tissue resistance.

(b) How polarized synapses differ from non polarized synapses.

(c) Briefly explain transmission neuro muscular function.

(d) Explain any two important application of bioelectric phenomenon.

(e) Describe the structure and functions of neurons.

4 Attempt any one part of the following : **7×1=7**

(a) What is Nernst equation. Explain how it shows that the electrode response depends both temperature and the no. of charge on the ion.

(b) Explain the characteristics of action potentials of the following :

(i) SA Node

(ii) AV Node

(iii) Ventricle

(iv) Puokinyee Fiber

5 Attempt any one part of the following : **7×1=7**

(a) Write short notes on strength-duration relationship.

(b) Derive Hodgkin-Huxley formulation equation with assumptions. Explain briefly.