Biological modeling & Simulation

(13)

QP Code : 6357

(3 Hours) [Total Marks :80

N.B. : (1) Question No. 1 is compulsory.
(2) Attempt **any three** questions out of remaining **five**.
(3) Figures to the right indicates full marks.
(4) Assume data wherever necessary.

1. (a) How is thermogenesis different from thermolysis. 5
   (b) Explain with a neat diagram electrode electrolyte interface. 5
   (c) What is parallel conductance equation? 5
   (d) Differentiate between active- state tension and muscle tension. 5

2. a) With the help of neat diagram explain electrical model of cell membrane 10
   b) Explain different biophysics tools 10

3. (a) Derive cable equation 12
   (b) With the neat block diagram explain Thermoregulatory system. 8

4. (a) Explain the complete neuromuscular control system with all relevant blocks. 12
   (b) Explain all four eye movements. 8

5. (a) Derive equation for peak time and peak velocity for Weisthemer's model 12
   (b) Explain glucose insulin model 8

6. (a) Explain in detail complete immune system 8
   (b) What are glissades? 4
   (c) Explain Hodgkin Huxley's model with necessary equation 8

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