PVP 14

Code: EC7T4D

IV B.Tech - I Semester – Regular/Supplementary Examinations
JANUARY - 2022

BIO - MEDICAL INSTRUMENTATION
(ELECTRONICS & COMMUNICATION ENGINEERING)

Duration: 3 hours Max. Marks: 70

PART – A

Answer ***all*** the questions. All questions carry equal marks

11 x 2 = 22 M

1.

a) Define Resting potential and Action potential.
b) Write down the Nernst equation of action potential.
c) List the types of bioelectric potentials.
d) What is evoked potential?
e) List the lead systems used in ECG recording.
f) What is cardiac output? What are the methods of measurement of cardiac output?
g) What are the principal components of an auto analyzer? How is auto analyzer useful in medical field?
h) Define Endoscopes and list out the types of endoscopes.
i) What is the use of laparoscope?
j) What are the classifications of defibrillator?
k) What is the need for heart lung machine?

PART – B

Answer any ***THREE*** questions. All questions carry equal marks.

3 x 16 = 48 M

2. a) Draw block diagram and explain different components of man-instrument system. 8 M

   b) Explain the pO2 and pCo2 measurement in detail with neat sketches. 8 M

3. a) Compare ECG, EEG and EMG signals with the help of their frequency and amplitude. 8 M

   b) Explain the EMG measurement and its applications. Discuss nerve conduction rate and its significance in diagnosing neural disorders. 8 M

4. a) Describe the Doppler blood flow meter and explain its advantages. 8 M

   b) What is Plethysmography? Explain the working of Impedance Plethysmograph. 8 M

5. a) With neat diagram describe the working of X-ray machine. Enumerate the uses of X-rays in medicine. 8 M

   b) With the help of a block diagram explain the basic principle of Computer Tomograph. 8 M

6. a) Discuss electrical conduction path way of heart and explain the working principle of artificial cardiac pacemaker with necessary figures. 8 M

b) What is Hemodialysis? Explain the working of an artificial kidney with necessary diagram. 8 M