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Question Paper Code: 55503

B.E. / B.Tech. DEGREE EXAMINATION, AUGUST 2021

Fifth Semester

Electronics and Instrumentation Engineering

15UEI503 - BIOMEDICAL INSTRUMENTATION

(Regulation 2015)

Duration: 1:45 hour

Maximum: 50 Marks

PART A - (10 x 2 = 20 Marks)

(Answer any ten of the following questions)

1. If the net flow of ionic change in an action potential goes up only to charge the membrane capacitance ($C = 1\mu\text{F}/\text{cm}^2$) calculate the net micro moles transferred per unit action potential rising from -50 mV to $+65\text{ mV}$? CO1 -Ana
2. List the different types of needle electrode. CO2- R
3. Define cardiac output. CO3- R
4. Define defibrillator analyzers. CO4- R
5. Analyze the biological effects of NMR imaging. CO5-Ana
6. Differentiate between polarisable and non-polarisable electrodes CO1 -Ana
7. List the different types of needle electrode. CO2- R
8. Define cardiac output. CO3- R
9. State the need for cardiac pacemaker. CO4- R
10. Analyze the biological effects of NMR imaging. CO5-Ana
11. If the net flow of ionic change in an action potential goes up only to charge the membrane capacitance ($C = 1\mu\text{F}/\text{cm}^2$) calculate the net micro moles transferred per unit action potential rising from -50 mV to $+65\text{ mV}$? CO1 -Ana
12. List the different types of needle electrode. CO2- R
13. Calculate the cardiac output, given by the following data: spirometer O_2 consumption $250\text{ml}/\text{min}$; arterial O_2 content, $0.20\text{ml}/\text{ml}$; venous O_2 content $0.15\text{ ml}/\text{ml}$. CO3- R

- 14 State the need for cardiac pacemaker. CO4- R
- 15 Analyze the biological effects of NMR imaging. CO5-Ana

PART – B (3 x 10= 30 Marks)

(Answer any three of the following questions)

16. Explain in detail about the electrical activities associated with bioelectric signals. CO1- U (10)
17. Illustrate the 10-20 lead configuration measurement of EEG measurement, with neat sketch. CO2- U (10)
18. Illustrate the any two methods of respiratory rate measurement CO3-U (10)
19. Analyze the physiological effects of electric current on human body. CO4- U (10)
20. Explain in detail about Computer Tomography with neat sketch CO5- U (10)