**C** **Reg. No. :** | | | | | | | | | | |

## Question Paper Code: 59422B

B.E. / B.Tech. DEGREE EXAMINATION, APRIL 2019

Elective

Electronics and Communication Engineering

15UEC922- MEDICAL ELECTRONICS

(Regulation 2015)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (5 x 1 = 5 Marks)

1. EEG is usually abnormal in all of the following, except: CO1- R

   (a) Subacute sclerosing panencephalitis (b) Locked — in state

   (c) Creutzfeldt — Jakob disease (d) Hepatic encephalopathy

2. The range of systolic blood pressure for a normal adult is _____ CO2- R

   (a) 95 to 145 mm Hg (b) 75 to 135 mm Hg

   (c) 55 to 125 mm Hg (d) 65 to 125 mm Hg

3. Genes that play a role in uncontrolled cell growth are known as CO3- R

   (a) Tumor genes. (b) Growth genes (c) Oncogenes (d) Protogenes

4. What does "MRI" stand for? CO4- R

   (a) Magneto-Ray Idometry (b) Medical Radiometry Instrument

   (c) Magnetic Resonance Imaging (d) Maximal Radiology Imaging

5. The blood plasma is composed by CO5- R

   (a) Blood cells (b) Platelets

   (c) Solution of water and salts, proteins etc.., (d) Both a & b

PART – B (5 x 3= 15Marks)

6. State the importance of PCG signal. CO1- R

7. What are systolic and diastolic pressures? CO2- R

8. Define cardiac output. CO3- R

9. What is radio pill? Mention the application of radio pill. CO4- R

10. Define medical thermograph. CO5- R

PART – C (5 x 16= 80Marks)

11. (a) Explain the different type of electrodes used in bio-potential measurement. CO1- App (16)

Or

(b) Describe the typical recording set-up of EMG. CO1- App (16)

12. (a) Discuss about the measurement of pH and $pO_2$ of blood with neat sketch. CO2-U (16)

Or

(b) (i) State and explain the working principle of electromagnetic blood flow meter. CO2-U (8)

(ii) Briefly explain the working of Blood cell counter. CO2-U (8)

13. (a) Explain the different modes of cardiac pacemakers. CO3-U (16)

Or

(b) Give a brief notes on Defibrillator? CO3-U (16)

14. (a) Explain in detail about the computer tomography CO4- U (16)

Or

(b) Define leakage current and explain the impact of leakage in cardiac patient and discuss about the prevention methods CO4- U (16)

15. (a) Explain in detail about Boron Neutron Capture Therapy (BNCT) CO5- U (16)

Or

(b) Explain in detail about Positron Emission Tomography (PET). CO5- U (16)