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Question Paper Code: 59422

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2018

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 matrix of blood is known as CO2-R
(a) Plasma (b) Serum (c) RBC and WBC (d) WBC and Platelets
3. Which of the following represents a telemetry CO3-R
(a) Analog device (b) Digital device
(c) Both analog and digital device (d) None of the mentioned
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. In medicine thermograph is used to CO5-R
(a) Identify bacteria (b) Identify infected tissues
(c) Kill infected cells (d) Identify damaged parts of an organ

PART – B (5 x 3= 15 Marks)

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| 6. | State the importance of PCG signal. | CO1-U |
| 7. | What is colorimeter? Mention its uses. | CO2-R |
| 8. | Define cardiac output. | CO3-R |
| 9. | Define tomography. | CO4-R |
| 10. | Define medical thermograph. | CO5-R |

PART – C (5 x 16= 80Marks)

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| 11. | (a) | Explain the different types of electrodes used in bio-potential measurement. | CO1-U | (16) |
| | | Or | | |
| | (b) | Describe the typical recording set-up of EMG. | CO1-U | (16) |
| 12. | (a) | Discuss about the measurement of pH and pO ₂ of blood with neat sketch. | CO2-U | (16) |
| | | Or | | |
| | (b) | Explain the different techniques used in measurement of pulse rate. | CO2-U | (16) |
| 13. | (a) | Explain the different modes of cardiac pacemakers. | CO3-U | (16) |
| | | Or | | |
| | (b) | Explain the principles and operations of DC defibrillators | CO3-U | (16) |
| 14. | (a) | Explain in detail about the computer tomography. | CO4-U | (16) |
| | | Or | | |
| | (b) | Explain in detail about the computed radiography. | 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) |