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Question Paper Code: 59422

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 - (5x 1 = 5 Marks)

1. The EEG signals are originated from the_____. CO1 -R
(a) Glia cells (b) Motor units (c) Sino atrial node (d) Acetylcholine
2. Too low a blood pressure is known CO2 -R
(a) Hypertension (b) Hypothalamus (c) Hypotension (d) Vasodilatation
3. The polymeric material used for the preparation of artificial heart valve is CO3 -R
(a) Polyvinyl chloride (b) Teflon (c) Polyisopropyl (d) Polyethylene
4. The detailed X –ray images of the slices of the body is obtained by means of CO4 -R
(a) CT scan (b) MRI scan (c) Fluoroscopy (d) Scintillation detector arrays
5. What type of medical problem is not usually investigated using nuclear medicine? CO5 -R
(a) Blood circulation (b) Broken bone (c) Cancer (d) Disorders in organs

PART – B (5 x 3= 15 Marks)

6. Draw Einthoven triangle. CO1- R
7. Define respiration and its types. CO2 -R
8. Differentiate two types of dialysis. CO3 -R
9. Define slice. CO4 -R
10. What is Endoscopy? CO5 -U

PART – C (5 x 16= 80 Marks)

11. (a) With diagram, explain the different lead configurations and its significances in ECG. CO1- U (16)
- Or
- (b) With diagram, explain the different lead configurations and its significances in ECG. CO1 -U (16)
12. (a) Describe a procedure for the measurement of pH and pO₂ in blood with a neat diagram CO2 -U (16)
- Or
- (b) Explain the working principle of blood pressure measurement with a neat sketch. CO2 -U (16)
13. (a) Explain in detail about the components of a bio-telemetry system. CO3 -U (16)
- Or
- (b) Discuss the power sources used and electromagnetic interference that arise in a pacemaker. CO3- U (16)
14. (a) Explain the process of image reconstruction using MRI. CO4 -U (16)
- Or
- (b) Discuss in detail about Ultrasonography. CO4- U (16)
15. (a) Discuss the different operations performed in diathermy. Also explain any two methods. CO5 -U (16)
- Or
- (b) Explain in detail about CO5 -U (8)
- (i) Boron Neutron Capture Therapy (BNCT)
- (ii) Positron Emission Tomography (PET) CO5 -U (8)