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Total No. of Pages : 1

Total No. of Questions : 08

M.Tech.(EPDT) EL-I (2016 & Onwards) (Sem.-2)

MEDICAL INSTRUMENTATION

Subject Code : MTET-206

Paper ID : [74402]

Time : 3 Hrs.

Max. Marks : 100

INSTRUCTIONS TO CANDIDATES :

1. Attempt any FIVE questions in all, out of EIGHT questions.
2. Each question carries TWENTY marks.

- Q1. a) Explain the central nervous system with neat diagram. Also classify the two major divisions of nervous system.
- b) What are the different types of muscles? Generalize the importance of motor unit in the muscular contraction.
- Q2. a) What are the methods for measuring blood pressure? Sketch a typical setup and explain.
- b) Describe how whole body plethysmography is used to measure total lung capacity.
- Q3. Clearly explain the different 12 lead lead system of ECG wave form recording. Prove mathematically that sensitivity of augmented lead is 50% more as compared to original unipolar limb lead. And also explain if signal from two leads are known, how other four leads are computed from these two signals.
- Q4. With a neat block diagram explain the working of an EEG machine. Also discuss the 10-20 electrode system of EEG and its component waves.
- Q5. a) Discuss the properties of ultrasound and how ultrasound can be used for diagnosis. Briefly explain the different modes of ultrasonic scanning with suitable diagrams.
- b) Explain the computerized tomography with neat diagram.
- Q6. a) Elaborate on the medical equipment maintenance and safety parameters in handling it.
- b) What is pacemaker? Explain the operation of ventricular asynchronous pacemaker.
- Q7. a) Explain the working of foetal phonocardiogram with variable pulse duration to inhibit triggering by second heart sound.
- b) Describe the construction and operation of Haemodialysis method.
- Q8. Write short notes on :
- a) Microwave Diathermy.
- b) Ventilator.