

- Q.31 What are electrotherapy? Explain galvanic current wave form.
- Q.32 Explain coherence characteristic of laser.
- Q.33 Draw diagram of haemodialysis machine and explain it.
- Q.34 What are Laser? Explain characteristic of laser.
- Q.35 Describe the component of laser.

#### SECTION-D

- Note:** Long answer type questions. Attempt any two questions out of three questions. (2x10=20)
- Q.36 What are laser? Explain its working principle & application of in detail.
- Q.37 What are electro therapy? Draw diagram of different waveform.
- Q.38 What are Dialysis? Explain the working principle of haemodialysis machine with block diagram.

No. of Printed Pages : 4

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**5th Sem / Branch : Medical Electronics**

**Subject:- Therapeutic Medical Instrumentation (TMI)**

Time : 3Hrs.

M.M. : 100

#### SECTION-A

**Note:** Multiple choice questions. All questions are compulsory (10x1=10)

- Q.1 The substance cannot pass through semi permeable wall of glomerulus.
- a) Globin
  - b) Albumin
  - c) Blood cells
  - d) All of these
- Q.2 The functional Unit of kidney
- a) Nerurogalia
  - b) Neurons
  - c) Nephrons
  - d) None of these
- Q.3 Which of the following is a unique property of Laser
- a) Directional
  - b) Speed
  - c) Coherence
  - d) Wavelength
- Q.4 Microwave frequency range are extended from
- a) 3 MHz to 30 MHz
  - b) 30 MHz to 300 MHz
  - c) 500 MHz to 30000 MHz
  - d) None of these
- Q.5 Where is haemodialysis carried out
- a) Home
  - b) Hospital
  - c) Dialysis centre & Hospital
  - d) Dialysis centre

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- Q.6 Pasteurization is
- a few spring bacteria get killed by pasteurization
  - milk is heated to 70°C & held for 30 minutes
  - milk is rapidly cooled to 0°C
  - it is done for checking milk born infection
- Q.7 Which are not a common microwave application
- Telephone
  - Radar
  - Mobile radio
  - Satellite communications
- Q.8 Human heart have
- one chamber
  - two chamber
  - three chamber
  - four chamber
- Q.9 Which laser is used in light detection and ranging
- Ruby laser
  - He-Ne laser
  - CO<sub>2</sub> Laser
  - Semisolid laser
- Q.10 Which can be side effect of hemodialysis
- Nausea
  - Weakness
  - Cramp
  - All of these

## SECTION-B

**Note:** Objective type questions. All questions are compulsory. (10x1=10)

- Q.11 Draw Waveform of ECG.
- Q.12 Name instruments which are used in Surgical Diathermy.
- Q.13 Expand CSSD.

- Q.14 What are Cardiac Pacemaker?
- Q.15 What are Lower Energy State?
- Q.16 Expand LASER.
- Q.17 What are Photon?
- Q.18 Full form of SWD.
- Q.19 Expand CSSD.
- Q.20 What are Microwave?

## SECTION-C

- Note:** Short answer type questions. Attempt any twelve questions out of fifteen questions. (12x5=60)
- Q.21 What are stimulator? Explain TENS stimulator.
- Q.22 Describe safety aspect in electrosurgical unit.
- Q.23 What are cardiac pacemaker? Explain type of cardiac pacemaker.
- Q.24 What are Laser? Explain its working principle.
- Q.25 Define Microwave diathermy. Explain the production of microwave.
- Q.26 Explain Inductive plate method application of short wave diathermy.
- Q.27 What are laser? Describe different type of laser.
- Q.28 Define therapeutic instrument. Explain blood chemistry analyzer.
- Q.29 What are sterilization? Explain different type of sterilization.
- Q.30 What are Nephron? Draw diagram & explain its physiological working.