

Total number of printed pages-9

34 (2) ELTH 2.4

2017

**ELECTROTHERAPY**

Full Marks : 100

Time : Three hours

**The figures in the margin indicate full marks for the questions.**

1. Essay type : (**any two out of three**)  
10×2=20
  - (a) Define LASER. Explain the types of LASER along with its principle of production. Write about the methods of application of LASER along with the recommended dosages.
  - (b) What is electro diagnosis ? Explain the different electro diagnostic tests and their interpretations.

Contd.

(c) Define shortwave, mention its frequency and wavelength. Draw the circuit diagram and explain the principles of production of SWD. Also explain about the common positions of electrode used in SWD.

2. Short essay type : (answer **ten out of twelve**)  
5×10=50

(a) Define Pain. Describe Pain Gate Theory in detail.

(b) Define IRR and explain about the types of IR generators along with its physiological and therapeutic effects.

(c) Write about the principle of Wave Therapy application along with the methods of application. Mention some of the indication of Wave Bath.

(d) Classify UVR. Explain about the High Pressure Mercury Vapour Burner. Calculate the  $E_1$ ,  $E_2$ ,  $E_3$  and  $E_4$  dosage for the treatment of acne if the known  $E_1$  is 1 minute at 100cm.

(e) Explain about the different types of electrodes used in EMG.

(f) Define Cryotherapy. Describe about its principles and techniques of application along with the indications and contraindications.

(g) Define UST. Describe the production of US along with its treatment dosage parameters.

(h) Describe Iontophoresis and its techniques of application. Mention the commonly used drugs for pain, hyperhydrosis and wound healing.

(i) Define TENS and explain the types of TENS along with its Physiological and Therapeutic effects.

(j) Explain the electrical excitability of muscle and nerve and the peeping membrane potential along with its propagation.

(k) Define MWD. Explain in details about its production and mention some of its indications and contraindications.

(l) What is Moist Heat Therapy ? Explain about its Therapeutic uses and mention some of its indications.

3. Short answer type : (answer **any five** out of **seven**)  
2×5=10

- (a) PUV A apparatus in detail.
- (b) What is Piezo-electric effect ?
- (c) What is Contrast Bath Therapy ?
- (d) Explain about Sinusoidal currents.
- (e) Mention the indications and contraindications of Fluidotherapy.
- (f) Explain Whirlpool Bath.
- (g) Transformers and its types.

4. Multiple choice questions : (attempt **all**)  
1×20=20

- (i) The skin resistance can be reduced before applying electrical stimulation by —
  - (a) Washing the skin by soap and warm water and cleaning by applying spirit or alcohol
  - (b) Massage the part in elevation if edema is present
  - (c) Soak the part with normal saline
  - (d) All of the above.

(ii) The unit of capacitance is —

- (a) Ampere
- (b) Volt
- (c) Farad
- (d) None of the above.

(iii) The low frequency current is upto —

- (a) 1000Hz
- (b) 50Hz
- (c) 100Hz
- (d) None of the above.

(iv) For Iontophoresis \_\_\_\_\_ current is used.

- (a) Direct current
- (b) Alternating current
- (c) Magnetic radiation
- (d) High frequency current.

(v) The wavelength of UVC is between

- (a) 315–400nm
- (b) below 315nm
- (c) below 280nm
- (d) none of the above.

(vi) Which of the following is a low frequency current ?

- (a) Faradic current
- (b) Russian current
- (c) IFT
- (d) SWD.

(vii) \_\_\_\_\_ current is used for the stimulation of innervated muscles

- (a) Farade
- (b) Faradic type
- (c) Surged Faradic
- (d) Interrupted Galvanic.

(viii) SD curve can —

- (a) Distinguish between innervation and denervation
- (b) Distinguish between innervated and denervated but cannot quantify the state of innervation
- (c) Distinguish innervated and denervated and quantify the state of innervation
- (d) None.

(ix) EMG reveals Action potential of —

- (a) Muscle
- (b) Motor unit
- (c) Nerve fibre
- (d) None of the above.

(x) Which is not a deep heating modality ?

- (a) US
- (b) SWD
- (c) MWD
- (d) UVR.

(xi) Cyclotherm apparatus is a

- (a) Heating modality
- (b) Cooling Modality
- (c) Both (a) and (b)
- (d) None of the above.

(xii) The Hydrocollator packs are heated up to —

- (a) 50° - 60°C
- (b) 55° - 80°C
- (c) 65° - 80°C
- (d) None of the above.

(xiii) For flat-foot, the best line of treatment is —

- (a) US
- (b) SWD
- (c) IFT
- (d) Faradic foot bath.

(xiv) Slow pain is referred to

- (a) A delta fibre receptor stimulation
- (b) C fibre receptor stimulation
- (c) AB fibre receptor stimulation
- (d) Both (a) and (b).

(xv) Resting nerve is \_\_\_\_\_ outside

- (a) negative
- (b) positive
- (c) neutral
- (d) none.

(xvi) Axonotmesis is \_\_\_\_\_ degree nerve injury

- (a) First
- (b) Second
- (c) Third
- (d) None.

(xvii) Frequency of SD curve is —

- (a) 11MHz
- (b) 15MHz
- (c) 27MHz
- (d) 27.12MHz.

(xviii) In  $Z = \frac{1}{2\pi fc}$ , Z stands for

- (a) Resistance
- (b) Impedance
- (c) Frequency
- (d) Capacitance.

(xix) IRR wavelength is between

- (a) 1000–5000nm
- (b) 750–4,00,000nm
- (c) 750–4,000nm
- (d) None.

(xx) The magnetron oscillator is a component of the

- (a) SWD
- (b) Low frequency generator
- (c) UST
- (d) MWD