

**A**

Reg. No. :

--	--	--	--	--	--	--	--	--	--

**Question Paper Code: 55B02**

B.E. / B.Tech. DEGREE EXAMINATION, APRIL 2019

Fifth Semester

Biomedical Engineering

15UBM502- DIAGNOSTIC AND THERAPEUTIC EQUIPMENTS-II

(Regulation 2015)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. Before placing the electrodes the skin should be \_\_\_\_\_ CO1- R  
(a) Wet (b) Dry (c) Hairy (d) Oily
2. The Echoencephalogram can involve recording of electrical potential form CO1- R  
(a) Groups of neurons via electrodes placed on the scalp (b) Single neurons  
(c) Groups of neurons via electrodes inserted into the brain (d) All of the above
3. In respiration, raw material is converted into \_\_\_\_\_ CO2- R  
(a) water only (b) carbon dioxide and energy  
(c) water and energy (d) water, carbon dioxide and energy
4. Ventilators are primarily used in CO2- R  
(a) Intensive care medicine (b) Home care  
(c) Emergency medicine (d) All of the above
5. Electro Retinograph measures CO3- R  
(a) Electrical activity of the heart (b) Electrical activity of the brain  
(c) Electrical activity of the muscle (d) Electrical activity of the eye
6. Letter F in the EEG electrode placement system denotes? CO3- R  
(a) Front (b) Face (c) Frontal Lobe (d) Fast

7. The indications for continuous short wave diathermy is CO4- R
- (a) Relief pain and muscle spasm (b) Increase blood flow
- (c) Increase rate of cell metabolism (d) Increase joint stiffness
8. Which of the diathermy machine is good for deep tissue healing? CO4- R
- (a) short wave (b) ultrasound
- (c) cold compress (d) electrical impulse
9. Micro shocks may occur CO5- R
- (a) Due to flow of 1A current flow across the body surface
- (b) Due to 5A current flow across the body for one minute
- (c) Due to shortening of electrical leads in the pacemaker
- (d) Due to flow of few mA current across the cardiac muscles
10. The main reason electrical injuries occur is: CO5- R
- (a) Because electrical injuries are a way of life and cannot be avoided
- (b) Electrical systems for the most part are extremely dangerous
- (c) Procedures are inappropriate, procedures are not followed or ignored, and safety systems are bypassed.
- (d) There is no such thing as an electrical injury.

PART – B (5 x 2= 10 Marks)

11. Definition echoencephalography. CO1- R
12. What are the different types of inhalers? CO2- R
13. What is Electroretinography? CO3- R
14. Write short note on ultrasonic diathermy. CO4-U
15. Draw the circuit diagram of isolated power system. CO5- R

PART – C (5 x 16= 80 Marks)

16. (a) What is Echoencephalograph? Discuss in detail about the block diagram of Echoencephalograph. CO1- U (16)
- Or
- (b) Evaluate the application of ultrasound as diagnostic tool in ophthalmology. CO1- App (16)
17. (a) Illustrate the function of human lung and explain lung volume and breathing measurements. CO2- U (16)

Or

- |     |  |          |      |
|-----|--|----------|------|
|     | (b) With suitable diagram explain the importance of spirometer   | CO2- Ana | (16) |
| 18. | (a) Explain the function and applications of Electroretinograph.<br>Or   | CO3- Ana | (16) |
|     | (b) Discuss in detail the theory and working principle of EEG.   | CO3- Ana | (16) |
| 19. | (a) Classify and explain the various types diathermic methods.<br>Or   | CO4 -U   | (16) |
|     | (b) Describe the principle of operation of electrosurgical unit.   | CO4-U    | (16) |
| 20. | (a) What are the basic approaches followed to protect against shock and write about the protection equipment design.<br>Or | CO5- U   | (16) |
|     | (b) (i) Explain how electric system is tested using electrical safety analyzer.  | CO5- U   | (8)  |
|     | (ii) Discuss in detail the electrical safety codes and standards   | CO5- U   | (8)  |

