

B.E. Instrumentation Engineering (CBCS / Model Curriculum) Semester - VIII
8BEIE03 / IN803M - Open Elective : Bio-Medical Engineering

P. Pages : 2

Time : Three Hours



GUG/S/23/14365

Max. Marks : 80

- Notes :
1. All questions carry marks as indicated.
 2. Due credit will be given to neatness and adequate dimensions.
 3. Illustrate your answers wherever necessary with the help of neat sketches.

1. a) What is the use of Apnoea detector? Explain in detail with suitable block diagram. 8
- b) Explain Bedside Patient Monitoring system with suitable block diagram. 8

OR

2. a) Explain how electric shock is hazardous to human body. What changes will it bring when amplitude of current increases? 8
- b) A neonate is advised to undergo blood pressure measurement. Suggest best technique suitable for them in detail. 8
3. a) What is positive pressure ventilator? Explain classification of Ventilators? 8
- a) Based on Inspiratory phase
- b) Based on Pressure pattern
- b) Explain Pulmonary Function Analyzers with block diagram? 8

OR

4. a) Explain Modern Ventilator in detail with its functional diagram? 8
- b) Define the terms related to pulmonary function analyzer. 8
- | | |
|--------|--------|
| a) ERV | b) IRV |
| c) IC | d) FRC |
| e) VC | f) TLC |
| g) FEV | h) FVC |
5. a) Explain Ultrasonic therapy unit with suitable block diagram in detail? 8
- b) Write short note on each of the following. 8
- a) Spinal cord stimulator
- b) PSWT

OR

6. a) Explain in detail simplified circuit diagram of shortwave diathermy in detail? 8
- b) Elaborate the term TENS with respect to pain relief through electrical stimulation? 8

7. a) With neat sketch explain anatomy of Nephron related to human urinary system and process of formation of urine? 8
- b) Explain different organs of alimentary system related to human anatomy with their key functions and role. 8

OR

8. a) Draw neat sketch of Large intestine? Explain different process supporting digestion with hormones related to Gastro intestinal tract? 8
- b) Define Deglutition? Explain different phases involved in this process? 8
9. a) Discuss Argon-laser with simplified diagram. 8
- b) Describe Laser classification and briefly explain safety precaution related to lasers? 8

OR

10. a) Discuss principle operation of Lasers? State applications of lasers in bio-medical field. 8
- b) Write short note on types of lasers. Describe its classification. 8
