

Scheme –I
Sample Question Paper

Program Name : Diploma in Medical Electronics
Program Code : MU
Semester : Fifth
Course Title : Intensive Care Equipment
Marks : 70

22548

Time: 3 Hrs.

Instructions:

- (1) All questions are compulsory.
- (2) Illustrate your answers with neat sketches wherever necessary.
- (3) Figures to the right indicate full marks.
- (4) Assume suitable data if necessary.
- (5) Preferably, write the answers in sequential order.

Q.1) Attempt any FIVE of the following.

10 Marks

- a) List any four critical care instruments used in ICU.
- b) Define fibrillation. Suggest instrument to cure it.
- c) List any four technical specification of Nebulizer.
- d) State any two advantages of DC defibrillator over AC defibrillator.
- e) State the need of baby incubator.
- f) Draw the sketch of coil type dialyzer.
- g) A patient has illness, in which SA node damaged permanently. Suggest the instrument that replaces the function of SA node.

Q.2) Attempt any THREE of the following.

12 Marks

- a) Compare fixed and demand modes of external pacemaker.(any four points)
- b) Draw different electrodes used in DC-defibrillator and give its construction.
- c) Draw block diagram of nebulizer.
- d) Identify the monitoring system such that it acquires & record the physiological parameter of different patients simultaneously on a single monitor also draws its block diagram.

Q.3) Attempt any THREE of the following.

12 Marks

- a) State need of dialyzer? Draw its block diagram.

- b) List any four technical specifications of bedside monitor.
- c) Calculate the energy stored in a $16 \mu\text{F}$ capacitor that is charged to a potential of 4000V dc.
- d) Draw and state need of endocardial and myocardial leads.

Q.4) Attempt any THREE of the following.

12 Marks

- a) Describe charging and discharging sections of DC- defibrillator with neat diagram.
- b) Give the significance of following pacemaker
 - 1. Internal 2 External
- c) List any four technical specification of baby incubator.
- d) State the need of balloon pump in O.T.
- e) The defibrillator machine has following problems displayed on its monitor screen. Identify the cause and solution for it.
 - 1. Leads off 2.No paddles

Q.5) Attempt any TWO of the following.

12 Marks

- a) A patient requires spacing stimulus at a fixed rate. Suggest the instrument and explain it with neat diagram.
- b) Explain the suction apparatus with its neat sketch.
- c) Give steps for maintenance of Haemodialysis machine.

Q.6) Attempt any TWO of the following.

12 Marks

- a) Identify the instrument which is used to make patient unconscious during surgery and explain it with neat diagram
- b) Suggest the instrument used for infuses fluids, medication or nutrients into a patient's circulatory system and explain it.
- c) Choose the following instrument related to NICU and explain it with neat sketch.
 - i) Heart lung bypass machine
 - ii) Hemodialysis machine
 - iii) Baby incubator
 - iv) Anesthesia machine

Scheme –I
Sample Test Paper - I

Program Name : Diploma in Medical Electronics
Program Code : MU
Semester : Fifth
Course Title : Intensive Care Equipment
Marks : 20

22548

Time: 1 Hour

Instructions:

- (1) All questions are compulsory.
- (2) Illustrate your answers with neat sketches wherever necessary.
- (3) Figures to the right indicate full marks.
- (4) Assume suitable data if necessary.
- (5) Preferably, write the answers in sequential order.

Q.1 Attempt any FOUR.

08 Marks

- a) State the concept of NICU and ICCU.
- b) Compare internal and external pacemaker.(any 02 points)
- c) State the concept of instant mode used in defibrillator.
- d) Define heart block.
- e) List any four technical specification of DC defibrillator.
- f) List types of pacing modes.

Q.2 Attempt any THREE.

12 Marks

- a) State the meaning of cardiac arrhythmia. Give the significance of Tachycardia and Bradycardia.
- b) Mention maintenance steps of DC defibrillator.
- c) Give the importance of unipolar and bipolar lead used in pacemaker.
- d) Explain the Biphasic and Monophasic defibrillator.
- e) List any four technical specification of external pacemaker.
- f) Give concept of Automated external defibrillator.

Scheme –I
Sample Test Paper - II

Program Name : Diploma in Medical Electronics
Program Code : MU
Semester : Fifth
Course Title : Intensive Care Equipment
Marks : 20

22548

Time: 1 Hour

Instructions:

- (1) All questions are compulsory.
- (2) Illustrate your answers with neat sketches wherever necessary.
- (3) Figures to the right indicate full marks.
- (4) Assume suitable data if necessary.
- (5) Preferably, write the answers in sequential order.

Q.1 Attempt any FOUR.

08 Marks

- a) Draw the block diagram of nebulizer.
- b) State the concept of patient monitoring system.
- c) Draw the neat sketch of Hollow fiber dialyzer.
- d) Give functions of central monitoring system.(any 02)
- e) Define spontaneous mode of ventilator.
- f) State the need of heart lung bypass machine.

Q.2 Attempt any THREE.

12 Marks

- a) State the need of anesthesia machine,
- b) Describe types of ventilator.
- c) Draw the block diagram of programmable microprocessor based infusion pump.
- d) Give importance of oxygenator in heart lung machine.
- e) State the function of cardiac monitor.
- f) Identify the machine temporarily takes over the function of the heart and lungs during surgery and draw its block diagram.