

**B.Sc. IN ANAESTHESIA AND CRITICAL CARE
TECHNOLOGY (BACT)**

Term-End Examination

00466

June, 2016

BAHI-082 : BIOMEDICAL INSTRUMENTATION

Time : 3 hours

Maximum Marks : 70

Note : *There are two parts, Part A and Part B. Part A consists of eight questions. Answer any five questions. Each question carries 8 marks. Part B consists of one short note. It carries 30 marks.*

PART A

1. (a) Describe the different types of Anaesthetic circuits.
(b) What is the preferred circuit for usage in small children less than 20 kg and why ? 5+3=8
2. (a) State the principle of Capnography.
(b) Draw a labelled diagram of CO₂ trail.
(c) How is CO₂ measured ? 2+4+2=8
3. (a) List the safety features of modern anaesthesia machines.
(b) Describe any one in detail. 4+4=8

4. (a) Make a diagram of the circle system used in anaesthesia.
- (b) What is the chemical composition of soda lime?
- (c) Describe its chemical interaction with CO_2 . $4+2+2=8$
5. (a) What is an electro-mechanical transducer?
- (b) Describe one usage of the transducer device commonly used in operation theatres.
- (c) What are the different types of transducers used? $2+2+4=8$
6. (a) What is the Electrocardiogram (ECG)? How is it recorded?
- (b) How many types of lead systems do you know?
- (c) Describe some characteristics for the accurate recording of an electrical signal. $2+3+3=8$
7. (a) What is a laser device?
- (b) What is the principle of laser?
- (c) Name the types of lasers commonly used in surgery. $2+3+3=8$

8. (a) What is a ventilator device ? Describe its principle.
- (b) How is ventilation by artificial means provided in ICU/OT ?
- (c) Describe the main types of ventilator devices. 2+3+3=8

PART B

Write short notes on any **five** of the following : $5 \times 6 = 30$

9. (a) Advantages and disadvantages of Circle Systems
 - (b) Scavenging Systems
 - (c) Methods of warming patients during operations and methods of heat loss during surgery
 - (d) Principle of Medical Ultrasound devices
 - (e) Jet Injector or Venturi-device
 - (f) Describe the three common gas laws.
 - (g) Specific Heat and its application to surgery
 - (h) Microshock
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