

[LL 0817]

AUGUST 2017

Sub. Code: 1236

B.Sc. CRITICAL CARE TECHNOLOGY
(New Syllabus 2014-2015)

THIRD YEAR

PAPER I – ICU MONITORING – II + MAINTENANCE OF EQUIPMENT

Q.P. Code: 801236

Time: Three Hours

Maximum: 100 Marks

Answer all questions

I. Elaborate on:

(3 x 10 = 30)

1. What is the difference between sterilization and disinfection? Discuss briefly sterilization using ethylene oxide.
2. Define Renal Replacement Therapy. Describe in details about procedure and the Indications of Emergency Dialysis.
3. Functional Nutritional assessment for a patients with Cardiovascular problems.

II. Write notes on:

(8 x 5 = 40)

1. PEEP (Positive End Expiratory Pressure).
2. Care and maintenance of ECG machine.
3. How will you monitor brain stem functions?
4. Describe the sequence of endotracheal intubation.
5. Chest Physiotherapy and Postural drainage.
6. Lung volumes and capacities.
7. Echocardiography finding for heart block.
8. Defibrillators.

III. Short answers on:

(10 x 3 = 30)

1. Types of Respiratory Failure.
2. List the sites of central venous cannulation.
3. How will you confirm endotracheal tube placement?
4. Different modes of Positive Pressure Ventilation.
5. Uses of infusion pumps.
6. Care and maintenance of ultrasound machine.
7. What do you use to measure cardiac output?
8. What is syringe pump and its uses?
9. Uses of ABG machine.
10. PICCO.

[LM 0218]

FEBRUARY 2018

Sub. Code: 1236

B.Sc. CRITICAL CARE TECHNOLOGY
(New Syllabus 2014-2015 & 2015-2016)

THIRD YEAR

PAPER I – ICU MONITORING – II + MAINTENANCE OF EQUIPMENT

Q.P. Code: 801236

Time: Three Hours

Maximum: 100 Marks

Answer all questions

I. Elaborate on:

(3 x 10 = 30)

1. Enumerate the etiology, diagnosis and management of the Congestive Cardiac Failure.
2. Define respiratory failure. Explain the management of a patient with respiratory failure.
3. Discuss about the management of snake bite patient with Ventilator settings.

II. Write notes on:

(8 x 5 = 40)

1. Positive end-expiratory pressure (PEEP).
2. List out the abnormal ECG waves with images.
3. How would you trouble shoot a low pressure alarm on a ventilator?
4. Responsibility of a critical care technician during the procedure bronchoscopy.
5. Pericardiocentesis – Indications and procedure.
6. Pulmonary Function Test.
7. Write a note on incentive spirometry.
8. Nutritional requirements for a patient with pulmonary edema.

III. Short answers on:

(10 x 3 = 30)

1. List the indications for mechanical ventilation.
2. Cardioversion.
3. List the sites of placement of a central venous catheter.
4. What are Inspiratory and Expiratory pressures?
5. List the drugs that can be used through ET.
6. X-Ray finding in Pleural Effusion.
7. Defibrillation.
8. Indications of syringe pump.
9. How will you monitor brain stem function?
10. What is Basal Metabolic Rate (BMR)? Mention two conditions when BMR is increased?

B.Sc. CRITICAL CARE TECHNOLOGY

(New Syllabus 2014-2015 & 2015-2016)

THIRD YEAR**PAPER I – ICU MONITORING – II + MAINTENANCE OF EQUIPMENT***Q.P. Code: 801236***Time: Three Hours****Maximum: 100 Marks****Answer all questions****I. Elaborate on:****(3 x 10 = 30)**

1. What is compliance? Draw a pressure volume curve depicting normal and abnormal compliance. What is dynamic and Static compliance?
2. What is Resistance? What are factors determining resistance? Draw a Pressure Time trace (in Volume control mode) showing increased airway resistance. Draw a Flow time trace showing increased airway resistance.
3. Fluid status and Fluid responsiveness in ICU patients.

II. Write notes on:**(8 x 5 = 40)**

1. How to approach to low pressure alarm in ventilator?
2. Auto-PEEP.
3. Work of breathing.
4. What are the measurements possible with Pulmonary artery catheter?
5. How many triggering (sensitivity) types are available in mechanical ventilators? Write briefly about each of them.
6. Short notes on zeroing for IBP monitoring.
7. Write short notes on Biphasec Defibrillator.
8. PICCO.

III. Short answers on:**(10 x 3 = 30)**

1. Uses of Echocardiography in ICU.
2. Ventilator alarm limits settings for an adult patient with ARDS.
3. Types of temporary pacing.
4. Write a note on damping and it's causes.
5. What is Synchronization in Defibrillator?
6. How will you assess brain stem function in the ICU?
7. Write a note on sedation scoring and it's importance in patient outcomes.
8. What are some physical signs malnutrition? What is the daily calorie requirement (in Cal/Kg) recommended in nutritional guidelines?
9. What is indirect calorimetry? Write a few lines on metabolic cart.
10. Advantages and Disadvantages of PEEP.

B.Sc. CRITICAL CARE TECHNOLOGY

(New Syllabus 2014-2015 & 2015-2016)

THIRD YEAR

PAPER I – ICU MONITORING – II + MAINTENANCE OF EQUIPMENT

Q.P. Code: 801236

Time: Three Hours

Maximum: 100 Marks

Answer all questions

I. Elaborate on:

(3 x 10 = 30)

1. What is the importance of monitoring Lung Volumes and Pressures in critical care? What are lung protective strategies?
2. What is the difference between Defibrillation and cardioversion? Draw the sequence for Adult Basic life Support.
3. What is Cardiac index? What are the methods of measuring Cardiac output in the ICU?

II. Write notes on:

(8 x 5 = 40)

1. What is the procedure of sterilizing a bronchoscope after use in the ICU?
2. What are the disadvantages of high PEEP?
3. Draw a Pressure time graph denoting the difference between Peak Pressure and Plateau pressure. What is static and dynamic compliance?
4. What are the risk of using a Pulmonary artery catheter?
5. What are some brain stem reflexes used in diagnosing brain death?
6. What are the causes of underdamping and overdamping?
7. Differences Biphasic Defibrillator and Monophasic defibrillator.
8. Emergency Pacing in an ICU patient- indications, types.

III. Short answers on:

(10 x 3 = 30)

1. Sedation score that you use in ICU.
2. Why patients in are at risk of malnutrition?
3. Advantages and disadvantages of PA catheters.
4. Contra-indications to PICCO monitoring
5. Ventilatory strategies to deal with Auto PEEP.
6. How will you identify leak with the help of ventilator graphics?
7. How will you assess if a patient has inadequate pain relief in ICU?
8. What are the cardiovascular effects of PEEP?
9. What is the importance of Maximum inspiratory Pressure?
10. Driving Pressure.

B.Sc. CRITICAL CARE TECHNOLOGY
(New Syllabus 2014-2015 & 2015-2016)

THIRD YEAR

PAPER I – ICU MONITORING – II + MAINTENANCE OF EQUIPMENT

Q.P. Code: 801236

Time: Three Hours

Maximum: 100 Marks

Answer all questions

I. Elaborate on:

(3 x 10 = 30)

1. What is meant by sedation? What are ways in which sedation is given in ICU? Discuss the importance of monitoring sedation in ICU.
2. Discuss the importance of alarm settings in Ventilator set up.
3. What are common Graphics measured on Ventilators? Discuss the importance of monitoring these graphics while patient is on a ventilator.

II. Write notes on:

(8 x 5 = 40)

1. AutoPEEP.
2. Volume Control Ventilation set up.
3. Difference between Defibrillation and Cardioversion.
4. Pacemakers.
5. Uses of ultrasound in ICU.
6. Estimating nutrition requirements in ICU.
7. Bronchoscopy: indications, contraindications and maintenance.
8. Steps in maintenance of ABG machine.

III. Short answers on:

(10 x 3 = 30)

1. How to get a proper ECG trace?
2. Problems with pulse oximeter measurement.
3. Infusion pumps.
4. Preload.
5. Compliance.
6. Types of facemasks for Non Invasive Ventilation.
7. Maintenance of Laryngoscopes in ICU.
8. How to maintain arterial line in patients admitted to ICU?
9. GCS score.
10. List equipment needed for difficult intubation.

B.Sc. CRITICAL CARE TECHNOLOGY

(New Syllabus 2014-2015 & 2015-2016)

THIRD YEAR**PAPER I – ICU MONITORING – II + MAINTENANCE OF EQUIPMENT***Q.P. Code: 801236***Time: Three Hours****Maximum: 100 Marks****Answer all questions****I. Elaborate on:****(3 x 10 = 30)**

1. What are the types of Hemodynamic monitoring used in your ICU? What are the advantages and disadvantages of an arterial line? How is an arterial line maintained?
2. What is airway resistance? What are the methods of reducing airway resistance?
3. What is Cardiac arrest? What is the role of early Defibrillation? What are the rhythms that respond to Defibrillation?

II. Write notes on:**(8 x 5 = 40)**

1. How to approach high pressure alarm in ventilator?
2. Compliance.
3. Draw flow time graphic showing airtrapping?
4. What are the measurements possible with Pulmonary artery catheter?
5. How many triggering (sensitivity) types are available in mechanical ventilators? Write briefly about each of them.
6. Clinical features of malnutrition in adults.
7. Draw flow time graph of Pressure control vs Pressure support mode.
8. Pulse oximeter and its uses.

III. Short answers on:**(10 x 3 = 30)**

1. Types of Pacing.
2. Uses of ECHO in ICU.
3. Importance of Cough reflex and Gag reflex in ICU.
4. Methods in assessing fluid responsiveness in ICU.
5. Ventilatory settings for a patient septic shock.
6. Importance of Pain relief in upper abdominal surgery.
7. Meaning of Protocolized weaning.
8. Capillary refill time.
9. Importance of neuromuscular assessment in weaning and extubation.
10. Nutrition and respiratory system.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[LR 1220]

**DECEMBER 2020
(AUGUST 2020 EXAM SESSION)**

Sub. Code: 1236

**BACHELOR IN CRITICAL CARE TECHNOLOGY
THIRD YEAR – (Regulation from 2014-2015 & 2015-16)
PAPER I – ICU MONITORING – II + MAINTENANCE OF EQUIPMENT
Q.P. Code: 801236**

Time: Three Hours

Answer ALL Questions

Maximum: 100 Marks

I. Elaborate on:

(3 x 10 = 30)

1. What are the types of Haemodynamic monitoring used in your ICU? What are the advantages and disadvantages of an Arterial Line? How is an Arterial Line maintained?
2. What is Airway Resistance? What are the methods of reducing Airway Resistance?
3. What is Cardiac Arrest? What is the role of early Defibrillation? What are the Rhythms that respond to Defibrillation?

II. Write notes on:

(8 x 5 = 40)

1. How to approach High Pressure Alarm in Ventilator?
2. Compliance.
3. Draw flow time Graphic showing Airtrapping?
4. What are the measurements possible with Pulmonary Artery Catheter?
5. How many triggering (sensitivity) types are available in Mechanical Ventilators? Write briefly about each of them.
6. Clinical features of Malnutrition in Adults.
7. Draw flow time graph of Pressure control vs Pressure support mode.
8. Pulse Oximeter and its uses.

III. Short answers on:

(10 x 3 = 30)

1. Types of Pacing.
2. Uses of ECHO in ICU.
3. Importance of Cough reflex and Gag reflex in ICU.
4. Methods in assessing fluid responsiveness in ICU.
5. Ventilatory settings for a patient Septic Shock.
6. Importance of Pain relief in Upper Abdominal Surgery.
7. Meaning of Protocolized Weaning.
8. Capillary Refill time.
9. Importance of Neuromuscular Assessment in Weaning and Extubation.
10. Nutrition and Respiratory System.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[AHS 0122]

JANUARY 2022

Sub. Code: 1236

(FEBRUARY 2021 & AUGUST 2021 EXAM SESSION)

B.Sc. CRITICAL CARE TECHNOLOGY

THIRD YEAR (Regulations from 2014-2015, 2015-2016 & 2018-2019)

PAPER I – ICU MONITORING – II + MAINTENANCE OF EQUIPMENT

Q.P. Code: 801236

Time: Three Hours

Answer ALL Questions

Maximum: 100 Marks

I. Elaborate on:

(3 x 10 = 30)

1. What are all the causes for High Peak Inspiratory Pressure Alarm? List them in detail and write the method of trouble shooting each of the causes.
2. Explain in detail about Hospital Waste Management?
3. Describe Non- Invasive Ventilation. Write about BiPAP Ventilation.

II. Write notes on:

(8 x 5 = 40)

1. What are the steps for the Decontamination of the suction equipments?
2. Write notes on precautions during Urinary Catheterization.
3. Notes on Work of Breathing?
4. Write short on Oxygen Toxicity.
5. What are the methods of Deep Vein Thrombosis prophylaxis?
6. Write a note on Plasmapheresis?
7. Automated External Defibrillator?
8. Care and maintenance of ECG machine.

III. Short answers on:

(10 x 3 = 30)

1. Indications of Lumbar Puncture?
2. What is Cardiac Arrest and its types?
3. Contra-Indications to Gastric Lavage.
4. Enumerate any two methods to clean Humidification?
5. Uses of ABG machine.
6. Indications of Syringe Pump.
7. List the sites of Central venous Cannulation.
8. Types of Respiratory Failure.
9. How will you confirm Endotracheal tube placement?
10. List out the Vasopressors used in critical care unit?

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[AHS 0922]

SEPTEMBER 2022

Sub. Code: 1236

(FEBRUARY 2022 & AUGUST 2022 EXAM SESSIONS)

B.Sc. CRITICAL CARE TECHNOLOGY

THIRD YEAR (Regulations from 2014-2015, 2015-2016 & 2018-2019)

PAPER I – ICU MONITORING – II + MAINTENANCE OF EQUIPMENT

Q.P. Code: 801236

Time: Three Hours

Answer ALL Questions

Maximum: 100 Marks

I. Elaborate on:

(3 x 10 = 30)

1. What are the basic common modes of invasive mechanical ventilation? Write brief notes on each modes of ventilation.
2. Mention the techniques, indications and contra-indications of Gastric Lavage and write a note on Activated Charcoal.
3. Describe about Oxygen delivery systems and write a note on Non- Rebreathing mask.

II. Write notes on:

(8 x 5 = 40)

1. Mention the various colour coding of Intra venous cannulas with their sizes and mention their infusion rates.
2. Glasgow Coma Scale.
3. Write short notes on Biphasic Defibrillator.
4. Write down the Six steps of Hand Washing.
5. Write are the indications for Emergency Dialysis.
6. Describe about Principle of Non- Invasive Blood Pressure Measurement.
7. Algorithm for Advance Cardiac life Support – Ventricular Tachycardia.
8. Write down the indication and steps of open Endotracheal tube suctioning.

III. Short answers on:

(10 x 3 = 30)

1. Name two Anti-Coagulations that are commonly used in ABG Analysis.
2. Write down the names of five sites of the placement of chest electrode leads on the chest while you are connecting the ECG monitor.
3. Write a note on Thermometer.
4. Define Disinfection.
5. Write down the methods of Endotracheal Tube Confirmation.
6. Draw the Waveforms of ECG and its implications.
7. Write down the normal range of pH, PCO₂, and PaO₂ in an arterial blood.
8. In which colour bags, would you dispose an infected gauze piece and food waste?
9. What is the mean arterial blood pressure for a patient with blood pressure of 90/60 mm Hg?
10. Write a note an Autoclave.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[AHS 0423]

APRIL 2023

Sub. Code: 1236

B.Sc. CRITICAL CARE TECHNOLOGY
THIRD YEAR (Regulations 2014-2015, 2015-2016 & 2018-2019 onwards)
PAPER I – ICU MONITORING – II + MAINTENANCE OF EQUIPMENT
Q.P. Code: 801236

Time: Three Hours

Answer ALL Questions

Maximum: 100 Marks

I. Elaborate on: **(3 x 10 = 30)**

1. Classify Arrhythmias. Discuss the functions of a defibrillator.
2. Discuss the essential ways a patient should be monitored on a ventilator.
3. Discuss the uses of a Bronchoscope in the ICU. What are the parts? Discuss how it is best maintained after use.

II. Write notes on: **(8 x 5 = 40)**

1. PEEP.
2. Pressure Control Ventilation - Advantages.
3. Nutrition assessment of ICU patients.
4. ABG use in ICU.
5. Draw a normal ECG and label waves, segments and intervals.
6. Pulse oximeter - usefulness in ICU.
7. Difficult intubation preparation.
8. Lung protective ventilation.

III. Short answers on: **(10 x 3 = 30)**

1. List essential monitors for a patient with circulatory shock.
2. Problems with pulse oximeter measurement.
3. Causes of low tidal volume alarm.
4. Causes of high-pressure alarm.
5. Humidification of circuits.
6. Non Invasive Ventilation - Advantages.
7. Steps in extubation.
8. List sites for central line placement.
9. Monitors used in head injury.
10. Parameters of Fluid responsiveness.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[AHS 1123]

NOVEMBER 2023

Sub. Code: 1236

B.Sc. CRITICAL CARE TECHNOLOGY

THIRD YEAR (Regulations 2014-2015, 2015-2016 & 2018-2019 onwards)

PAPER I – ICU MONITORING – II + MAINTENANCE OF EQUIPMENT

Q.P. Code: 801236

Time: Three Hours

Answer ALL Questions

Maximum: 100 Marks

I. Elaborate on: **(3 x 10 = 30)**

1. Functional Nutritional assessment for a patient with Cardiovascular Problems.
2. What are the types of Hemodynamic monitoring used in your ICU? What are the advantages and disadvantages of an arterial line? How is an arterial line maintained?
3. What are all the causes for High Peak Inspiratory Pressure Alarm? List them in detail and write the method of trouble shooting each of the causes.

II. Write notes on: **(8 x 5 = 40)**

1. List out the abnormal ECG waves with images.
2. Defibrillators.
3. Guillain Barre Syndrome.
4. Lung volumes and capacities.
5. What are the measurements possible with Pulmonary artery catheter?
6. Plasmapheresis.
7. Bronchoscopy: indications, contraindications and maintenance.
8. Draw flow time graph of Pressure control vs Pressure support mode.

III. Short answers on: **(10 x 3 = 30)**

1. GCS score.
2. Infusion pumps.
3. Types of facemasks for Non Invasive Ventilation.
4. Protocolized weaning.
5. Importance of neuromuscular assessment in weaning and extubation.
6. Uses of ECHO in ICU.
7. Importance of Pain relief in Upper Abdominal Surgery.
8. Indications of Syringe Pump.
9. How will you confirm Endotracheal Tube placement?
10. Enumerate any two methods to clean Humidifiers.
