

(Affiliated to the Tamil Nadu Dr M.G.R Medical University, Chennai)

B. Sc. CARDIOPULMONARY PERFUSION CARE TECHNOLOGY

## 1412 –PRINCIPLES OF PERFUSION II YEAR

### UNIT I – PRINCIPLES OF EXTRACORPOREAL CIRCULATION AND ITS HISTORY

I. ELABORATE ON

10 MARKS

REFERENCE – THE TAMILNADU DR.M.G.R MEDICAL UNIVERSITY QUESTION PAPER

| S.no | Questions                                                                                                                                               | Reference             | Bloom's Taxonomy |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|------------------|
| 1    | <b>History and development of Cardiopulmonary Bypass</b> till date and also Elaborate on <b>Gibbons contribution</b> to CPB in clinical practice.       | FEB 2020              | Analyze          |
| 2    | <b>Compare and Contrast the Membrane and Bubble Oxygenator.</b>                                                                                         | APR 2024              | Evaluate         |
| 3    | <b>Draw the CPB circuit</b> of an adult undergoing <b>Mitral Valve Replacement.</b>                                                                     | APR 2023              | Apply            |
| 4    | Describe in detail about the <b>ideals of oxygenator</b> and explain <b>membrane oxygenator</b> in detail along with <b>principles of gas transfer.</b> | FEB 2019              | Analyze          |
| 5    | <b>Draw circuit of CPB with hemofilter</b> , name all the parts and mention all important <b>benefits of Hemofiltration</b> in Detail.                  | FEB 2016              | Apply            |
| 6    | Describe the <b>evolution of oxygenator</b> and the <b>principles of extra-corporeal gas exchange.</b>                                                  | AUG 2014<br>,AUG 2012 | Understand       |
| 7    | Give a note on <b>Extracorporeal Circulation</b> and also State the <b>History and Evolution of CPB</b> till date.                                      | FEB 2017              | Understand       |
| 8    | Write the <b>ideal characteristics of an ideal blood</b>                                                                                                | SEP 2022              | Analyze          |

(Affiliated to the Tamil Nadu Dr M.G.R Medical University, Chennai)

**B. Sc. CARDIOPULMONARY PERFUSION CARE TECHNOLOGY**

| S.no | Questions                                                                                                                                                                       | Reference | Bloom's Taxonomy |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|------------------|
|      | <b>pump</b> and explain about the <b>roller pump</b> in detail.                                                                                                                 |           |                  |
| 9    | <b>Draw a CPB circuit and address the case study</b> with detailed explanation, Calculations, Cannulae selection etc. for a 1 year babe weighing 5.5 kg posted for VSD closure. | FEB 2017  | Apply            |
| 10   | <b>Draw a CPB circuit diagram incorporating all components.</b>                                                                                                                 | AUG 2013  | Apply            |

**II.WRITE NOTES ON**

**5 MARKS**

**REFERENCE – THE TAMILNADU DR.M.G.R MEDICAL UNIVERSITY QUESTION PAPER**

| S.no | Questions                                                                                               | Reference | Bloom's Taxonomy |
|------|---------------------------------------------------------------------------------------------------------|-----------|------------------|
| 1    | Write a note on <b>Principles of gas exchange in true membrane oxygenator.</b>                          | SEP 2022  | Understand       |
| 2    | What are the <b>components of membrane oxygenator</b> ? Explain its functions.                          | AUG 2012  | Understand       |
| 3    | What are the <b>ideal properties of CPB pump and tubings</b> ?                                          | FEB 2019  | Understand       |
| 4    | Write a note on <b>Centrifugal Pump</b> with diagram and mention its <b>advantage over Roller pump.</b> | AUG 2017  | Analyze          |
| 5    | <b>Objectives of an ideal oxygenator.</b>                                                               | AUG 2012  | Remember         |
| 6    | <b>Essential parameters monitored</b> by perfusionist on CPB (not less than 7 parameters).              | AUG 2014  | Remember         |

(Affiliated to the Tamil Nadu Dr M.G.R Medical University, Chennai)

**B. Sc. CARDIOPULMONARY PERFUSION CARE TECHNOLOGY**

| S.no | Questions                                               | Reference | Bloom's Taxonomy |
|------|---------------------------------------------------------|-----------|------------------|
| 7    | Write a short note on Evolution of CPB.                 | AUG 2019  | Understand       |
| 8    | Draw extracorporeal circuit diagram & label it.         | AUG 2014  | Apply            |
| 9    | Ideal characteristics of a Pump and Oxygenator.         | FEB 2022  | Remember         |
| 10   | Describe the components of extra corporeal circulation. | AUG 2012  | Understand       |

**III.WRITE SHORT NOTES ON**

**3 MARKS**

**REFERENCE - THE TAMILNADU DR.M.G.R MEDICAL UNIVERSITY QUESTION PAPER**

| S.no | Questions                                                 | Reference | Bloom's Taxonomy |
|------|-----------------------------------------------------------|-----------|------------------|
| 1    | What is bubble trap?                                      | AUG 2012  | Remember         |
| 2    | Explain siphonage principle.                              | AUG 2012  | Understand       |
| 3    | Define reaction time.                                     | FEB 2019  | Remember         |
| 4    | Roller pumps.                                             | AUG 2012  | Remember         |
| 5    | Basic difference between bubbler and membrane oxygenator. | AUG 2014  | Understand       |
| 6    | Draw membrane oxygenator & specify all the components.    | AUG 2014  | Apply            |
| 7    | How does centrifugal pump differ from roller pump?        | AUG 2014  | Understand       |
| 8    | Tubings in CPB.                                           | AUG 2013  | Remember         |

(Affiliated to the Tamil Nadu Dr M.G.R Medical University, Chennai)

**B. Sc. CARDIOPULMONARY PERFUSION CARE TECHNOLOGY**

| S.no | Questions                                                                 | Reference | Bloom's Taxonomy |
|------|---------------------------------------------------------------------------|-----------|------------------|
| 9    | <b>Difference between Adult and Pediatric circuits.</b>                   | APR 2024  | Understand       |
| 10   | <b>Describe the principles of heat exchangers and tubing used in CPB.</b> | FEB 2020  | Understand       |
| 11   | <b>Name few commonly used sites for temperature monitoring.</b>           | AUG 2012  | Remember         |
| 12   | <b>John. H. Gibbon.</b>                                                   | APR 2023  | Remember         |
| 13   | <b>What is bellow pump?</b>                                               | AUG 2012  | Remember         |
| 14   | <b>Rotatory pumps.</b>                                                    | AUG 2013  | Remember         |
| 15   | <b>Bubble trap.</b>                                                       | APR 2024  | Remember         |