

# Question Paper

Exam Date & Time: 30-May-2024 (10:00 AM - 12:00 PM)



## MANIPAL ACADEMY OF HIGHER EDUCATION

**SIXTH SEMESTER BPT/BOT/B.Sc. (ESS/ RRT & DT / RT / MIT) / FOURTH SEMESTER B.Sc. (PFT / CVT / CND / MLT / HIM / BOPT / BAOTT / RT / EMT / PHYSICIAN ASSISTANT / PSYCHOLOGY / NMT) / EIGHT SEMESTER (BPT / BOT) / SECOND SEMESTER BASLP DEGREE EXAMINATION - MAY/JUNE 2024**  
**SUBJECT: BST3201 / STAT 402 / BST 3202 - BIOSTATISTICS AND RESEARCH METHODOLOGY / BIOSTATISTICS / BASIC BIOSTATISTICS AND RESEARCH METHODOLOGY**  
**(2016/2020/2022 SCHEME)**

**Marks: 50**

**Duration: 120 mins.**

**Answer all the questions.**

- |     |  |     |
|-----|--|-----|
| 1A) | Elaborate graphical representation with examples.  | (5) |
| 1B) | Explain the properties of normal distribution with diagram.  | (5) |
| 2A) | Describe different types of clinical study designs.  | (5) |
| 2B) | Write short notes on non-probability sampling.   | (5) |
| 3A) | The triglycerides (serum) (in mg/dL) of 10 patients were as follows:<br>155, 150, 106, 89, 63, 68, 144, 125, 130, 74<br>Calculate mean, and standard for the above data. | (5) |
| 3B) | Define the following: (i) Incidence rate (ii) prevalence rate.   | (5) |
| 3C) | Discuss about regression analysis and its two equations.   | (5) |
| 3D) | Write short notes on research process.   | (5) |
| 4A) | Define skewness.   | (2) |
| 4B) | The following are the weights for 10 patients. Calculate range and mode 60, 54, 74, 82, 59, 63, 72, 89, 58, 85.  | (2) |
| 4C) | What is meant by systematic sampling?  | (2) |
| 4D) | Define scatter plot.   | (2) |
| 4E) | Define case report.  | (2) |

-----End-----

# Question Paper

Exam Date & Time: 27-May-2024 (10:00 AM - 01:00 PM)



## MANIPAL ACADEMY OF HIGHER EDUCATION

FOURTH SEMESTER B.Sc. PFT DEGREE EXAMINATION - MAY/JUNE 2024  
SUBJECT: PFT-202 - MEDICINE IN PERFUSION TECHNOLOGY  
(2016 SCHEME)

Marks: 100

Duration: 180 mins.

Answer all the questions.

Draw Diagrams wherever Appropriate.

- |     |   |      |
|-----|---|------|
| 1)  | Explain IHD in detail and its causes, signs and symptoms, diagnosis and management        | (20) |
| 2)  | What is COPD? Explain its etiology, pathophysiology, symptoms, diagnosis and management   | (20) |
| 3)  | Explain Autonomous Nervous system   | (10) |
| 4)  | What is Anemia? Explain types of anemia, signs and symptoms, complications and management | (10) |
| 5A) | Write clinical signs and symptoms of PVD & risk factors for PVD                           | (5)  |
| 5B) | Explain hyperkalemia with causes, clinical features and ECG findings                      | (5)  |
| 5C) | Define Aortic aneurysm & classify it  | (5)  |
| 5D) | Explain ASD in detail with classification   | (5)  |
| 5E) | Cardiomyopathy  | (5)  |
| 5F) | Tetralogy of Fallot   | (5)  |
| 6A) | End stage Renal Disease   | (2)  |
| 6B) | Define and write sign and symptoms of MI.   | (2)  |
| 6C) | Define cyanosis and enlist cyanotic heart diseases.                                       | (2)  |
| 6D) | Enlist hormones of pituitary gland.   | (2)  |
| 6E) | Explain BMI with formula  | (2)  |

-----End-----

# Question Paper

Exam Date & Time: 31-May-2024 (10:00 AM - 12:00 PM)



## MANIPAL ACADEMY OF HIGHER EDUCATION

**FOURTH SEMESTER BACHELOR OF PHYSIOTHERAPY (BPT) / B.Sc. PERFUSION TECHNOLOGY DEGREE**  
**EXAMINATION - MAY/JUNE 2024**  
**SUBJECT: PHAR 202 - PHARMACOLOGY**  
**(2016 SCHEME)**

**Marks: 50**

**Duration: 120 mins.**

**Answer all the questions.**

- |     |   |     |
|-----|---|-----|
| 1A) | Define biotransformation.   | (2) |
| 1B) | Mention four factors modifying drug action.   | (4) |
| 1C) | Mention two advantages and two disadvantages of intravenous route of drug administration.   | (4) |
| 2A) | List four first line antitubercular drug. Explain the mechanism of action of any one drug.  | (4) |
| 2B) | Define the term chemoprophylaxis with suitable example.   | (3) |
| 2C) | Enumerate three classes of drugs with an example for each used in the treatment of HIV.   | (3) |
| 3A) | List two differences between aspirin and paracetamol. Mention two uses, two adverse effects and two contraindications of aspirin.<br>(2+3 = 5 marks)  | (5) |
| 3B) | Mention three groups of diuretics with a suitable example for each. Mention two uses and two adverse effects of diuretics.<br>(3+2 = 5 marks)   | (5) |
| 3C) | Enumerate two groups of peripherally acting skeletal muscle relaxants with an example for each. List two examples, two uses and two adverse effects of centrally acting skeletal muscle relaxants.<br>(2+3 = 5 marks) | (5) |
| 3D) | Enumerate three groups of drugs with a suitable example used in the treatment of peptic ulcer. Explain the mechanism of action of any one of them.<br>(3+2 = 5 marks)   | (5) |

**4. Mention two drugs each useful in the following conditions and mention two adverse effect of any one of them:**

- |     |                        |     |
|-----|------------------------|-----|
| 4A) | Diabetes Mellitus      | (2) |
| 4B) | Iron deficiency anemia | (2) |
| 4C) | Bronchial asthma       | (2) |
| 4D) | Epilepsy               | (2) |
| 4E) | Rheumatoid arthritis   | (2) |

-----End-----

# Question Paper

Exam Date & Time: 27-May-2024 (10:00 AM - 12:00 PM)



## MANIPAL ACADEMY OF HIGHER EDUCATION

FOURTH SEMESTER B.Sc. PFT DEGREE EXAMINATION - MAY/JUNE 2024  
SUBJECT: PFT2201 - MEDICINE IN PERFUSION TECHNOLOGY  
(2020 SCHEME)

Marks: 50

Duration: 120 mins.

Answer all the questions.

Draw Diagrams wherever Appropriate.

- |     |  |      |
|-----|--|------|
| 1)  | Define aortic dissection. Explain the types, risk factors & management   | (10) |
| 2)  | Define hypertension & explain its pathophysiology, risk factors & management   | (10) |
| 3A) | Explain electrolyte disorders and its management in detail   | (5)  |
| 3B) | Summarize chronic obstructive lung disorders in detail   | (5)  |
| 3C) | a) List out the normal values of body mass index according to patient weight.<br>b) Estimate the circulating haematocrit for the patient's weight of 9kgs & hb of 8.5gms/dl. | (5)  |
| 3D) | Explain the cardiopulmonary bypass strategies for sickle cell patients   | (5)  |
| 4A) | Explain sudden cardiac death   | (2)  |
| 4B) | How does the acid base management affect the cerebral blood flow   | (2)  |
| 4C) | What are the normal value of the following:<br>MCH, prothrombin time, activated partial thromboplastin time  | (2)  |
| 4D) | Mention the pharmacological management of renal failure in CPB   | (2)  |
| 4E) | List any two causes for cerebral ischemia  | (2)  |

-----End-----

# Question Paper

Exam Date & Time: 31-May-2024 (10:00 AM - 12:00 PM)



## MANIPAL ACADEMY OF HIGHER EDUCATION

**FOURTH SEMESTER B.Sc. MIT / BOT / RRT & DT / PFT / CVT / BAOTT / EMT DEGREE EXAMINATION - MAY/JUNE 2024**  
**SUBJECT: PHC2203 - PHARMACOLOGY**  
**(2020 SCHEME)**

**Marks: 50**

**Duration: 120 mins.**

**Answer all the questions.**

- 1) Describe the terms "Generic name of a drug", "Dependence" and "Competitive antagonist" with suitable examples. List two advantages and two disadvantages of sublingual route of drug administration. Define bioavailability and plasma half-life. (10)
- 2) i) List three cholinergic receptors and mention one action mediated through each of them. Mention two uses and two adverse effects of atropine. (10)  
ii) Explain any two pharmacological actions of morphine and list its two uses and two contraindications.

**3. Short notes:**

- 3A) List three classes of drugs with an example for each used in peptic ulcer. Explain the mechanism of action of any one class. (5)
- 3B) List two drugs used in chronic gout and explain the mechanism of action of any one of them. List two each local anaesthetics and peripherally acting skeletal muscle relaxants. (5)
- 3C) Explain the mechanism of action of loop diuretics and list their two adverse effects. List two classes of drugs with an example for each used in angina. (5)
- 3D) Define antitussives with an example. List two inhaled glucocorticoids and explain their antiasthmatic action. (5)

**4. Very short answers:**

- 4A) Mention two examples and two uses of anticoagulants. (2)
- 4B) List two drugs each used to treat malaria and cancer. (2)
- 4C) List two oral antidiabetic drugs and two antithyroid drugs. (2)
- 4D) List two first-line antitubercular drugs and mention one adverse effect of each of them. (2)
- 4E) Mention two differences between aspirin and paracetamol. (2)

-----End-----

# Question Paper

Exam Date & Time: 03-Jun-2024 (10:00 AM - 12:00 PM)



## MANIPAL ACADEMY OF HIGHER EDUCATION

FOURTH SEMESTER B.Sc. PFT DEGREE EXAMINATION - MAY/JUNE 2024

SUBJECT: PFT2241 - PROGRAM ELECTIVE - I : ACCIDENTS DURING CPB, ITS MANAGEMENT AND SAFETY  
(2020 SCHEME)

Marks: 50

Duration: 120 mins.

Answer all the questions.

Draw Diagrams wherever Appropriate

- |     |  |      |
|-----|--|------|
| 1)  | Define air embolism. List out causes of air embolism and add a note on management of air embolism.<br>(3+3+4 = 10 marks) | (10) |
| 2)  | Summarize is protamine and its side effects. Add a note on protamine reactions.<br>(3+3+4 = 10 marks)                    | (10) |
| 3A) | How will identify oxygenator failure and its management  | (5)  |
| 3B) | List and explain common accidents in CPB   | (5)  |
| 3C) | Explain in detail about heat exchanger failure   | (5)  |
| 3D) | What are the side effects of drug transfusion error  | (5)  |
| 4A) | Define Methemoglobinemia   | (2)  |
| 4B) | What are the Complications of CPB  | (2)  |
| 4C) | List out causes of hemodilution  | (2)  |
| 4D) | List out pre-bypass precautions to be done before blood transfusion.   | (2)  |
| 4E) | How will you manage pump head rupture  | (2)  |

-----End-----

# Question Paper

Exam Date & Time: 03-Jun-2024 (10:00 AM - 12:00 PM)



## MANIPAL ACADEMY OF HIGHER EDUCATION

FOURTH SEMESTER B.Sc. PFT DEGREE EXAMINATION - MAY/JUNE 2024

SUBJECT: PFT2242 - PROGRAM ELECTIVE - I : CONGENITAL HEART DISEASES AND MANAGEMENT OF PEDIATRIC PERFUSION  
(2020 SCHEME)

Marks: 50

Duration: 120 mins.

Answer all the questions.

Draw Diagrams wherever Appropriate.

- |     |  |      |
|-----|--|------|
| 1)  | Explain in detail about fetal circulation with the neat labelled diagram.                | (10) |
| 2)  | Explain in detail about Coarctation of the Aorta and summarize the bypass consideration. | (10) |
| 3A) | Summarize cannula selection for LSVC.  | (5)  |
| 3B) | How will you troubleshoot massive airlock and air embolism?                              | (5)  |
| 3C) | List all the types of ultrafiltration and add a note on DUF and ZBUF.                    | (5)  |
| 3D) | Explain in detail about cannulation techniques for pediatric patients.                   | (5)  |
| 4A) | Define VSD.  | (2)  |
| 4B) | Explain arterial line filters.   | (2)  |
| 4C) | List the types of cardioplegic solutions used in CPB.                                    | (2)  |
| 4D) | What is the treatment for prolonged ACT?   | (2)  |
| 4E) | Explain LVAD.  | (2)  |

-----End-----