



13647



BRAINWARE UNIVERSITY

Term End Examination 2025-2026
Programme – B.Sc.(PA)-2023/B.Sc.(PA)-2024
Course Name – Cardiology & ECG
Course Code - BPAC303
(Semester III)

Library
Brainware University
398, Ramkrishnapur Road, Barasat
Kolkata, West Bengal-700125

Full Marks : 60

Time : 2:30 Hours

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question)

1 x 15=15

1. Choose the correct alternative from the following :

- (i) List three compensatory mechanisms that the body activates in response to heart failure.
- | | |
|---------------------------------------|---|
| a) Increased parasympathetic activity | b) Sympathetic activation, fluid retention, ventricular remodeling. |
| c) Decreased fluid retention | d) Reduced heart rate |
- (ii) Visualize the pathway of blood flow from the right atrium to the pulmonary arteries.
- | | |
|---|--|
| a) Right atrium → pulmonary veins → left atrium → pulmonary arteries | b) Right atrium → aorta → pulmonary trunk → pulmonary arteries |
| c) Right atrium → tricuspid valve → right ventricle → pulmonary valve → pulmonary arteries. | d) Right atrium → pulmonary capillaries → left atrium → pulmonary arteries |
- (iii) Identify the main arteries that originate from the aortic arch.
- | | |
|-----------------------|--|
| a) Coronary arteries | b) Brachiocephalic artery, left common carotid artery, left subclavian artery. |
| c) Pulmonary arteries | d) Brachial arteries |
- (iv) Visualize and tell What is the primary cause of atherosclerosis?
- | | |
|----------------------------------|-----------------------------|
| a) Viral infection | b) Genetic factors |
| c) Buildup of plaque in arteries | d) Excessive calcium intake |
- (v) Tell Which valve in the heart separates the left atrium from the left ventricle?
- | | |
|--------------------|--------------------|
| a) Aortic valve | b) Mitral valve |
| c) Pulmonary valve | d) Tricuspid valve |
- (vi) Select from the answers Which diagnostic tool uses sound waves to create images of the heart?
- | | |
|-------------------|-------------------|
| a) TMT | b) ECHO |
| c) Holter monitor | d) Blood analysis |

- (vii) Choose Which of the following is NOT a typical use of blood analysis in heart disease prevention?
- a) Measuring cholesterol levels
b) Assessing blood glucose levels
c) Monitoring cardiac electrical activity
d) Identifying risk factors
- (viii) State A Holter monitor is worn by a patient for how long to record heart activity?
- a) 1 hour
b) 6 hours
c) 24 hours
d) 1 week
- (ix) Choose Ischemic heart disease is primarily caused by:
- a) Elevated cholesterol levels
b) Bacterial infections
c) Reduced blood flow to the heart muscle
d) High blood pressure
- (x) Observe In a normal ECG, the P wave represents:
- a) Ventricular depolarization
b) Atrial depolarization
c) Ventricular repolarization
d) Atrial repolarization
- (xi) Identify In ECG, what does a prolonged PR interval indicate?
- a) Ventricular depolarization
b) Atrial repolarization
c) Delay in the AV node conduction
d) Ventricular repolarization
- (xii) Relate which electrolyte abnormality is associated with a prolonged QT interval on the ECG?
- a) Hyperkalemia
b) Hypokalemia
c) Hypercalcemia
d) Hypocalcemia
- (xiii) Select which of the following findings suggests a left anterior fascicular block (LAFB)?
- a) Right axis deviation and narrow QRS
b) Left axis deviation and narrow QRS
c) Wide QRS complex and left axis deviation
d) Delta waves and short PR interval
- (xiv) Select Down syndrome is most commonly associated with?
- a) ASD with ostium secundum
b) ASD with ostium primum
c) VSD
d) TOF
- (xv) Select the V wave of jugular venous pulses is produced due to:
- a) Atrial systole preceding tricuspid valve closure
b) Descent of the tricuspid valve ring
c) Closure of tricuspid valve
d) Passive filing of atrium during ventricular systole

Group-B

(Short Answer Type Questions)

3 x 5=15

2. Describe the concept of heart failure, including the types, symptoms, and potential causes, and discuss its impact on cardiac function. (3)
3. Tell What are some key strategies for the prevention of heart diseases, and how do they contribute to overall cardiovascular health? (3)
4. Name What are the key findings on a 12-lead ECG that suggest the presence of ischemic heart disease? (3)
5. Describe the action of cardiac muscle and its role in maintaining heart function, focusing on factors like contractility and conductivity. (3)
6. Explain the components of blood and their functions in the cardiovascular system. (3)

OR

Differentiate between cyanotic and acyanotic congenital heart diseases, providing examples of each. (3)

Group-C

(Long Answer Type Questions)

5 x 6=30

7. Show the phases of the cardiac cycle, including atrial and ventricular systole and diastole. How do alterations in these phases contribute to heart disorders? (5)
8. Describe coronary heart disease, highlighting its causes, symptoms, and diagnostic methods. What are the primary risk factors associated with coronary artery disease, and how can they be managed or modified? (5)
9. Explain the significance of jugular venous pressure (JVP) in assessing cardiovascular health and diagnosing heart conditions. How is JVP measured, and what does it indicate in various clinical scenarios? (5)
10. Write the changes in ECG we will see in P mitrale, P-pulmonale. Which conditions will lead to P-mitrale and P-pulmonale? (5)
11. Write the changes in ECG we will see in Right bundle branch block (RBBB) & Left Bundle branch block (LBBB). Which conditions will lead to RBBB & LBBB? (5)
12. Classify the drug classes of anti-hyperlipidemic drugs. Mention their mechanism of action. Mention atleast one example for each of the above mentioned drug classes (5)

OR

Explain the importance of early diagnosis in preventing heart diseases. Describe the key diagnostic tools used in cardiology and their roles in assessing cardiovascular health. (5)

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