BRAINWARE UNIVERSITY

Term End Examination 2024-2025
Programme – B.Sc.(PA)-2021/B.Sc.(PA)-2022/B.Sc.(PA)-2023
Course Name – Cardiology & ECG
Course Code - BPAC303
(Semester III)

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) Identify the most appropriate answer: In JVP wave, due to accumulation of blood during late part of the ventricular systole or protodiastolic phase and isometric relaxation of the ventricles,leading to reopening of tricuspid valves during early "rapid phase filling" of Ventricles (during ventricular diastole), this wave is formed:

a) x wave b) c wave
c) V wave d) y wave

(ii) Choose the most appropriate answer: All of these mechanisms are involved in the etiology of Hypertension, except:

a) Increased RAAS activity b) Increased Parasympathetic activity
c) Increased activity of L type Ca2+ channel d) Increased Na+ & water retention

(iii) Define In cardiovascular disease, what is the term for the narrowing of coronary arteries?

a) Coronary artery stenosis. b) Vasodilation
c) Arterial rupture d) Myocardial infarction

(iv) Name Which condition results from the narrowing of coronary arteries, reducing blood flow to the heart?

a) Stroke b) Atherosclerosis
c) Coronary artery disease d) Diabetes

(v) Name Which condition is characterized by an abnormal accumulation of fluid in the lungs?

a) Pneumonia b) Pulmonary embolism
c) Pleurisy d) Pulmonary edema

(vi) Select from the answers What is the primary purpose of a Holter monitor?

a) To measure blood pressure b) To monitor heart rate during exercise
c) To assess heart valve function d) To record cardiac electrical activity over an extended period

(vii) State In second-degree AV block (Mobitz II), what is typically observed?

a) Gradual lengthening of PR interval before a dropped beat
b) Dropped QRS complex without PR interval prolongation
c) Absent P waves
d) Regularly prolonged PR intervals

(viii) Select in which of the following ECG changes is typically associated with hyperkalemia?

a) Peaked T waves
b) ST depression
c) U waves
d) Q waves

(ix) Tell which ECG finding is most typical in a patient with a pulmonary embolism?

a) T wave inversion in V5 and V6
b) ST elevation in V2-V4
c) S1Q3T3 pattern
d) Right bundle branch block

(x) Identify Which of the following is a stimulus for closure of ductus arteriosus?

a) Increased O2 tension
b) Hypoxia
c) Prematurity
d) Hypercapnia

(xi) State the most common cardiac anomaly in Turner's syndrome

a) Coarctation of aorta
b) Bicuspid aortic valve
c) Ventricular septal defect
d) Atrial septal defect

(xii) Select ASD is seen in all except:

a) Down's syndrome
b) Ellis-Van Creveld syndrome
c) Turner's syndrome
d) Holt-Oram syndrome

(xiii) An infant with severe dehydration secondary to diarrhea suddenly presents with flank mass and blood in urine. The most probable diagnosis is?

a) Renal vein thrombosis
b) Pyelonephritis
c) Acute glomerulonephritis
d) Lower nephrosis

(xiv) All are features of Bartter syndrome except

a) Hypokalaemia
b) Metabolic Alkalosis
c) Hypocalciuria
d) Salt wasting

(xv) Interpret, A 10-year-old girl present with polyuria and polydipsia with hypokalemia, hypercalciuria and metabolic alkalosis. What is the probable diagnosis?

a) Gitelman syndrome
b) Liddle syndrome
c) Bartter syndrome
d) Alport's syndrome

Group-B

(Short Answer Type Questions) 3 x 5=15

2. Discuss the role of lifestyle modifications, such as diet and exercise, in preventing heart diseases. (3)
3. Describe the ECG characteristics and clinical implications of bundle branch blocks. (3)
4. Discuss the concept of fascicular blocks and their impact on electrical conduction in the heart. (3)
5. Discuss the role of atherosclerosis in arterial diseases, and list common risk factors associated with this condition. (3)
6. Explain the significance of ST-segment elevation and depression in the context of acute coronary syndromes as observed on an ECG. (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. Summarize the use of 24-hour ambulatory blood pressure monitoring (ABPM) in hypertension diagnosis and management. How does it differ from standard blood pressure (5)

measurements?

8. Discuss the role of cardiac biomarkers, such as troponin and B-type natriuretic peptide (BNP), in diagnosing myocardial infarction and heart failure. How are these biomarkers measured? (5)
9. Explain in details the formation, normal duration, normal amplitude of P wave, PR interval, QRS complex, ST segment & T wave. (5)
10. Explain the pathophysiology, risk factors, prevention & treatment of ischemic heart disease. (5)
11. Illustrate the JVP wave in accordance with the changes in the chambers of the heart during systole and diastole. Which artery is used to measure the JVP? Illustrate 2 points why that artery is used to measure JVP. (5)
12. Analyze the importance of coronary angiography and cardiac catheterization in diagnosing coronary artery disease. How do these invasive procedures contribute to treatment planning? (5)

OR

Analyze the role of the ECG in assessing arrhythmias during exercise stress tests. How do changes in heart rate and rhythm during exercise provide diagnostic information? (5)

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