



**UNIVERSITI KUALA LUMPUR
ROYAL COLLEGE OF MEDICINE PERAK**

**FINAL EXAMINATION
MARCH 2026 SEMESTER**

COURSE CODE : RFB21003
**COURSE NAME : PHYSIOTHERAPY IN CARDIORESPIRATORY SYSTEM
1**
PROGRAMME NAME : BACHELOR OF PHYSIOTHERAPY (HONOURS)
DATE : 30 JUNE 2026
TIME : 9.00 AM – 11.00 AM
DURATION : 2 HOURS

INSTRUCTIONS TO CANDIDATES

1. Please read CAREFULLY the instructions given in the question paper.
 2. This question paper has information printed on both sides of the paper.
 3. This question paper consists of TWO (2) sections; Section A and Section B.
 4. Answer ALL questions in Section A and THREE (3) questions in Section B; Question 1 and Question 2 are COMPULSORY.
 5. Please mark/write your answers on the OMR answer script and answer booklet provided.
 6. Answer all questions in English language ONLY.
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THERE ARE 10 PAGES OF QUESTIONS, EXCLUDING THIS PAGE.

SECTION A (Total: 40 marks)

I) MULTIPLE CHOICE QUESTIONS (20 marks)

INSTRUCTION: Answer ALL questions.

Please use the OMR sheet provided.

1. Select the common symptom seen in dilated cardiomyopathy.
 - A. Rash.
 - B. Fever.
 - C. Dyspnea.
 - D. Vomiting.
 - E. Jaundice.

2. Which organism causes rheumatic fever?
 - A. Virus.
 - B. Toxin.
 - C. Fungus.
 - D. Parasite.
 - E. Group A streptococcus.

3. Select the structure inflamed in endocarditis.
 - A. Veins.
 - B. Arteries.
 - C. Pericardium.
 - D. Myocardium.
 - E. Endocardium.

4. What is the **MAIN** functional abnormality in restrictive cardiomyopathy.
 - A. Tachycardia.
 - B. Valve stenosis.
 - C. Myocardial rupture.
 - D. Diastolic dysfunction.
 - E. Increased systolic function.

5. Identify the physiological change that occurs during early stage of arterial degradation in coronary artery disease.
- A. Formation of fatty streak and lipid cores.
 - B. Formation of fibrous caps and necrotic cores.
 - C. Plaque rupture leading to thrombus formation.
 - D. Total blockage resulting in oxygen deprivation.
 - E. Permanent damage to the heart muscle tissue.
6. How does pain management contribute to the stabilizing care of a patient experiencing a myocardial infarction?
- A. It involves the administration of nitroglycerin.
 - B. It dissolves existing blood clots in the coronary arteries.
 - C. It provides a constant track of vital signs during treatment.
 - D. It directly increases the amount of oxygen reaching the lungs.
 - E. It decreases heart workload and oxygen demand by reducing pain levels.
7. Find the procedure that involves inserting a metal mesh tube permanently in the artery.
- A. Atherectomy.
 - B. Laser angioplasty.
 - C. Coronary artery stent.
 - D. Saphenous vein harvesting.
 - E. Coronary Artery Bypass Grafting.
8. Identify the primary mechanism used in balloon angioplasty to widen a narrowed artery.
- A. Emitting laser rays to vaporize the blockage.
 - B. Rerouting blood flow using a vein or artery graft.
 - C. Physically cut away the blockage with a tiny device.
 - D. Inflating a small balloon to compress plaque against the artery wall.
 - E. Expanding a metal mesh tube to keep the vessel open permanently.

9. Which genetic chromosomal abnormality is commonly associated with the development of Ebstein's anomaly?
- A. Trisomy 13.
 - B. Turner mosaicism.
 - C. Deletion of chromosome 21.
 - D. Mutation of chromosome 18p.
 - E. Duplication of chromosome 15q.
10. Identify the auscultatory finding commonly heard in truncus arteriosus.
- A. Venous hum.
 - B. Opening snap.
 - C. Pericardial friction rub.
 - D. Mid-diastolic rumble at apex.
 - E. Machinery murmur at infraclavicular region.
11. Select the immediate life-saving management priority in a newborn diagnosed with transposition of the great arteries.
- A. Restrict all oxygen supply.
 - B. Close the ductus arteriosus rapidly.
 - C. Begin vigorous chest physiotherapy.
 - D. Start antihypertensive drugs immediately.
 - E. Maintain patency of foramen ovale and ductus arteriosus.
12. Identify the goals of the progressive walking exercise during cardiac rehabilitation phase 1.
- I. Reduce anxiety levels.
 - II. Shortens hospital stay.
 - III. Improve respiratory function.
 - IV. Reduce risk of post-operative complications.
- A. I and II.
 - B. I and III.
 - C. II and III.
 - D. II and IV.
 - E. I, III, and IV.

13. Select the benefit associated with implementing breathing exercises in cardiac patients.
- A. Improved oxygenation.
 - B. Improved joint mobility.
 - C. Enhanced visual acuity.
 - D. Increased heart rate variability.
 - E. Decreased recovery time for fractures.
14. Find the level of exercise intensity that is suitable for cardiac rehabilitation phase 1 program.
- A. Low intensity.
 - B. High intensity.
 - C. Medium intensity.
 - D. Maximal intensity.
 - E. Moderate intensity.
15. Identify the mobility exercise recommended during in-patient cardiac rehabilitation.
- A. Transferring from bed to chair.
 - B. Jogging on a treadmill for 30 minutes.
 - C. Performing high-impact aerobic routines.
 - D. Swimming in a temperature-controlled pool.
 - E. Lifting heavy free weights to improve strength.
16. Which treadmill protocol is most suitable for evaluating patients who are obese, chronically ill, or very unfit?
- A. Balke protocol.
 - B. Bruce protocol.
 - C. James's protocol.
 - D. Godfrey protocol.
 - E. McMaster protocol.

17. Which of the following is a recognized clinical advantage of using a cycle ergometer instead of a treadmill during exercise stress testing?
- A. It requires a larger laboratory space for operation.
 - B. It consistently results in longer maximal test duration.
 - C. It produces greater motion artifacts on ECG recordings.
 - D. It is unsuitable for patients with neuromuscular limitations.
 - E. It permits more accurate blood pressure recording at peak exercise.
18. Which assessment tool is commonly used to measure dyspnea in cardiopulmonary patients?
- A. Braden Scale.
 - B. Ashworth Scale.
 - C. Modified Borg Scale.
 - D. Glasgow Coma Scale.
 - E. Mini Mental State Examination.
19. Select the most appropriate test to assess functional exercise capacity in cardiopulmonary physiotherapy.
- A. Thomas test.
 - B. Romberg test.
 - C. Lachman test.
 - D. Trendelenburg test.
 - E. Six-Minute Walk Test.
20. Which recent trend in cardiopulmonary physiotherapy uses digital technology for remote patient monitoring?
- A. Cryotherapy.
 - B. Hydrotherapy.
 - C. Electrotherapy.
 - D. Manual therapy.
 - E. Telerehabilitation.

II) SHORT ANSWER QUESTIONS (20 marks)**INSTRUCTION: Answer ALL questions in the answer booklet provided.****Each question carries FOUR (4) marks.**

1. List **FOUR (4)** etiology of dilated cardiomyopathy.
2. List **FOUR (4)** type of heart block.
3. Briefly explain the classification of Ebstein's anomaly according to echocardiographic severity.
4. Give **FOUR (4)** importance of chest auscultation in physiotherapy assessment.
5.
 - i. List **TWO** adverse symptoms that require immediate termination of exercise stress testing.
 - ii. Give **TWO (2)** purpose of the Six-Minute Walk Test in cardiopulmonary physiotherapy?

(2 Marks)

(2 Marks)

SECTION B: MODIFIED ESSAY QUESTIONS (Total: 60 marks)

INSTRUCTION: This section consists of **FOUR (4)** questions.

Answer THREE (3) questions in the answer booklet provided.

Question 1 and Question 2 are COMPULSORY.

Question 1

Mr. C, 65 years old complained of weakness, weight loss and difficulty in breathing during exertion. He had a family history of the same condition. On physical examination, he has peripheral edema, pulsatile jugular vein and S3/S4 murmurs. Chest X-ray showed enlarged cardiac markings more than 50% in comparison to thoracic diameter, echocardiogram reveals enlargement of interventricular septum and biopsy showed malalignment of the myocardial fibers.

With reference to the above case, answer all the following questions.

- (a) Identify Mr. C's condition. (1 marks)
- (b) Justify your answer in (a). (6 marks)
- (c) Determine **FOUR (4)** physiotherapy goal for him. (4 marks)
- (d) Determine **THREE (3)** physiotherapy management for him. (9 marks)

Question 2

Mr F., a 58-year-old male presents to the clinic complaining of progressive fatigue and increasing difficulty swallowing solid foods (dysphagia). Upon physical examination, a significant jugular venous distention (distended neck veins) and bilateral pitting edema in his ankles and feet. The patient also reports a feeling of fullness in his upper abdomen; palpation reveals an enlarged liver and spleen (hepatosplenomegaly). An echocardiogram revealed a decreased valve area (0.8cm^2) and thickened leaflets indicates the narrowing of the tricuspid valve. He has a history of rheumatic fever as a child.

With reference to the above case, answer all the following questions.

- (a) Identify the possible diagnosis for this patient. (1 mark)
- (b) Discuss the pathophysiology of this condition. (5 marks)
- (c) Outline **FIVE (5)** symptoms of this patient. (5 marks)
- (d) Describe **THREE (3)** physiotherapy intervention for this patient. (9 marks)

Question 3

- (a) "A 12-day-old male neonate is brought to the emergency department with severe cyanosis, rapid breathing, poor feeding, and lethargy. On examination, oxygen saturation is very low despite oxygen supplementation. Echocardiography shows that the aorta arises from the right ventricle and the pulmonary artery arises from the left ventricle."

With reference to the above case, answer all the following questions.

- i. Identify the neonate's congenital cardiac condition.
(1 marks)
- ii. Justify your answer in (i) with **FOUR (4)** clinical and investigative findings from the case.
(4 marks)
- iii. Discuss the pathology of his condition.
(5 marks)

- (b) "Mr. Fadli, a 45-year-old administrative officer, was recently discharged from the hospital following a Myocardial Infarction (MI) and a subsequent Percutaneous Coronary Intervention (PCI) with stent placement in his Left Anterior Descending (LAD) artery. Since returning home, he reports feeling a persistent "tightness" in his chest during minor household chores, calf muscle cramping during walking and expresses a deep-seated fear of "triggering another attack" if he exerts himself. He is now referred to the outpatient physiotherapy clinic for cardiac rehabilitation program."

With reference to the above case, answer all the following questions.

- i. Identify the cardiac rehabilitation phase suitable for this patient.
(1 mark)
- ii. Explain **THREE (3)** physiotherapy intervention for this patient.
(9 marks)

Question 4

- (a) Describe the procedure to assess the jugular venous pressure. (6 marks)
- (b) Discuss **TWO (2)** components of home-based cardiac rehabilitation. (4 marks)
- (c) A physiotherapist is preparing a patient for a treadmill stress test. Explain how you would conduct the pre-test, during-test, and post-test procedures to ensure safety and accuracy of results. (10 marks)

END OF EXAMINATION PAPER