

# Question Paper

Exam Date & Time: 18-Jun-2024 (10:00 AM - 01:00 PM)



## MANIPAL ACADEMY OF HIGHER EDUCATION

SECOND SEMESTER MPT DEGREE EXAMINATION - JUNE 2024

**SUBJECT: PTH5102 - FOUNDATIONS OF PHYSIOTHERAPY IN CARDIOPULMONARY SCIENCES**  
**(SPL: CARDIOPULMONARY SCIENCES/CARDIOPULMONARY REHABILITATION/ CRITICAL CARE**  
**PHYSIOTHERAPY/HEALTH PROMOTION AND FITNESS)**  
**(2021 SCHEME)**

**Marks: 100**

**Duration: 180 mins.**

**Answer all the questions.**

- 1) Explain the physiology of oxygen transport. Highlight the impact of lung disease on the oxygen transport and the potential benefit of physiotherapy interventions to help improve oxygen transport. (20)  
(8+8+4 = 20 marks)
- 2) A 56-year-old obese gentleman has undergone an upper abdominal surgery receiving supplemental oxygen via a 40% venturi. Describe in detail the evaluation of this gentleman. Describe the respiratory physiotherapy treatments to be provided along with the rationale for choosing them. (20)  
(10+10 = 20 marks)
- 3A) Describe the pathophysiology of atherosclerosis. (10)
- 3B) Examine the rationale for different bronchial hygiene therapies. (10)
- 3C) Explain the physiology of a normal electrocardiogram (ECG) and describe the normal ECG. (10)  
(4+6 = 10 marks)
- 3D) Explain the biomechanics of respiration. Highlight the pathomechanics seen in kyphoscoliosis. (10)  
(6+4 = 10 marks)
- 4A) Outline the medications and agents that can be used to help facilitate airway clearance. (5)
- 4B) Interpret the following arterial blood gas for a 55-year-old woman on room air: (5)  
pH: 7.3  
PaCO<sub>2</sub>: 58mmHg  
PaO<sub>2</sub>: 80mmHg  
HCO<sub>3</sub><sup>-</sup>: 21mEq/L
- 4C) Explain the procedure for performing incentive spirometry. (5)
- 4D) Explain the methods to assess a wound. (5)

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## MANIPAL ACADEMY OF HIGHER EDUCATION

SECOND SEMESTER MPT DEGREE EXAMINATION - JUNE 2024

SUBJECT: PTH5202 - FOUNDATIONS OF PHYSIOTHERAPY IN COMMUNITY

(SPL: COMMUNITY PHYSIOTHERAPY - OCCUPATION HEALTH AND ERGONOMICS/DISABILITY AND REHABILITATION)  
(2021 SCHEME)

Marks: 100

Duration: 180 mins.

Answer all the questions.

- 1) Explain the principles of universal design with its applications in improving community participation of persons with disabilities. (20)  
(7+13 = 20 marks)
- 2) Elaborate on what are assistive devices. Explain the classification of assistive devices. Outline the factors influencing acceptance and abandonment of assistive devices. (20)  
(2+8+10 = 20 marks)
- 3A) Explain common ethical dilemmas encountered in treating patients in the community. (10)
- 3B) Define caregiver burden and summarize methods to assess the caregiver burden. (10)
- 3C) Explain the principles of Community Based Rehabilitation with case-based application. (10)
- 3D) What are adapted physical activities? Explain the need of adapted physical activities and give examples of incorporating adaptations for basketball for persons using wheelchair. (10)
- 4A) Explain the health care delivery models. (5)
- 4B) Explain the role of Physiotherapy in Fitness of Children attending schools. (5)
- 4C) Illustrate the WHO Matrix in detail. (5)
- 4D) Explain the management cycle in a CBR Program. (5)

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## MANIPAL ACADEMY OF HIGHER EDUCATION

SECOND SEMESTER MPT DEGREE EXAMINATION - JUNE 2024  
SUBJECT: PTH5302 - FOUNDATIONS OF PHYSIOTHERAPY IN GERIATRICS  
(GERIATRICS/HEALTHY AGING/AGING AND DISEASE)  
(2021 SCHEME)

Marks: 100

Duration: 180 mins.

Answer all the questions.

- 1) Define frailty among older adults. Describe the methods to identify frail older adults. Add a note on the modulation of frailty. (20)  
(4+6+10 = 20 marks)
- 2) Describe the central, peripheral and autonomic nervous system changes in the elderly. Explain the significance of those changes in the evaluation and management of older adults. (20)  
(10+10 = 20 marks)
- 3A) Explain Hypothesis Oriented Algorithm in geriatric care with an appropriate example. (10)
- 3B) Compare different exercise testing protocols among older adults. (10)
- 3C) Outline the rights and programs for elderly welfare in India. (10)
- 3D) Explain the stochastic theories of aging with its implication in physiotherapy. (10)
- 4A) Describe the outcome measures used to evaluate successful aging. (5)
- 4B) Explain the consequences of under nutrition among older adults. (5)
- 4C) Outline the strategies adopted for older adults with communication disorders. (5)
- 4D) Elaborate the role of physiotherapy in long term adult care setting. (5)

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## MANIPAL ACADEMY OF HIGHER EDUCATION

SECOND SEMESTER MPT DEGREE EXAMINATION - JUNE 2024

SUBJECT: PTH5402 - FOUNDATIONS OF PHYSIOTHERAPY IN MUSCULOSKELETAL SCIENCES

(SPL: MUSCULOSKELETAL SCIENCE - SPORTS PHYSIOTHERAPY/MANUAL THERAPY/HAND REHABILITATION)  
(2021 SCHEME)

Marks: 100

Duration: 180 mins.

Answer all the questions.

- 1) Discuss mechanobiology of tendon. Explain the pathomechanics, assessment and management of Achilles tendinopathy. (20)  
(6+14 = 20 marks)
- 2) Explain the physiological pathway of nociception. Discuss biological adaptations in chronic pain and its management. (20)  
(8+12 = 20 marks)
- 3A) Discuss assessment of proprioception in peripheral joints. (10)
- 3B) Construct an exercise program for rheumatoid arthritis. (10)
- 3C) Discuss the role of hip abductors in hip joint stability. (10)
- 3D) Explain functional progression exercises for an overhead athlete with shoulder pain. (10)
- 4A) Explain the utility of patient reported outcome measures in rehabilitation. (5)
- 4B) Discuss the influence of lower limb malalignments in patellofemoral pain. (5)
- 4C) Discuss confidentiality in medico legal cases. (5)
- 4D) Discuss strategies of postural control. (5)

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## MANIPAL ACADEMY OF HIGHER EDUCATION

SECOND SEMESTER MPT DEGREE EXAMINATION - JUNE 2024  
SUBJECT: PTH5502 - FOUNDATIONS OF PHYSIOTHERAPY IN NEUROSCIENCES  
(SPL: NEUROSCIENCES - NEUROLOGICAL PHYSIOTHERAPY/NEUROSURGICAL PHYSIOTHERAPY)  
(2021 SCHEME)

Marks: 100

Duration: 180 mins.

Answer all the questions.

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|-----|--|------|
| 1)  | Explain the neurophysiology of voluntary movement.                                       | (20) |
| 2)  | Distinguish the theories of motor control and relate them to motor control dysfunctions. | (20) |
| 3A) | Explain the mechanism of functional changes and brain recovery.                          | (10) |
| 3B) | Distinguish the physiology of normal and abnormal muscle tone.                           | (10) |
| 3C) | Outline the theories of motor development.   | (10) |
| 3D) | Identify the basic neonatal reflexes and their impact on milestone development.          | (10) |
| 4A) | Discuss Cerebrospinal fluid (CSF) examination among neurological conditions.             | (5)  |
| 4B) | Explain role of sensory system on the control of movement.                               | (5)  |
| 4C) | Explain the role of ANS on the control of movement.                                      | (5)  |
| 4D) | Explain the motor output mechanisms of vestibular system.                                | (5)  |

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## MANIPAL ACADEMY OF HIGHER EDUCATION

SECOND SEMESTER MPT DEGREE EXAMINATION - JUNE 2024

SUBJECT: PTH5602 - FOUNDATIONS OF PHYSIOTHERAPY IN OBSTETRICS AND GYNECOLOGY  
(SPL: GYNECOLOGICAL PHYSIOTHERAPY/OBSTETRIC PHYSIOTHERAPY)  
(2021 SCHEME)

Marks: 100

Duration: 180 mins.

Answer all the questions.

Draw diagrams wherever necessary.

- 1) A 60-year-old obese lady has undergone a Total Abdominal Hysterectomy 3 days back. She has a history of chronic bronchitis following COVID-19 for 8 months and is managed conservatively. She has a history of leakage of urine while coughing and squatting. Presently her hemoglobin(Hb) level is 8.7 gm/dL and Hb1Ac is 7.8%. Discuss the post-operative Physiotherapy evaluation. (20)
- 2) Explain the Physiotherapy assessment of a 30-year-old pregnant woman in her second trimester, who is a teacher by occupation, with severe low back pain and a history of intervertebral disc prolapse. Add a note on relevant outcome measures. (20)  
(15+5 = 20 marks)
- 3A) Explain the anatomy of abdominal muscles and its applied aspects. (10)  
(7+3 = 10 marks)
- 3B) Explain the physiological changes in the cardio-respiratory and musculoskeletal system during postpartum period. (10)  
(4+3+3=10 marks)
- 3C) Explain the effect of pregnancy on posture and biomechanics of thorax. (10)
- 3D) Explain the approaches for the management of chronic pain. (10)
- 4A) Discuss the effects of aging on the colorectal system. (5)
- 4B) Explain lumbopelvic rhythm. (5)
- 4C) Classify the types of pelvis. (5)
- 4D) Discuss the influence of growth hormone on a woman's health. (5)

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## MANIPAL ACADEMY OF HIGHER EDUCATION

SECOND SEMESTER MPT DEGREE EXAMINATION - JUNE 2024

SUBJECT: PTH5702 - FOUNDATIONS OF PHYSIOTHERAPY IN PAEDIATRICS

(SPL: PEDIATRICS/NEONATAL AND PEDIATRIC RESPIRATORY CARE/PAEDIATRIC NEUROLOGY)

(2021 SCHEME)

Marks: 100

Duration: 180 mins.

Answer all the questions.

- |     |  |      |
|-----|--|------|
| 1)  | Define developmental delay. Enumerate the developmental evaluation of the high-risk newborn in the developmental follow-up clinic.<br>(4+16 = 20 marks)                              | (20) |
| 2)  | Describe the role of primitive reflexes in the contribution of motor development. Add a note on the implication of persistent primitive reflex with an example.<br>(15+5 = 20 marks) | (20) |
| 3A) | Outline the anthropometric changes of an individual from birth through adolescence.  | (10) |
| 3B) | Describe the screening tests during pregnancy.   | (10) |
| 3C) | Explain in detail the International Classification of Functioning, Disability and Health in pediatric rehabilitation.  | (10) |
| 3D) | Explain the role of locomotor play in motor skill acquisition.   | (10) |
| 4A) | Classify posterior neuropore neural tube defects.  | (5)  |
| 4B) | Enumerate the Oro-motor development in infants.  | (5)  |
| 4C) | Outline the infection control strategies in NICU.  | (5)  |
| 4D) | Outline the anti-spasticity drugs and their mode of administration.  | (5)  |

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