



**AMREF INTERNATIONAL UNIVERSITY
SCHOOL OF MEDICAL SCIENCE
DEPARTMENT OF REHABILITATION MEDICINE
BACHELOR OF SCIENCE IN PHYSIOTHERAPY
END OF SEPT-DECEMBER 2024 TRIMESTER EXAMINATIONS**

UNIT CODE: PHT 136 UNIT NAME: Growth and development

DATE: Tuesday/ 3rd/ December

TIME: TWO HOURS

START: 6PM STOP : 8PM

INSTRUCTIONS (physical exams)

Do not write on this question paper

(Marks and questions distribution as per program curriculum.)

1. This exam is marked out of 70 marks
2. This Examination comprises 3 Sections
3. This exam shall take 2 Hours

SECTION A; MCQ'S (30 MKS)

ANSWER ALL THE QUESTIONS

1. Which developmental milestones is important for assessing gross motor development in a 5 month old infant in the context of PT?
 - A) Rolling over
 - B) Cooing & babbling
 - C) Recognition of the care giver
 - D) Responding to social cues
2. The embryonic layer that is primary responsible for formation supporting structures e.g.; connective tissues, the muscles, cartilages and bones and tendons is?
 - A) mesoderm
 - B) endoderm
 - C) ectoderm
 - D) Neural tube
3. A PT has been consulted to review a 6 month old baby in the pediatric wards who was admitted with pneumonia and developmental delays. While developing the treatment plan for the baby above, the PT's **primary focus** should be?
 - A) Language development
 - B) Play in form of Peek a Boo in order for the baby to understand object performance
 - C) Parent education on need for responsive caregiving necessary for enhanced positive emotional development
 - D) To improve gross and fine motor development through grasping toys tummy time activities
4. In order to make physical therapy sessions more interesting, motivational and interactive, PT's are encouraged to consider age appropriate toys and administer PT in form of play. In order to strengthen the back muscles and enhance sitting balance in a 7 month old infant, the PT can use:
 - A) More colorful toys to encourage visual tracking
 - B) Toys with various fabrics and different colors
 - C) Gentle STM to the back muscles in order to encourage bonding and sensory awareness
 - D) Tummy time activities with colorful toys in front and slightly over head
5. Developmental milestone that occurs in a 7 month old baby and is of great relevance to PT is?
 - A) Fine motor skills e.g. drawing and painting
 - B) Sitting independently
 - C) Developing jumping and hopping skills
 - D) Rolling over and head control

6. Which stage of human pre-natal development is very critical as the fetus is most susceptible to malformations due to environmental teratogens?

- A) Pre embryonic stage
- B) Embryonic stage
- C) Fetal stage
- D) Fertilization

7. Which of the following best describes a physical therapy treatment goal for 60 year old female patient (in middle adulthood) in relation to typical aging process?

- A) Enhancing bone density in relation to impending osteoporosis and risk of fractures
- B) Enhancing/maintaining flexibility and maintaining joint mobility important for mainlining functional independence in view of age related structural and physiological changes
- C) Increasing cardiovascular endurance through cardio exercises
- D) Inco-operating psychological counselling because most of them are in a state of despair according to Erickson's psychosocial developmental theories.

8. During adolescence stage of development (13-18 years), physical therapists should always look out for which common musculoskeletal condition that can affect growth and development?

- A) Torn patella ligament
- B) Thoracic scoliosis
- C) Age related wear and tear of the joints
- D) Joint hyper-mobility as they are highly active during this stage

9. The most significant factor to consider while developing a treatment plan for a 75 year old (older adulthood), that can influence PT outcome with regards to functional independence is?

- A) Declining cognitive function
- B) Balance and fall prevention
- C) Declining cardiovascular health
- D) Hypertrophy of core stabilizers

10 According to Erikson's psychosocial theory, which stage of development would a physical therapist likely focus on when working with older adults (65+ years) to enhance quality of life and physical function?

- A) Autonomy vs. Shame and Doubt
- B) Identity vs. Role Confusion
- C) Generativity vs. Stagnation
- D) Integrity vs. Despair

11. For a PT to evaluate and conclude if a patient is likely to participate fully and actively in physical therapy sessions, a thorough relevant history must be carried out first. According to Maslow's hierarchy of needs, which need ought to be met first before any intervention can be made?

- A) Self-actualization
- B) Esteem needs
- C) Love and belonging
- D) Physiological needs

12. Gross motor skills are very relevant when physical therapists are dealing with children with developmental delays. Which of the following would be a major focus for PT's while treating such children?

- A) Hand-eye coordination for writing
- B) Strengthening muscles for walking and running through play
- C) Improving dexterity for using scissors and painting
- D) Training for dressing independently

13. During adolescence stage of development, which nutrient is very crucial as it supports rapid growth and development of bones

- A) Vitamin
- B) Iron
- C) Calcium
- D) Potassium

14. While performing a pediatric examination on children with neurological conditions like post meningitis sequels, a PT may get concerned with the persistence of the Plantar Grasp Reflex in older children, this is because its presence may interfere with:

- A) Balance during sitting
- B) Standing balance and walking
- C) Reaching and grasping objects
- D) The child's hip stabilizers and effects on postural control

15. While assessing a 10 month old infant; admitted to the wards with complications of severe traumatic brain injury (following a fall when he was 2 months old), the PT notices persistence of the Asymmetrical Tonic Neck Reflex (ATNR). This persistence may interfere with which motor skill in infants, making it a focus of PT intervention?

- A) Walking independently
- B) Crawling and rolling
- C) Reflexive sucking
- D) Fine motor coordination

16. Which of the following special senses is the last to develop in humans.

- A) Vision
- B) Hearing
- C) Smell
- D) Taste

17. Which of the following developmental milestones indicates maturation of olfactory system in an infant

- A) Turning towards familiar scent
- B) Responding to visual stimuli
- C) Developing special interests in sweet things
- D) Reaching out to bright toys

18. The phenomenon where infants show a preference for sweet tastes is evident by what age?

- A) At birth
- B) 2 months
- C) 6 months
- D) 1 year

19. At what age do most children typically gain daytime bladder control?

- A) 12 months
- B) 18 months
- C) 3 years
- D) 5 years

20. Which of the following is a common sign that a child is ready to begin toilet training?

- A) Frequent wetting of the bed
- B) Expressing discomfort with dirty diapers
- C) Lack of interest in potty training
- D) Inability to follow simple directions

21. Which of the following conditions is characterized by the involuntary loss of urine during sleep?

- A) Nocturnal enuresis
- B) Diurnal enuresis
- C) Urinary incontinence
- D) Urgency

22. What is the primary muscle involved in voluntary control of urination?

- A) Diaphragm
- B) Rectus abdominis
- C) External urethral sphincter
- D) Pelvic floor muscles

23. In adults, which of the following factors can contribute to urinary incontinence?

- A) High fluid intake
- B) Regular exercise
- C) Pregnancy and childbirth
- D) Consuming adequate fiber

24. A patient who shows difficulty in performing tasks that require both fine and gross motor coordination like buttoning a shirt, could most likely be having?

- A) Musculoskeletal issues
- B) Neurological impairment
- C) Cardiomyopathy
- D) Decreased endurance

25. During a PT session, which of the following interventions might be appropriate while attempting to enhance degradation of fine motor skills in a stroke patient?

- A) Treadmill walking
- B) Handwriting practice with varied tools
- C) Resistance training of large muscle groups
- D) Balance exercises on an unstable surface

26. Mr. D.W was admitted to the medical wards in a comatose state 3 weeks ago. He has however come out of the comatose state gradually and the PT is graduating him on therapeutic exercises in an attempt to counter complications associated with prolonged recumbency. Which of the following can be caused by prolonged immobility and can have deleterious effects on fine and gross motor skills of this patients?

- A) Decreased cognition
- B) Decreased muscle tone and strength
- C) Spatial neglect
- D) Increased flexibility

27. In stroke rehabilitation, which assessment would most likely evaluate a patient's fine motor skills?

- A) Gait analysis
- B) Functional reach test
- C) Nine-Hole Peg Test
- D) Timed Up and Go Test

28. At what age do children typically begin to understand and express basic emotions such as happiness, sadness, and anger?

- A) 6 months
- B) 12 months
- C) 2 years
- D) 4 years

29. Emotional regulation; the ability to manage and respond to emotional experiences, typically improves during which developmental period?

- A) Infancy
- B) Early childhood
- C) Adolescence
- D) Adulthood

30. Which of the following strategies can help improve emotional control in children?

- A) Ignoring their feelings
- B) Encouraging expression of feelings through words
- C) Punishing emotional outbursts
- D) Limiting social interactions

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SECTION B; SHORT ANSWER QUESTIONS. (20 Mks)

(ANSWER ALL THE QUESTIONS)

31. Liza, a 6 YO girl was born at term through a difficult normal delivery. Her mother got concerned when she noticed that at 6/12, she had poor neck control and could not sit unsupported. She was taken to a pediatrician who diagnosed her of mild cerebral palsy affecting her right side. This condition has affected her motor skills, balance and coordination and has caused delays in her physical development compared to her peers.

- I. Identify Liza's developmental stage according to Erickson's psychosocial theory
- II. Outline the normal gross motor skills a physical therapist is expected to see at a child of Liza's age
- III. Highlight how Liza's PT treatment plan will look like as you outline the PT goals

10 Marks

32. A 79-year-old female, Mrs. Don, underwent a total hip replacement after a fall that resulted in a fractured neck of femur (NOF) to her right hip. Prior to the surgery, she was fairly active; doing her house chores independently, but had begun to experience arthritis-related mobility challenges and was using a cane for support

- I. Explain how understanding developmental stages and the natural process of aging can help the PT tailor interventions in Mrs Don's case
- II. Considering Mrs Don's age, briefly outline the milestones that are expected for senior citizens, and which may inform PT interventions

10 Marks

SECTION C; LONG ESSAY QUESTIONS (20Mks)

(ANSWER ANY TWO QUESTIONS)

33. Tom; now a 6-month-old baby was born with spina bifida. His mother reports that she has never seen him move any of his lower limbs since birth. He is also unable to sit unsupported. He underwent successful spine surgery 2 weeks ago and has been referred to PT for follow up

Explain how the understanding of embryological development contributes to the assessment and treatment of spina bifida and other congenital musculoskeletal disorders in physical therapy. **(10 marks)**

34. Emma a 4-year-old girl was brought to PT outpatient clinic by her mother due to concerns about her delayed motor development. She was born full-term, with no complications during pregnancy or delivery. However, her mother noticed that she was slow in meeting her developmental milestones compared to her peers, such as sitting independently and crawling. At 4 yrs she is now attempting to stand and walk, though with frequent falls due to lack of balance. The mother reports that she could notice asymmetry in limb movements when Emma crawls; where the left leg was lagging behind

Analyze the impact of abnormal reflex patterns on movement and posture, and explain how physical therapy can address these patterns to improve functional outcomes.

(10 Marks).

35. Discuss the role of therapeutic play in physical therapy for infants, highlighting how age appropriate toys can be used to enhance/promote motor development. (10 Marks)