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SCHOOL OF NURSING SCIENCES & ALLIED HEALTH

BPT 1st YEAR, ANNUAL EXAMINATION, MAY 2023
BASIC PHYSICS AND PHYSICAL PRINCIPLES OF EXERCISE THERAPY (THEORY)
PAPER CODE: BPT – 166

Time: 3 hours

Maximum Marks: 75 Marks

(Write your Roll No. on top of the paper immediately)

Note: (i) Attempt ALL questions

(ii) Choices are mentioned wherever applicable

(iii) Parts of a question must be answered together

(iv) Draw diagrams wherever necessary

(v) Give examples wherever necessary

Section – A

Multiple choice Questions (All are compulsory)

(15 × 1 Mark = 15 Marks)

1. _____ is an example of a 3rd order lever in human body.
2. What is Ohm's law?
3. State Newton's first law of motion.
4. In which region of the load-deformation curve does the material return to its original dimension immediately after the removal of the load?
5. What is coefficient of friction (μ)?
6. The muscles which contract to provide the force required to produce the movement are called as
A. Agonists B. Antagonists C. Synergists D. Fixators
7. When there is no change in the length of a muscle but there is development of force by an increase in intra – muscular tension, it is called as:
A. Concentric contraction B. Eccentric contraction
C. Isometric contraction D. None of the above
8. A muscle is most efficient when it is inserted at _____ to the bone.
A. Acute angle B. 90 degrees C. Obtuse angle D. 180 degrees
9. What is the relationship between COG and stability?
10. The movements which are done by the patient and supported by a therapist or by some external forces are called
A. Active movements B. Passive movements
C. Active assisted movements D. Resisted movements

11. The movements which occur in frontal plane and around antero-posterior axis are

- A. Abduction - Adduction
- B. Flexion – Extension
- C. Internal & External rotation
- D. None of the above.

12. What do you understand by sagittal plane?

13. What are resisted movements?

14. What is Concentric Contraction?

15. What is Power?

Section – B

Answer any **THREE** of the following:

(3 × 10 Marks = 30 Marks)

- Q1. What are the different types of Pulleys? Explain the mechanical advantage of each with examples. (3+7)
- Q2. What do you understand by stress and strain? Explain the stress-strain curve with the help of a diagram.
- Q3. What do you understand by traction? Discuss its principles and applications.
- Q4. What is a lever? What are the different orders of levers? Explain with examples from human body.

Section – C

Answer any **TWO** of the following:

(2 × 15 Marks = 30 Marks)

- Q1. What are the different types of muscle contractions? What do you understand by mechanical efficiency and the factors affecting it. (6+9)
- Q2. What do you understand by relaxation? What are its types and therapeutic uses?
- Q3. What is Gravity? Describe COG, LOG & Moment arm due to gravity. What are the conditions necessary for stability of a body? (2+6+7)
