

Roll No.....

Name of the Course	: Master of Physical Education (M.P.Ed.)
Paper No.	: MPE-0903
Name of the Paper	: Fundamentals of Exercise Physiology
Semester	: III (December 2025)
Duration	: 03 Hours
Maximum Marks	: 50

### INSTRUCTIONS FOR CANDIDATES

Attempt any FIVE questions. All questions carry equal marks

- Q1. Explain the Structure and Contractile Mechanism of Skeletal Muscle.
- Q2. Explain various methods to assess Body Composition.
- Q3. Explain in detail Physical Activity as a preventive measure for disease.
- Q4. Explain in detail types of Cardiovascular Disease and reducing risks through Physical Activity.
- Q5. Elaborate upon types of Diabetes, symptoms, causes, complications, diagnosis and Tests and prevention.
- Q6. Describe the functions of the Endocrine System. Explain the roles of the Hypothalamus and Pituitary gland in maintaining homeostasis.
- Q7. Answer any four:
- 1) PAR-Q and Consent form
  - 2) General indications for Stopping an Exercise Test
  - 3) What is the MET equivalent to level walking on a treadmill at 3.0 mph?
  - 4) If a 70 kg runs on a treadmill at 8 mph and 0% grade for 45 minutes, what is his caloric expenditure?
  - 5) A 143 pound women regularly walks on a treadmill at a speed of 3 mph and a 2% elevation. What is her caloric expenditure?
  - 6) Determine recommended Body weight for a 19yrs old female with a Body weight of 160lbs, Fat percentage 30% and desired Fat percentage 22%.
- Q8. Calculate the following:
- a) How many pounds of fat will a 50kg women lose after 4 weeks of training if she exercises at a frequency of three days a week , a duration of 45 minutes per session , and an energy

expenditure of  $6.5 \text{ kcal} \cdot \text{min}^{-1}$ ? Assume that there are no modification in her eating habits during the 4 weeks of training.

b) What is the relative oxygen cost of bench stepping at a rate of 24 steps per minute up a 10-inch stepping box? The individual weighs 140 pounds.

c) What stepping rate should a client use if she wishes to exercise at 5 METS? The box is 6 inches high and she weighs 50 kilograms.

d) A 176 pound client set the treadmill at 3.0 mph and 2% grade. While exercises three times per week for 45 minutes each session for 8 weeks. His heart rate was  $140 \text{ beats} \cdot \text{min}^{-1}$  and his blood pressure was 160/80mm Hg. He Calculate the following:

- 1) Estimated oxygen consumption in relative terms
- 2) MET
- 3) Weight lost

e) If a healthy man of 150lbs exercises at an intensity of  $45 \text{ ml} \cdot \text{kg}^{-1} \cdot \text{min}^{-1}$  three times per week for 45 minutes each session, how long will it take him to lose 10 pounds?