Faculty of Health Sciences

Physics Placement Test Sample- MPPT-H

Basic Info & Sample Questions for Students

Basic Info

Overview

The MPPT-H is a timed, computerized multiple choice test given to MU prospective students attempting to register in all majors of the Faculty of Health Sciences with Baccalaureate basis of admission.

Structure

The standard MPPT-H is composed of one section that tests the student's knowledge in physics including mechanical energy, electricity, and optics.

- Length: 30 min
- Questions: 25 multiple choice questions
- Evaluation: 4 points for each question

1. Mechanical energy is defined as the sum of both the potential energy and the kinetic energy of an object. According to the law of conservation of energy, what happens to mechanical energy if the potential energy of an object decreases?
   a-ME increases
   b-ME decreases
   c-ME increases and then decreases
   d-ME remains unchanged

2. A truck accelerates from speed V to 2V. Work done this is process of acceleration is:
   a-three times as the work done in accelerating from rest to V.
   b-same as the work done in accelerating from rest to V.
   c-four times as the work done in accelerating from rest to V.
   d-less than the work done in accelerating from rest to V.

3. According to the work energy theorem, the work done will be equal to:
   a-KE
   b-PE
   c-change in KE
   d-change of PE

4. A car of mass 800 kg is moving on an expressway. In order to increase the speed of the car from 54 km/h to 90 km/h. The work required to be done will be:
   a-150kj
   b-160kj
   c-250kj
   d-200kj

5. Calculate the speed of a body having a mass 9kg and linear momentum 63kg.m/s.
   a-6m/s
   b-7m/s
   c-8m/s
   d-10m/s

6. Which of the following depends on charging and discharging rate of a capacitor?
   a) Time constant
   b) Current
   c) Power
   d) Voltage

7. A capacitor is charged to a voltage of 400V and has a resistance of 20ohm. Calculate the initial value of charging current.
   a) 10A
   b) 0A
   c) Infinity
   d) 20A

8. For a series RLC circuit of resonance 1kΩ, inductance 10mH and capacitance 100μF.Calculate the resonant frequency:
   a-39.75Hz
   b-318.3Hz
   c-79.5Hz
   d-159.15Hz

9. Current changing from 8 A to 12 A in one second induced 20 volts in a coil. The value of inductance is
   a- 5 mH
   b- 10 mH
   c-5 H
   d-10 H

10. In the diffraction of light of wavelength λ through single slit of width d, the angle between central fringe and first dark fringe will be:
    a- λ/d
    b- λ/2d
    c- λ/4d
    d- π/2

11. Photocell is a device to:
    a- Store photons
    b- Measure light intensity
    c- Convert photon energy into electrical energy
    d- Store electrical energy for replacing storage batteries

12. The minimum energy required to remove an electron is called:
    a-stopping potential
    b-kinetic energy
    c-work function
    d-none of these

13. If the work function for a certain metal is 3.2×10^{-19} joule and it is illuminated with light of frequency 8 x 1014 Hz. The maximum kinetic energy of the photo-electrons would be (h= 6.63×10^{-34} J.s).
    a- $2,1 \times 10^{-19}$ J
    b- $8,5 \times 10^{-19}$ J
    c- $5,3 \times 10^{-19}$ J
    d- $3,2 \times 10^{-19}$ J

14. Intensity is measured as
    a- Second per square meter
    b- Joule per second
    c- Number of photons per unit area
    d- Coulomb per second

15. The electrical charge stored on the plates of the capacitor is given as:
    a- Q = CV
    b- Q = C/V
    c- Q = V/C
    d- None is correct

16. What is the net force acting on a door if one person pushes to the right with a force of 2000 N and a second person pushes with a force of 1500 N to the right?
    a. 3500 N to the right
    b. 500 N to the left
    c. 3500 N to the left
    d. 750 N to the right

17. What is the relation between electric charge, current and time?
    a. Q=I*t
    b. Q=I/t
    c. t=Q*I
    d. I=Q*t

18. If a force acting on a body causes no displacement, the work done is
    a. -1
    b. 1
    c. 0
    d. Infinity

19. The ratio of the sine of the angle of incidence to the sine of the angle of refraction is constant. It is given by
    a. Faraday's law
    b. Snell's law
    c. Newton's law
    d. Murphy's law

20. Mechanical energy is the summation of kinetic energy and thermal energy…….
    a- True
    b- False