PHYSICS HSSC–I (2019)

SECTION – A (Marks 17)

Time allowed: 25 Minutes

Version Number 3 0 8 4

Note: Section – A is compulsory. All parts of this section are to be answered on the separately provided OMR Answer Sheet which should be completed in the first 25 minutes and handed over to the Centre Superintendent. Deleting/overwriting is not allowed. Do not use lead pencil.

Q. 1 Choose the correct answer A / B / C / D by filling the relevant bubble for each question on the OMR Answer Sheet according to the instructions given there. Each part carries one mark.

1) Signals from remote control to the device operated by it travel with the speed of:
A. Light B. Ultrasonic C. Supersonic D. Sound

2) The effect produced by the superposition of waves from two coherent sources passing through the same region is called:
A. Diffraction B. Interference C. Polarization D. Refraction

3) In which of the following processes maximum work can be obtained?
A. Isochoric B. Isothermal C. Adiabatic D. Isobaric

4) Which of the following may be used as valid formula to calculate speed of ocean waves? (v=speed, g=acceleration due to gravity, λ =wavelength, ρ=density, h=depth)
A. gh/λ B. $\sqrt{\lambda g}$ C. $\frac{\lambda}{gh}$ D. ρgh

5) In a cricket match 500 spectators are counted one by one. How many significant figures will be there in the final result?
A. 1 B. 2 C. 3 D. 0

6) A person walks first 10 km north and 20 km east. The magnitude of the resultant vector is:
A. 22.36 km B. 22.46 km C. 25.23 km D. 20.36 km

7) For which angle the equation, $|\vec{A}.\vec{B}| = |\vec{A} \times \vec{B}|$ is correct:
A. 45° B. 60° C. 90° D. 0°

8) When a block of wood of mass 2 kg is pushed along a horizontal flat surface of a bench, the force of friction is 4N. When the block is pushed along the bench with a force of 10N, it moves with a constant:
A. Speed of $5ms^{-1}$ B. Acceleration of $3ms^{-2}$
C. Acceleration of $5ms^{-2}$ D. Speed of $3ms^{-1}$

9) A projectile is thrown so that it travels a maximum range of 100m. How high will it rise?
A. 400 m B. 500 m C. 1000 m D. 250 m

10) One horse power is equal to:
A. 746 Joules B. 746 KW C. 746 N D. 746 Watt

11) What is moment of inertia of a sphere?
A. $\frac{1}{2}M^2R$ B. $\frac{2}{5}MR^2$ C. $\frac{1}{2}MR^2$ D. MR^2

12) If the earth suddenly stops rotating, the value of 'g' at equator would:
A. Remain unchanged B. Increase
C. Become Zero D. Decrease

13) A rain drop of radius 'r' falls in air with a terminal speed v_t. What should be the terminal speed of rain drop of radius '2r'?
A. v_t B. $2v_t$ C. $4v_t$ D. $\frac{v_t}{2}$

14) Bernoulli's equation is based upon law of conservation of:
A. Energy B. Momentum C. Current D. Mass

15) The time period of the same pendulum at Karachi and at Murree are related as: (T_M = Time period at Murree T_K = Time period at Karachi)
A. $T_K \rangle T_M$ B. $T_K \langle T_M$ C. $2T_K = 3T_M$ D. $T_K = T_M$

16) In an isolated system the total energy of vibrating mass and spring is:
A. Variable B. Low C. High D. Constant

17) Which of the following factors has no effect on the speed of sound in a gas?
A. Pressure B. Temperature C. Density D. Humidity