

BOARD OF INTERMEDIATE AND SECONDARY EDUCATION, PESHAWAR

Higher Secondary School Certificate (H.S.S.C.) Examination

PHYSICS · Inter Part-I (Class XI)

Ref: PR XI (01) 17 · Fresh/Reappear

Annual Examination 2017

Total time: 3 hours

SECTION - A (Objective)

Time: 20 minutes · Marks: 16

Each question has four options. Choose the correct option. (The printed instructions for this section are in Urdu; given here in English.)

1	In an isothermal change, internal energy	(A) Increases	(B) Decreases	(C) Remains constant	(D) Become zero
2	If the period of oscillation of mass (M) suspended from a spring is 2 seconds, then the period of mass 4 M will be	(A) 4 seconds	(B) 3 seconds	(C) 2 seconds	(D) 1 second
3	One horse power is given by	(A) 746 KW	(B) 746 MW	(C) 746 watts	(D) 746 J
4	What is the ratio $\frac{1 \mu\text{m}}{1 \text{ Gm}}$?	(A) 10 ⁻¹⁵	(B) 10 ⁻¹²	(C) 10 ⁻⁹	(D) 10 ⁻³
5	The critical velocity of an artificial satellite is	(A) 7.9 m/s	(B) 7.9 km/s	(C) 80 m/s	(D) None of these
6	Soap bubbles in sun light appears coloured due to	(A) Interference	(B) Diffraction	(C) Polarization	(D) Reflection
7	Which physical quantity produce angular acceleration?	(A) Force	(B) Power	(C) Torque	(D) None of these
8	A projectile travels the same range for the pair of angles	(A) (10°, 85°)	(B) (85°, 35°)	(C) (40°, 50°)	(D) None of these
9	Components of vector which makes an angle of with each other are called rectangular components.	(A) 45°	(B) 60°	(C) 90°	(D) 180°
10	For adiabatic process, which is true?	(A) $\Delta T = 0$	(B) $\Delta Q = 0$	(C) $\Delta V = 0$	(D) None of these
11	Work done will be negative when angle is	(A) 90°	(B) 45°	(C) 120°	(D) 0°
12	The time period of simple pendulum does not depend upon	(A) Gravity	(B) Length	(C) Mass	(D) Frequency
13	When sound waves travel from air to water. Which of these remains constant?	(A) Wavelength	(B) Amplitude	(C) Velocity	(D) Frequency
14	A projectile is thrown so that it travels a maximum range of 1000 m. How high will it rise?	(A) 400 m	(B) 800 m	(C) 500 m	(D) 250 m
15	For which angle the equation $ \vec{A} \cdot \vec{B} = \vec{A} \times \vec{B} $ is correct?	(A) 90°	(B) 60°	(C) 45°	(D) 30°
16	Which one is the least sub multiple?	(A) Pico	(B) Nano	(C) Femto	(D) Atto
17	With the increase of temperature viscosity of fluid	(A) Decreases	(B) Increases	(C) Remains same	(D) Doubles
18	At nodes velocity of vibrating particles is	(A) Maximum	(B) Minimum	(C) Zero	(D) Negative

Note: Time allowed for Section-B and Section-C is 2 Hours and 40 minutes.

Section - B

Marks: 40

Q-II Attempt any TEN parts. Each part carries FOUR marks.

- Find the dimensions of Kinetic Energy.
- State the two conditions for equilibrium.
- Aeroplane while horizontally drops a bomb when reaches exactly above the target., But missed it. Explain.
- A man drops a cup from a certain height, which breaks into pieces, what energy changes are involved.
- A body will be weightless when the elevator falls down Just like a free falling body. Explain.
- How do the pulsations in pulse show the heart beat?

7. Give two applications in which resonance plays an important role.
8. Is it possible for an object which is vibrating transversely to produce sound wave?
9. A soap bubble looks black when it bursts. Why?
10. Write down four conditions to observe interference of light?
11. Entropy has often called as “Time arrow”. Explain briefly.
12. Find the efficiency of a Carnot’s heat engine working between the steam and ice points.
13. Why a car has oblong shape design?

Section - C

Marks: 27

Note: Attempt any THREE questions. All questions carry equal marks.

- | | |
|---|---|
| Q-III (a) Define centripetal acceleration. Also derive expression for centripetal acceleration. | 5 |
| (b) What is the moment of inertia of a 100 kg sphere whose radius is 50 cm? | 4 |
| Q-IV (a) Prove that the projection of a body motion in a circle describes S.H.M. | 5 |
| (b) What should be the length of simple pendulum whose time period is one second? | 4 |
| Q-V (a) Explain stationary waves. | 5 |
| (b) Find the speed of sound in Helium gas at 27 °C. ($\gamma = 1.66$ and $R = 8334 \text{ J/k mol}$). | 4 |
| Q-VI (a) Define linear momentum. Show that the rate of change of momentum is equal to the applied force. | 5 |
| (b) A 1500 kg car has its velocity reduced from 20 m/s to 15 m/s in 30 s. How large is the retarding force. | 4 |

Notes on this transcription

1. The source answer sheet arrived with bubbles already shaded in; options are transcribed unmarked. No answer key is included.
2. Section A heads itself “Marks : 16” but prints 18 questions; reproduced as printed. The questions are unnumbered on the source sheet and are numbered 1–18 here in printed order.
3. Section C Q-V(b) prints $R = 8334 \text{ J/K mol}$; the accepted value of the gas constant is $8314 \text{ J mol}^{-1} \text{ K}^{-1}$. Kept as printed.
4. Board spellings kept verbatim: “Carnot’s” (Carnot’s), “Become zero”, “appears coloured”. The 3-hour total time is not printed on this sheet; it is the standard total for the paper (20 min + 2 h 40 min).