aper Code
umber: 2471

2019 (A)

Roll No._____

INTERMEDIATE PART-I (11th CLASS)

MTN-11-G1-19

HYSICS PAPER-I GROUP-I (NEW SCHEME)

MAXIMUM MARKS: 17

IME ALLOWED: 20 Minutes

OBJECTIVE

lote: You have four choices for each objective type question as A, B, C and D. The choice which you hink is correct, fill that bubble in front of that question number. Use marker or pen to fill the bubbles. Cutting or filling two or more bubbles will result in zero mark in that question. Attempt as many questions as given in objective type question paper and leave others blank. No credit will be awarded in ase BUBBLES are not filled. Do not solve questions on this sheet of OBJECTIVE PAPER.

Q.No.1

(1) Which is the base quantity?

(A) Area (B) Volume (C) Length (D) Density

(2) If least count is $10kg$, then $8.00 \times 10^3\ kg$ has significant figures:

(A) 1 (B) 2 (C) 3 (D) 4

(3) If the initial velocity of a projectile becomes doubled. The time of flight will become:-

(A) Double (B) Same (C) 3 times (D) 4 times

(4) Unit vector of a given vector $\vec{A} = 4\hat{i} + 3\hat{j}$ is:

(A) $\frac{4\hat{i} + 3\hat{j}}{25}$ (B) 1 (C) $\frac{4\hat{i} + 3\hat{j}}{5}$ (D) $\sqrt{\frac{4\hat{i} + 3\hat{j}}{5}}$

(5) Time of flight of a projectile is:

(A) $\frac{Vi \sin\theta}{g}$ (B) $\frac{Vi \sin\theta}{2g}$ (C) $\frac{Vi^2 \sin\theta}{g}$ (D) $\frac{2Vi \sin\theta}{g}$

(6) Tidal energy is due to the gravitational pull of:

(A) Sun (B) Moon (C) Earth (D) Mars

(7) Moment of inertia for a particle is given by:

(A) m^2r^2 (B) mr^2 (C) m^2r (D) mr^{-2}

(8) S.I unit of angular momentum is:

(A) $Kg\,m^2s^{-1}$ (B) $Kg\,m^{-2}s^{-1}$ (C) $Kg\,m^{-1}s$ (D) $Kg\,m^2s^{-2}$

(9) Fluid dynamics is the study of the behaviour of:

(A) Fluid at rest (B) Liquids at rest (C) Liquids in motion (D) Liquids and gasses in motion

(10) Blood has density equal to that of:

(A) Oil (B) Honey (C) Thick Tar (D) Water

(11) Acceleration in S.H.M is proportional to the:

(A) Velocity (B) Displacement (C) Time period (D) Frequency

(12) If speed of sound in air at a given pressure is "V" and now if pressure is doubled then new speed will be:

(A) $2V$ (B) $V/2$ (C) V (D) $4V$

(13) Stars moving away from Earth show:

(A) Red shift (B) Blue shift (C) Green shift (D) Yellow shift

(14) In case of point source, shape of the wavefront is:

(A) Plane (B) Spherical (C) Circular (D) Ellipitical

(15) Magnifying power of telescope is:

(A) $f_o + f_e$ (B) $f_o - f_e$ (C) $\frac{f_o}{f_e}$ (D) $\frac{f_e}{f_o}$

(16) In case of adiabatic process, the 1st law of thermodynamic is written as:

(A) $W = \Delta U$ (B) $W = Q$ (C) $W = Q - \Delta U$ (D) $W = -\Delta U$

(17) If temperature of sink is decreased, the efficiency of Carnot engine.

(A) Decreases (B) Increases (C) Remain same (D) First increases then decreases

2019 (A) Roll No: MTN-11-G1-1

INTERMEDIATE PART-I (11th CLASS)

PHYSICS PAPER-I GROUP-I (NEW SCHEME)

TIME ALLOWED: 2.40 Hours **SUBJECTIVE** MAXIMUM MARKS: 68

NOTE: Write same question number and its part number on answer book, as given in the question paper.

SECTION-I

$8 \times 2 = 16$

2. **Attempt any eight parts.**

(i) What is the cause of random error and how can it be reduce?
(ii) If a precise measurement is also an accurate measurement. Explain your answer.
(iii) Is it possible to add 5 in $2\hat{i}$? Explain.
(iv) Can the magnitude of a vector ever be negative? Explain.
(v) If a vector lies in $x-y$ plane. Is it possible, one of its rectangular components is zero? Explain.
(vi) Define conservative force. Give at least its two examples.
(vii) Explain Geyser and Aquifer.
(viii) Why a fog droplet appear to be suspended in air?
(ix) Derive the relation between speed and pressure of the fluid.
(x) What is damping and give its one application.
(xi) How does resonance play role in heating and cooking food?
(xii) If mass of a simple pendulum is doubled, what is the effect on its period? Explain.

$8 \times 2 = 16$

3. **Attempt any eight parts.**

(i) What are two differences between uniform and variable velocity?
(ii) Can the velocity of an object reverse the direction when acceleration is constant? If so, give an example.
(iii) Explain the two differences between Elastic and in-elastic collision.
(iv) How would you find the distravelled by velocity-time graph?
(v) Show that: $S = r\theta$ (where θ is in radian)
(vi) Show that velocity of hoop rolling down on an inclined plane is; $v = \sqrt{gh}$
(vii) What is meant by moment of inertia? Explain.
(viii) Why does a diver change his body positions before and after diving in the pool?
(ix) Write down two differences between Transverse and Longitudinal waves.
(x) Explain the terms Crest and Trough
(xi) Why does sound travel faster in solids than in gases?
(xii) How are beats useful in tuning musical instruments? Explain.

$6 \times 2 = 12$

4. **Attempt any six parts.**

(i) How is the distance between interference fringes affected by the separation between the slits of Young's experiment? Can fringes disappear?
(ii) An oil film spreading over a wet footpath shows colours. Explain how does it happen?
(iii) Write two differences between interference and diffraction phenomena of light waves.
(iv) Describe two causes of power losses in optical fibre during transmission of light signals.
(v) Why would it be advantageous to use blue light with a compound microscope?
(vi) Specific heat of a gas at constant pressure is greater than specific heat at constant volume. Why?
(vii) Does entropy of a system increase or decrease due to friction? Explain.
(viii) Give an example of a natural process that involves an increase in entropy.
(ix) Define triple point of water and write its equation.

SECTION-II

$3 \times 8 = 24$

NOTE: - Attempt any three questions.

5.(a) What is the difference between Petrol Engine and Diesel engine? Explain the four stroke of Petrol Engine. 5
(b) Derive a relation for the time period of a simple pendulum by using Dimensional analysis. 3
6.(a) What is Torque? Derive an expression for torque due to force acting on a rigid body. 5
(b) A bomber dropped a bomb at a height of 490m when its velocity along the horizontal was 300 Kmh^{-1}. How long was it in air? 3
7.(a) Explain work done in gravitational field. Also define conservative field. 5
(b) A stationary wave is established in a string which is 120cm long and fixed at both ends. The string vibrates in four segments, at a frequency of 120 Hz. Determine its wavelength and the fundamental frequency. 3
8.(a) Define simple harmonic motion. Prove that the projection of a particle moving along a circular path performs simple harmonic motion. 5
(b) What is the least speed at which an aeroplane can execute a vertical loop of 1km radius so that there will be no tendency for the pilot to fall down at the highest point? 3
9.(a) Discuss the Young's double slit experiment and determine the position where the dark and bright fringes will be observed. 5
(b) A glass light pipe in air will totally internally reflect a light ray if its angle of incidence is at least 39°. What is the minimum angle for total internal reflection if pipe is in water? (Refractive index of water = 1.33) 3