BALOCHISTAN BOARD OF INTERMEDIATE & SECONDARY EDUCATION, QUETTA

INTERMEDIATE (ANNUAL) EXAMINATION, 2019

TIME: 3 HOURS **SUBJECT:- PHYSICS-A** MARKS:- 85

PASS MARKS:- 28

Grp 2 I

PHYSICS. 2019

SECTION – A

NOTE:Attempt all parts.

Q.1(a).Choose the correct answer. 16

(i) Significant figures in 0.2020 are ... [1 , 2 , 3 , 4]

(ii) The dot product of ... $(\hat{\imath}.\hat{\imath})$ is ... [0 , 1 , $\hat{\jmath}$, $\hat{k}$]

(iii) The triple poin of water in Kelvin is ... [0 , 100 , 273.16 , 373.16]

(iv) $\frac{\pi}{3}$ radian = ... degree. [45 , 60 , 75 20 , 90]

(v) The power of lens of focal length 10cm is ... [5D , 10D , 15D , 20D]

(vi) If $m = 50gm$ and $v = 200\ m/s$ then K.E will be ... [100J , 200j , 1000J , 2000J]

(vii) Velocity of efflux of water at height of 50m is ...m/s. [31.3 , 41.3 , 51.3 , 61.3]

(viii) At 0° the velocity of sound is ...m/s. [200 , 300 , 332 , 432]

(ix) 3730 watts = ... Horse Power. [2 , 4 , 5 , 10]

(b). Fill in the blanks.

(i) The dimension of force is -----.

(ii) The period of circular motion is T = -----.

(iii) The distance between two consecutive node is -----.

(iv) The product of mass and velocity is -----.

(v) The pressure of a gas is directly proportional to -----.

(vi) The diameter of lens is called -----.

(vii) The wave speed of transverse wave is -----.

SECTION – B

Q.2. Attempt any fourteen questions. Answers should not exceed three to four lines. $14 \times 3 = 42$

(i) Name and define the two suplementry units.

(ii) Can two vectors of two different magnitude have zero resultant?

(iii) State head to tail rule of vector addition.

(iv) Show that range is maximum when projectile is thrown 45°.

(v) Is absolute rest and absolute motion possible? Explain.

(vi) Define scape velocity with mathematical form.

(vii) Define Horse power, also write the relation with watt.

(viii) What is moment of inertia?

(ix) Give two examples for free oscillation.

(x) Why does sound travel slower in gases than in solids?

(xi) What are the conditions of constructive interference?

(xii) Why objective of shorter focal length is perferred in microscope?

(xiii) How petrol engine is differ from diesel engine?

(xiv) Show that $F = 6\pi\eta rv$ is dimensionly correct.

(xv) Define scalar and vector with two examples each.

(xvi) Can a body move along a circular without centripetal force? Explain.

(xvii) Why the image formed by a cheap microscope has coloured edges?

(xviii) Why a gas should become heated when compressed?

SECTION – C

Attempt any three question. $3 \times 6 = 18$

Q.3. Prove that work done is independent of the path followed. Define gravitational field.

Q.4. State and explain the second law of motion. How does it lead to the defination of SI unit of force.

Q.5. Summarise the steps involved to find the resultant of vectors by rectangular component method.

Q.6. State and prove Bernoull's theorem.

Q.7. Discuss the effect of temperature and pressure on the velocity of sound in air.

SECTION – D

NOTE: Attempt any three problems. $3 \times 3 = 9$

Q.8. Two vectors have the same magnitude, what is the range of magnitudes of their possible sum?

Q.9. An electron strikes a target with a velocity of $1.0 \times 10^{10} m/s$. Calculate its kinetic energy.

Q.10. Find the initial velocity of a missile to hit a target 1000 km away. The angle of projection is 45°.

Q.11. Find the escape velocity of a planet, whose mass and diameter are $7.35 \times 10^{22} kg$ and 3476 km.

Q.12. What is the velocity of a 220 kg rocket fired straight up 10 sec after lift off, if the thrust of engine is 2800 N?