Pakistan School, Kingdom of Bahrain

 Pre-Board Exams June 2021

 **PHYSICS HSSC-1**

Subject: Physics (Objective) HSSC Part I Time: 20 min

Name: Roll # Total Marks: 85

 **SECTION-A (Marks 17)**

**Q.NO. 1:** Each statement has four possible answers. Choose the correct one and encircle it. (17)

(1) The precision of the measurement 385,000 km is

 (a) 10 km (b) 100 km (c) 1000 km (d) 1000000 km

 (ii) The moment of force is called

 (a) Impulse (b) angular momentum (c) torque (d) couple

(iii) Cross product is also known as \_\_\_\_\_\_\_\_\_ product.

 (a) scalar (b) vector (c) both a and b (d) none of these

(iv) Impulse has dimensions

 (a) ML2T-2 (B) MLT-1 (C) ML-2T-2 (d) MLT- -2

 (v) What does not change when force is applied on a body?

 (a) Mass (b) Velocity (c) Position (d) Acceleration

(vi) The atmosphere is held to the earth by:

 (a) Winds (b) Gravity (c) Clouds (d) None of these

(vii) An example of conservative force is

 (a) Electric force (b) Gravitational force (c) Frictional force (d) None of these

 (viii) Which of the following is non conservative force?

 (a) Gravitational (b) magnetic (c) electric (d) frictional

 (ix) When the projectile is at maximum height, its vertical component of velocity becomes

(a) Infinite (b) Maximum (c) Small (d) Zero

 (x) Which one is constant for a satellite in orbit?

(a) Velocity (b) K.E (c) angular momentum (d) P.E

(xi) Distance covered by the freely falling body in 2 sec will be \_\_\_\_\_\_\_\_\_\_

1. 19.8 m b. 19.6m c. 4.9 m d. 39.2m

(xi) How many radians are there in two revolutions?

1. 2π b) 4π c) π/2 d) 8π

(xii) If cross product of two vectors is maximum the vectors will be

 (a) Parallel (b) perpendicular (c) 45o (d) none

(xiii) In an isolated system the total energy of vibrating mass and spring is \_\_\_\_\_\_\_\_\_

 (a) High (b) low (c) constant (d) variable

 (xiv) If a body of mass 2 kg is raised vertically through 2 m, then the work done will be

 (a) 38.2 J (b) 39.6 J (c) 39.2 J (d) 40 J

(xv) If earth suddenly stops rotating the value of g at equator would:

 (a) Decrease (b) increase (c) remain same (d) becomes zero

 (xvi) Bernoulli’s equation is based upon law of conservation of:

 (a) Mass (b) energy (c) momentum (d) None

(xvii) Tuning of a radio set is an example of

 (a) Electrical resonance (b) Mechanical resonance (c) Musical resonance (d) Free vibrations

 Section-B (Marks 21)

 ***(Chapter 1 to 5)***

 **Attempt any SEVEN parts. All parts carry equal marks.**

 **Q.NO.2:** Give short answers of the following questions.  **(7x 3 = 21)**

 (i) Deduce the dimensions of the gravitational constant.

 (ii) Differentiate between types of collisions.

(iii) Explain how cranes are able to lift very heavy weights without toppling?

(iv) What is the minimum numbers of unequal vectors to result into a null vector? Explain with diagram.

(v) Differentiate between precision and accuracy in any measurement?

(vi) How many radians account for circumference of the circle?

(vii) What is the angle for which the maximum height reached and corresponding range are equal?

(viii) Define the term centripetal force and centripetal acceleration?

(ix) What type of energy is stored in the spring?

(x) Define and explain escape velocity.

 Section-C (Marks 21)

***(Chapter 6 to 10)***

**Attempt any SEVEN parts. All parts carry equal marks.**

**Q.NO.3:** Give short answers of the following questions.  **(7x 3 = 21)**

(i) Describe viscous fluids.

(ii) A body will be weightless when the elevator falls down just like a free falling body?

(iii) Why does the pipe of paper squeezes when air is blown through it?

(iv) Define diffraction grating.

(v) Define stoke’s law.

(vi) What are damped oscillations?

(vii) Describe the phenomenon of resonance.

(viii) Describe molar specific heat of a gas..

(ix) Give two examples in which resonance plays an important role?

 (x) A singer holding a note of right frequency can shatter a glass. Explain.

 Section-D (Marks 26)

**Attempt any Two questions.**  **(13x2=26)**

**Q.NO.3:** (a) what is projectile motion? Derive mathematical equations for height, time and range of the projectile? (7)

 (b) A projectile is thrown with a speed of 200m/s at 600 with horizontal Find the time of flight of projectile. (6)

Q.NO.4: (a) Derive a relation for equation of continuirty. (7)

 (b) Water flows through a hose, whose internal diameter is 3cm at a speed of of 2m/s what should be the diameter of the nozzle if the water is to emerge at speed of 5m/s? (6)

Q.N0. 5 (a) Prove that the projection of a body motion in a circle describes S.H.M. (7)

 (b) What should be the length of simple pendulum whose time period is one second? What is its frequency? (6)