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Name: _____ R. No.___ Class/ Sec:_____ Date:_____ Invig. Sign_____

ATOMIC ENERGY CENTRAL SCHOOL, NARORA

CLASS XI PHYSICS UNIT TEST FIRST 2018-19

MM: 50

TIME: 1:30 Hr.

General Instructions:

- All questions are compulsory and marks are mentioned in front of each question.
- Electronic devices are prohibited to use in the examination.
- Use Blue or Black Pen only.
- Don't write answer or objectionable things on question paper.

Q1 (a) Write S.I. unit and dimensional formula of Impulse [2]

(b) Define fundamental and derived physical quantities and write only name of all fundamental physical quantities according to S.I. system [3]

Q2 (a) We measure the period of oscillation of a simple pendulum. In successive measurements, the readings turn out to be 2.63 s, 2.56 s, 2.42 s, 2.71s and 2.80 s. Calculate the absolute errors, relative error or percentage error. [2]

(b) Experiments shows the frequency (v) of a turning fork depend upon length (l) of the prong, density (ρ) and young's modulus (Y) of its material. On the basis of dimension analysis, derive expression for frequency of tuning fork? [3]

Q3 (a) Define following: (i) A light year (ii) Astronomical unit [2]

(b) Express the number of significant figure in (i) 200.05 (ii) 0.00500 (iii) 20050 [3]

Q4 (a) Centripetal force acting on a particle in circular path depends on its mass, velocity, and radius of circular path derives the formula of centripetal force by dimensional analysis method. [2]

(b) Write dimension of work. Convert 20 joule work from MKS to CGS system by dimensional analysis method. [3]

Q5 (a) If power $(P)=(b-x^2)/at$ than find the dimension of a and b where x is distance and t is Time. [2]

(b) Check the correctness of formula $v^2= u^2 + 2as$ where symbols have their usual meaning. [3]

Q6 (a) What do you mean by uniform motion? Draw velocity time graph for this motion [2]

(b) The position of any object is given by $x = a + bt^2$ where a=8.5m and b=2.5 m. calculate its velocity at t=2sec . [3]

Q7 (a) Write four differences between distance and displacement [2]

(b) A ball is thrown vertically upwards with a velocity of 20 m/s from the top of tower. The height of the point from where the ball is thrown is 25 meter from the ground. How high the ball will rise and how long will it take to hit the ground. [3]

Q 8 (a) What do you mean by uniform accelerated motion? Explain velocity-time graph and acceleration –time graph for this motion. [2]

(b) Derive the second equation and third equation of motion by graphical method.[3]

Q9 (a) Define absolute error and relative error. [2]

(b) Draw position –time graph for motion with (a) positive acceleration; (b) negative acceleration, and (c) zero acceleration. [3]

Q10 (a) Convert 5 newton into dyne dimensionally [2]

(b) A man walks on a straight road from his house to a market 2.5km away with a speed of 5km/h. finding the market closed he instantly turns and walks back home with speed of 7.5km/h. what is (a) average velocity (b) average speed of man over the interval of time (a) 0 to 30 min. (b) 0 to 50 min. [5]
