Padasalai TrbTnpsc

MONTHLY TEST - 2019

PART - I

Total Marks :- 50 M

TIME : 1 hr 30 min

STD :- XI

SUB :- PHYSICS

10 X 1 = 10 M

Choose the correct Answer :-

1) If "$\pi = 3.14$", then the value of "π^2" is
   a) 9.8596 b) 9.860
   c) 9.86 d) 9.9

2) The dimensional formula for "Torque (τ)" is
   a) $[ML^3T^{-2}]$ b) $[M^{-1}L^3T^{-2}]$
   c) $[M^{-1}L^{-3}T^{-2}]$ d) $[ML^2T^{-2}]$

3) An object is dropped in an unknown planet from height "50 m", it reaches the "ground in 2s". The acceleration due to gravity in this unknown planet is
   a) $g = 20\ ms^{-2}$ b) $g = 25\ ms^{-2}$
   c) $g = 15\ ms^{-2}$ d) $g = 30\ ms^{-2}$

4) Given the vector "$\vec{A} = 2\hat{i} + 3\hat{j}$", what is $3\vec{A}$?
   a) $6\hat{i} + 9\hat{j}$ b) $6\hat{i} - 9\hat{j}$
   c) $9\hat{i} + 12\hat{j}$ d) $3\hat{i} + 2\hat{j} + 6\hat{k}$

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Fill In The Blanks

5) The "Triple point" temperature of water is ------ ?

6) The "uncertainity" in a measurement is called ----- ?

7) An athlete Running on a "straight" track in ---- motion ?

8) "Average acceleration" is a ----- Quantity ?

Match the following

9)

a) "Gravitational" constant – $[L^2]$

b) "planck's" constant – $[T^{-1}]$

c) "Frequency" – $[ML^2T^{-2}]$

d) "Work" – $[ML^2T^{-1}]$

e) "Area" – $[M^{-1}L^3T^{-2}]$

10) Match the following

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a) one dimension - "norm"

b) Two dimension - swing

c) Three dimension - train

d) Vibratory motion - carrom board

e) Magnitude of a vector - Has molecule.

4X2=8

PART - II

Answer any four Questions
(Q. No (14) compulsory) :-

11) "Briefly explain the types of physical quantities"

12) state the number of "significant figures" in the following

a) 0.007 m^2

b) 2.64×10^{24} kg

c) 0.000b032 m^2

d) 6.3200 J

e) 0.0000153 km.

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13) what do you mean by "percentage error"?

14) convert the vector $\vec{r} = 3\hat{i} + 2\hat{j}$ into a unit vector

15) Write down the kinematic equations for angular motion

16) Define a "vector". Give examples

17) check whether the following vectors are orthogonal

i) $\vec{A} = 2\hat{i} + 3\hat{j}$ and $\vec{B} = 4\hat{i} - 5\hat{j}$

ii) $\vec{C} = 5\hat{i} + 2\hat{j}$ and $\vec{D} = 2\hat{i} - 5\hat{j}$

PART - III 4X3=12m

Answer any four Questions (Q.No (24) compulsory):-

18) Two resistance $R_1 = (100 \pm 3)\Omega$, $R_2 = (150 \pm 2)\Omega$ are connected in "series". what is their equivalent resistance?

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19) A physical quantity x is given by $x = \frac{a^2 b^3}{c\sqrt{d}}$ If the percentage errors of measurement in a, b, c and d are 4%, 2%, 3% and 1% respectively. Then calculate the percentage error in the calculation of x

20) What are its uses of dimension analysis.

21) What is "Relative velocity"

22) An athlete covers 3 rounds on a circular track of radius 50m. Calculate the total distance and displacement travelled by him.

23) Discuss the properties of scalar

24) Calculate the area of the triangle for which two of its sides are given by the vectors $\vec{A} = 5\hat{i} - 3\hat{j}$, $\vec{B} = 4\hat{i} + 6\hat{j}$

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PART - IV 4×5 = 20 M.

Answer all the Questions

25) a) Explain the propagation of errors in "addition", "difference" and "multiplication"

(or)

b) If the value of "universal gravitational constant" in SI is $6.6 \times 10^{-11}\ Nm^2 kg^{-2}$, then find its value in CGS system?

26) a) obtain an expression for the time period T of a simple pendulum. The time period T depends on (i) mass "m" of the bob (ii) Length "l" of the pendulum and (iii) acceleration due to gravity (g) at the place where the pendulum is suspended. (constant $K = 2\pi$)

(or)

b) one of the combinations from the fundamental physical constant is $\frac{hc}{G}$. The unit of this expression.

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27) a) Derive the "kinematic" equations of motion for "constant acceleration"

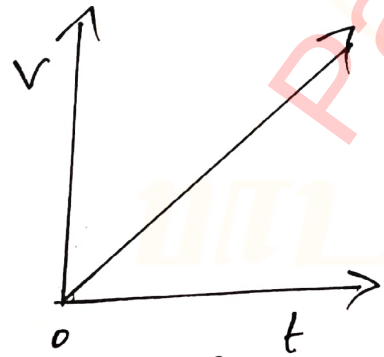
(or)

b) Explain in detail the "triangle law of addition"

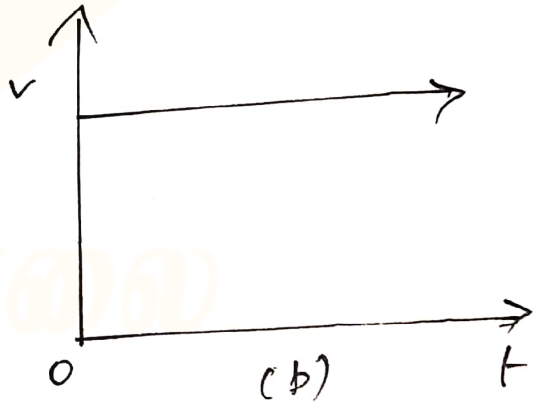
28) a) Derive the equation of motion "range" and "maximum height" reached by the particle thrown at an oblique angle (θ) with respect to the horizontal direction

(or)

b) The following "graphs" represent "velocity-time graph." Identify what kind of motion a particle under goes in each graph.



(a)



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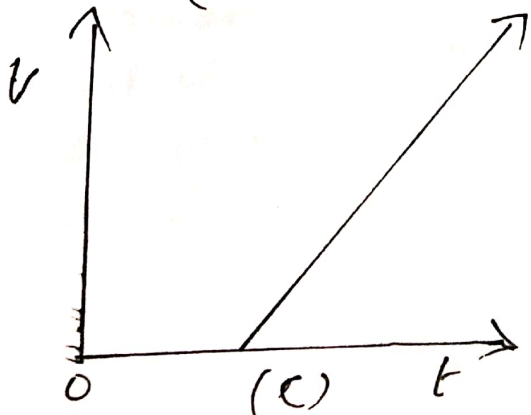
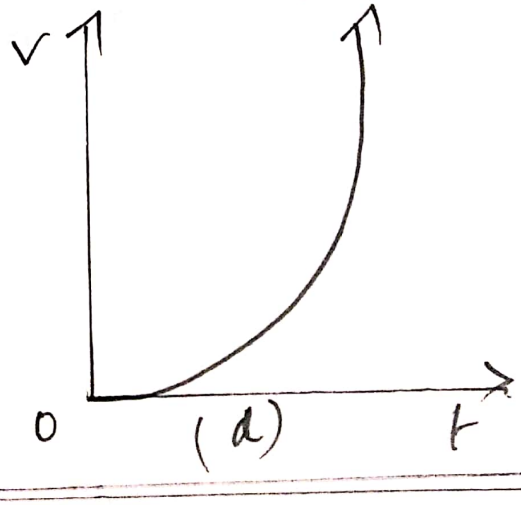


(c)



(d)

— All the best —

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