Tsi11P

Tenkasi District Common Examinations
Common First Revision Examination - January 2023

01-02-2023

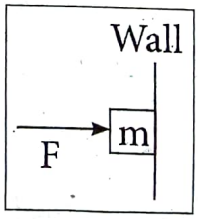
Time: 3.00 hrs

Standard 11
PHYSICS
Section - A

Marks: 70

Choose the correct answer and write it: **15×1=15**

1) An impulse passes from medium A to medium B. The velocity of interference in medium A is 500 ms^{-1} and the wavelength is 5m. Velocity in medium B is 600 ms^{-1}, while frequency and wavelength in B are respectively
   a) 120 Hz and5 m b) 100 Hz and 6 m
   c) 100 Hz and 5 m d) 120 Hz and 6 m
2) A particle in uniform motion passes points A and B with uniform velocity. If the time taken to travel from A to B is 3 s and it takes 3 s to travel from B to A again then its oscillation time
   a) 12 s b) 6 s c) 15 s d) 9 s
3) Which of the following quantities is the value of vorticity when an inert gas is in equilibrium?
   a) Rms speed b) Average speed
   c) Average velocity d) Most likely speed
4) Graph of density and temperature according to Charles law
   a) An ellipse b) A straight line c) A circle d) A parabola
5) Strain in a wire when it is stretched to twice its initial length
   a) 3 b) 2 c) 4 d) 1
6) If the masses of Earth and Sun suddenly double, the gravitational force between them
   a) Does not change b) Increases by 4 times
   c) Increases by 2 times d) Decreases by 2 times
7) Making double
   a) Rotation and displacement b) Displacement motion
   c) Rotational motion d) Kinetic charge
8) Balls of mass 1 kg and 2 kg are dropped from the top of a building 80 m high. The ratio of their kinetic energies after each falls 40 m towards the earth
   a) $\sqrt{2}:1$ b) $1:\sqrt{2}$ c) 1:2 d) 2:1
9) As shown in the following figure, a net force F is applied to a vertical wall of mass M to keep it from slipping. What is the minimum value of the net force F?
   a) More than Mg b) Equal to Mg
   c) Less than Mg d) Undetectable



10) Which of the following physical quantities cannot be represneted by a scalar?
    a) mass b) length c) momentum d) numerical value of acceleration
11) If the error in measuring the radius of a sphere is 2%, then the error in calculating its volume is
    a) 4% b) 6% c) 8% d) 2%
12) If force is [F], acceleration [A] and time [T] are chosen as fundamental physical quantities. Find the dimensions of energy
    a) [FAT] b) $[FAT^{-1}]$ c) $[FAT^{-2}]$ d) $[FA^{-1}T]$
13) Percentage error in measurement of g: $g = 4\pi^2 L/T^2$. L(10±0.1) cm, T = (100±1)s
    a) 7% b) 2% c) 5% d) 3%

14) Power radiated optimaly by a 100 kW transmitter in 1 hour NEET 2022
a) 36×10^4 b) 36×10^5 c) 36×10^7 d) 1×10^5

15) If the distance between earth and sun is doubled, then one year is how many days
a) 64.5 b) 182.5 c) 730 d) 1032

Section - B

Answer any 6 questions. Compulsorily answer question number 20. **6×2=12**

16) What are the limitations of dimensional analysis?
17) A radian - Definition.
18) Define reversibility of dual.
19) Acceleration - Definition.
20) A = 2i+3j then find 3A
21) Lunar eclipse and solar eclipse do not occur in months. Why?
22) State the rule of equal distribution.
23) Compute the distance between the opposite node and the node.
24) Find the significant digit of the following numbers: (i) 0.007 (ii) 400

Section - C

Answer any 6 questions. (Question No. 33 is compulsory) **6×3=18**

25) Write the equations of motion of angular motion.
26) Is it easier to pull an object that moves it or is it easier to push it? Draw and explain the key diagram of the isolated object.
27) State the differences between energy conversion force and energy conservation force. Give two examples for each.
28) What is the Earth's escape velocity?
29) Explain Lamy's theorem.
30) State the principle and application of venturimani.
31) State the Stefan - Boltzmann rule. Based on the principle of mechanics.
32) y = x+a. Draw a picture for the relation. It explain.
33) The following two forces act on an object of mass 2 kg. Find acceleration of object F1 = 5i+8j+7k and F2 = 3i−4j+3k.

Section - D

Answer all questions. **5×5=25**

34) a] Explain different types of errors.
(OR)
b] Give the equation for the orbital period of a satellite traversing the Earth.

35) a] What is the purpose of raised outer edge of winding roads? Explain.
(OR)
b] Explain Wien's law and explain why our eyes can see only visible light.

36) a] State and prove the para axis theorem.
(OR)
b] Derive the equations of motion for an object with constant acceleration.

37) a] State Bernoulli's theorem for an incompressible, inviscid fluid moving in a straight line and prove it.
(OR)
b] Derive an equation for the velocity of objects in a one-dimensional rebound collision and describe its various cases.

38) a] Explain the method of measuring the velocity of sound in air using resonant damping instrument.
(OR)
b] Explain in detail the four types of oscillations.

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