

FULLINFAWS PU COLLEGE, BANGALORE
SECOND QUARTERLY TEST
CLASS:I PUC SUBJECT:PHYSICS MAX MARKS:35
TIME:1Hr, 30Min

PART A

I.Pick the correct option among the four given options for all the following questions **7x1=7**

- 1)With increase in temperature, viscosity of the liquid
a)Increases b)decreases c)remains same d)equal
- 2)Pressure in a fluid at rest is same at all points which are at the same height this is known as,
a)Archemedes principle b)Bernoullis principle c)Stokes law d)Pascals law
- 3)for which of the following liquids, the liquid meniscus in the capillary tube is convex
a)Water b)oil c)Mercury d)both a and b
- 4)Which of the following variable is a thermodynamic state variable
a)Work b)Heat c)internal energy d)None of these
- 5)Which of the following is true about an isobaric process
a)V is constant b)P is constant c)T is constant d)no transfer of heat
- 6)A hot cup transfers its energy
a)from surroundings to cup b)from cup to surroundings c)both a and b
d)no heat transfer
- 7)The value of absolute Zero is
a)-273.15K b) 100K c)180K d)273K

II Fill in the blanks by choosing appropriate questions
(absolute , 4th, pressure, volume)

- 8)The amount of thermal radiation energy emitted from the surface of a body is found to be propotional to the ----- power of the absolute temperature
- 9)Force acting on a unit area is called -----
- 10)The avg kinetic energy of the molecules of a gas is directly propotional to

-----temperature

III Answer any two of the following questions

- 11) What is specific heat capacities of gases, explain
- 12) State and Explain First law of Thermodynamics
- 13) State and Explain Boyles law
- 14) Write Stokes formula for Viscous drag force, explain the terms.
- 15) Explain about Magnus effect

Part C –

2 x 3 = 6

IV. Answer any two of the following questions:

16. Write any three properties of heat radiation.
17. Derive $\sigma v = 1/T$ for ideal gas.
18. State and explain Bernoulli's principle.
19. Mention three postulates of kinetic theory of gases.

Part D –

2 x 5 = 10

V. Answer any two of the following questions.

20. Explain Carnot cycle with PV diagram.
21. State and explain Newton's Laws of cooling.
22. Write a note on Kelvin's scale of temperature.
23. What is isothermal process. Obtain the expression for work done in isothermal process.

VI Answer any one of the following questions 1 x 5 = 5

VI.

24. Temperature of the sink of a Carnot's heat engine of efficiency 0.4 is 27 °C. If the efficiency of the engine is to be increased to 0.5, find by how much temperature of source should be increased.
25. A metallic rod 1.5m long and 0.0002sqm in area is heated at one end. The coefficient of thermal conductivity of the material of the metallic rod is 210 joules/sec/K/m. In the steady state the temperature of the ends of the rod as 373K and 263K. Calculate a. temperature gradient in the rod. b) Rate of heat transmission. c) Temperature at a point 0.8m from the hot end.

