

**T.D.C. (Part-I) (Vocational)
Examination, 2020**

(Subsidiary)

PHYSICS

[Paper : First]

[Paper Code : X(I)-VOC. PHY(1)]

Time : Three Hours]

]Maximum Marks : 75

Note : Candidates are required to give their answers in their own words as far as practicable. The figures in the margin indicate full marks. The question are of equal value. Answer **any six** questions, selecting at least **two** questions form group-A, **one** question from group-B and **two** questions from Grpup-C.

GROUP-A

- 1/ Describe Michelson Morley experiment and explain the significance of negative result.

2. Deduce relativistic law of addition of velocities and prove that the velocity of light is the maximum range of the velocity attainable in nature.
3. Deduce an expression for depression of a cantilever having load at one end and clamped at other.
- 4/ State and establish Bernoulli's formula.
- 5/ State and establish Kepler's laws of planetary motion.
6. What are generalized co-ordinates ? Explain different constraints with some example.

GROUP-B

- 7/ What are progressive and stationary waves ? Describe the formation of stationary wave.
- 8/ Using Fourier's theorem analyse the square wave.

GROUP-C

- 9/ Deduce Vander Waal's equation of State and hence find critical constants.

10. Using clausius-clapeyron equation explain the effect of pressure on melting point of ice.
11. State and prove law of equipartition of energy.
12. Write short notes on the following :
 - (a) Transport phenomena
 - (b) Reversible and irreversible process.

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