0119
TS

C

Total No. of Questions – 21
Total No. of Printed Pages – 2

Regd. No.

Part – III
PHYSICS, Paper-I
(English Version)

Time : 3 Hours] [Max. Marks : 60

SECTION – A $10 \times 2 = 20$

Note : (i) Answer all questions.

(ii) Each question carries two marks.

(iii) All are very short answer type questions.

1. What is the discovery of C.V. Raman ?
2. How can systematic errors be minimised or eliminated ?
3. $\vec{A} = \hat{i} + \hat{j}$. What is the angle between the Vector and X-axis ?
4. What is inertia ? What gives the measure of inertia ?
5. What is the principle behind the carburettor of an automobile ?
6. Give the expression for the excess pressure in a liquid drop. Mention the terms in the expression.
7. The roof of the buildings are often painted white during summer Why ?
8. Why is it easier to perform the skating on the snow ?
9. Define Mean free path.
10. State Dalton's law of partial pressure.

SECTION – B

$6 \times 4 = 24$

Note : (i) Answer any six questions.

(ii) Each question carries four marks.

(iii) All are short answer type questions.

11. A parachutist flying in an aeroplane jumps when it is at a height of 3 km above the ground. He opens his parachute when he is about 1 km above ground. Describe his motion.

12. State Parallelogram Law of Vectors. Derive an expression for the magnitude and direction of the resultant vector.

13. Explain the advantages and disadvantages of friction.

14. Define angular velocity and derive $v = r\omega$.

15. Define vector product. Explain the properties of a vector product with two examples.

16. State Kepler's laws of planetary motion.

17. Describe the behaviour of a wire under gradually increasing load.

18. Pendulum clocks generally go fast in winter and slow in summer. Why ?

SECTION – C

$2 \times 8 = 16$

Note : (i) Answer any two questions.

(ii) Each question carries eight marks.

(iii) All are long answer type questions.

19. State and prove Law of Conservation of Energy in case of a freely falling body.

20. Show that the motion of a simple pendulum is simple harmonic and hence derive an equation for its time period. What is seconds pendulum ? Calculate the length of the seconds pendulum.

21. Explain reversible and irreversible process. Describe the working of Carnot Engine. Obtain an expression for its efficiency.
