

Junior Inter Physics Model Paper

PHYSICS, PAPER - I

(English Version)

Time: 3 Hours

Max. Marks: 60

SECTION - A

NOTE:

10 × 2 = 20 M

- 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. What are significant figures and what do they represent when reporting the result of a measurement?
 3. A car travels the first third of a distance with a speed of 10 kmph, the second third at 20 kmph and the last third at 60 kmph. What is its mean speed over the entire distance?
 4. According to Newton's third law, every force is accompanied by an equal and opposite force. How can a movement ever take place?
 5. State the conditions under which a force does no work.
 6. Why is it easier to balance a bicycle in motion?
 7. "Hydrogen is in abundance around the sun but not around earth". Explain.
 8. What is the principle behind the carburetor of an automobile?
 9. What is greenhouse effect? Explain global warming.
 10. Which of the two will increase the pressure more, an Adiabatic or an Isothermal process, in reducing the volume to 50%?

SECTION - B

NOTE:

6 × 4 = 24 M

- i) Answer any six of the following questions.
 - ii) Each question carries **Four** marks.
 - iii) All are short answer type questions.
11. State parallelogram law of vectors. Derive an expression for the magnitude and direction of the resultant vector.
 12. Explain the terms limiting friction, dynamic friction and rolling friction.
 13. When 100 J of work is done on a fly wheel, its angular velocity is increased from 60 rpm to 180 rpm. What is the moment of inertia of the wheel?
 14. What is escape velocity? Obtain an expression for it.
 15. Describe the behaviour of a wire under gradually increasing load.
 16. Explain hydraulic lift and hydraulic brakes.
 17. Explain conduction, convection and radiation with examples.
 18. How specific heat capacity of mono atomic, diatomic and poly atomic gases can be explained on the basis of Law of equipartition of Energy?

SECTION - C

2 × 8 = 16 M

NOTE:

- i) Answer any two of the following 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. A pump is required to lift 60 kg of water per minute from a well 25m deep and to eject it with a speed of 50 m/s. Calculate the power required to perform the above task.
 20. Show that the motion of a simple pendulum is simple harmonic and hence derive an equation for its time period. What is the length of the seconds pendulum?
 21. Explain reversible and irreversible processes. Describe the working of Carnot engine. Obtain an expression for the efficiency.