B

ನಮೂನೆ – 2
(ಪ್ರಯೋಗ ಸಹಿತ ವಿಷಯಗಳು)

(ಭೌತಶಾಸ್ತ್ರ, ರಸಾಯನ ಶಾಸ್ತ್ರ, ಜೀವಶಾಸ್ತ್ರ, ಗಣಕ ವಿಜ್ಞಾನ, ವಿದ್ಯುನ್ಮಾನ ಶಾಸ್ತ್ರ, ಗೃಹ ವಿಜ್ಞಾನ) 70+30

ವಿಷಯ: ಭೌತಶಾಸ್ತ್ರ **ಸಂಕೇತ: 33** **ತರಗತಿ: ಪ್ರಥಮ ಪಿಯುಸಿ**

ಕ್ರ. ಸಂ.	ಅವಧಿ	ನಿಗದಿಪಡಿಸಿದ ಅಧ್ಯಾಯಗಳು	ನಿಗದಿಪಡಿಸಿದ ಪ್ರಾಯೋಗಿಕ ತರಗತಿಗಳು	ಅವಧಿಗಳು
1	**ಮೊದಲ ಅವಧಿ 16-08-2021 ರಿಂದ 15-09-2021 ವರೆಗೆ**	**1. PHYSICAL WORLD** 1.1 What is physics? 1.4 Fundamental forces in nature **2. UNITS AND MEASUREMENTS** 2.1 Introduction 2.2 The international system of units 2.3 Measurement of length 2.4 Measurement of mass 2.5 Measurement of time 2.6 Accuracy, precision and errors in measurement 2.7 Significant figures 2.8 Dimensions of physical quantities 2.9 Dimensional formulae and dimensional equations 2.10 Dimensional analysis and its applications **3. MOTION IN A STRAIGHT LINE** 3.1 Introduction 3.2 Position, path length and displacement 3.3 Average velocity and average speed 3.4 Instantaneous velocity and speed 3.5 Acceleration 3.6 Kinematic equations for uniformly accelerated motion 3.7 Relative velocity (Frame of reference: Position-time graph, speed and velocity – To be discussed in the last session) **4. MOTION IN A PLANE** 4.1 Introduction 4.2 Scalars and vectors 4.3 Multiplication of vectors by real numbers 4.4 Addition and subtraction of vectors - graphical method 4.5 Resolution of vectors 4.6 Vector addition – analytical method	1. Vernier Calipers 2. Screw Gauge 3. Spherometer	**16**

2	**1ನೇ ಕಿರು ಪರೀಕ್ಷೆ 13-09-2021 ರಿಂದ 15-09-2021 ವರೆಗೆ**	**ಮೊದಲ ಅವಧಿಯಲ್ಲಿ ಬೋಧಿಸಿದ ಪಠ್ಯವಸ್ತು (ವಾರ್ಷಿಕ ಪರೀಕ್ಷೆಯ ಪ್ರಶ್ನೆಪತ್ರಿಕೆಯ ಮಾದರಿಯಲ್ಲಿಯೇ ಪರೀಕ್ಷೆಗಳು ನಡೆಯುವವು)**		
3	**ಅಸೈನ್ಮೆಂಟ್ - 1**	**ವಿದ್ಯಾರ್ಥಿಗಳನ್ನು ತಾರ್ಕಿಕ ಚಿಂತನೆಗೊಳಿಸುವ ವಿಷಯಗಳನ್ನು ನೀಡುವುದು**		
4	**ಎರಡನೇ ಅವಧಿ 16-09-2021 ರಿಂದ 30-11-2021 ವರೆಗೆ**	**4. MOTION IN A PLANE** 4.7 Motion in a plane 4.8 Motion in a plane with constant acceleration 4.9 Relative velocity in two dimensions 4.10 Projectile motion 4.11 Uniform circular motion **5. LAWS OF MOTION** 5.1 Introduction 5.7 Conservation of momentum 5.8 Equilibrium of a particle 5.9 Common forces in mechanics 5.10 Circular motion 5.11 Solving problems in mechanics **6. WORK, ENERGY AND POWER** 6.1 Introduction 6.2 Notions of work and kinetic energy: The work energy theorem 6.3 Work 6.4 Kinetic energy 6.5 Work done by a variable force 6.6 The work energy theorem for a variable force 6.7 The concept of potential energy 6.8 The conservation of mechanical energy 6.9 The potential energy of a spring 6.10 Various forms of energy: the law of conservation of energy 6.11 Power 6.12 Collisions **7. SYSTEM OF PARTICLES AND ROTATIONAL MOTION** 7.1 Introduction 7.2 Centre of mass 7.3 Motion of centre of mass 7.4 Linear momentum of a system of particles	4. Determination of weight of a given body using Parallelogram law of vector addition 5. Simple Pendulum 6. Coefficient of friction between two surfaces 7. Spring Constant of a helical spring 8. Surface tension of water using capillary rise method	**32**

		7.5 Vector product of two vectors 7.6 Angular velocity and its relation with linear velocity 7.7 Torque and angular momentum 7.8 Equilibrium of a rigid body 7.9 Moment of inertia 7.11 Kinematics of rotational motion about a fixed axis 7.12 Dynamics of rotational motion about a fixed axis 7.13 Angular momentum in case of rotations about a fixed axis 7.14 Rolling motion **8. GRAVITATION** 8.1 Introduction 8.3 Universal law of gravitation 8.4 The gravitational constant 8.6 Acceleration due to gravity below and above the surface of earth 8.7 Gravitational potential energy 8.8 Escape speed 8.9 Earth satellite 8.10 Energy of an orbiting satellite 8.11 Geostationary and polar satellites 8.12 Weightlessness		
5	**ಮಧ್ಯವಾರ್ಷಿಕ ಪರೀಕ್ಷೆ 20-11-2021 ರಿಂದ 30-11-2021 ವರೆಗೆ**	**1 ಮತ್ತು 2ನೇ ಅವಧಿಯಲ್ಲಿ ಬೋಧಿಸಿದ ಒಟ್ಟು ಪಠ್ಯವಸ್ತುವನ್ನು ಆಧರಿಸಿ**		
6	**ಅಸೈನ್ಮೆಂಟ್ - 2**	**ವಿದ್ಯಾರ್ಥಿಗಳನ್ನು ತಾರ್ಕಿಕ ಚಿಂತನೆಗೊಳಿಸುವ ವಿಷಯಗಳನ್ನು ನೀಡುವುದು (ಎರಡನೇ ಅವಧಿಯ ಪಠ್ಯವಸ್ತುವನ್ನು ಆಧರಿಸಿ)**		
7	**ಮೂರನೇ ಅವಧಿ 01-12-2021 ರಿಂದ 30-01-2021 ವರೆಗೆ**	**9. MECHANICAL PROPERTIES OF SOLIDS** 9.1 Introduction 9.3 Stress and strain 9.4 Hooke's law 9.5 Stress-strain curve 9.6 Elastic moduli 9.6.1 Young's modulus 9.6.2 Determination of Young's modulus of the material of a wire 9.6.4 Bulk modulus 9.7 Applications of elastic behaviour of materials	9. Coefficient of viscosity of a liquid 10. Newton's law of cooling – Cooling curve for a hot body 11. To determine mass of two different objects using a beam balance 12. Inclined Plane – Relationship between W and sin θ 13. Young's modulus - Searle's method	**32**

		10. MECHANICAL PROPERTIES OF FLUIDS 10.1 Introduction 10.2 Pressure 10.3 Streamline flow 10.4 Bernoulli's principle 10.5 Viscosity 10.6 Surface tension **11. THERMAL PROPERTIES OF MATTER** 11.1 Introduction 11.3 Measurement of temperature 11.4 Ideal-gas equation and absolute temperature 11.5 Thermal expansion 11.6 Specific heat capacity 11.7 Calorimetry 11.8 Change of state 11.9.4 Black body radiation 11.9.5 Green-house effect 11.10 Newton's law of cooling **12. THERMODYNAMICS** 12.1 Introduction 12.2 Thermal equilibrium 12.3 Zeroth law of thermodynamics 12.4 Heat, internal energy and work 12.5 First law of thermodynamics 12.6 Specific heat capacity 12.7 Thermodynamic state variables and equation of state 12.8 Thermodynamic processes 12.11 Second law of thermodynamics 12.12 Reversible and irreversible processes 12.13 Carnot engine **14. OSCILLATIONS** 14.1 Introduction 14.2 Periodic and oscillatory motions 14.3 Simple harmonic motion 14.4 Simple harmonic motion and uniform circular motion 14.5 Velocity and acceleration in simple harmonic motion 14.6 Force law for simple harmonic motion		

		14.7 Energy in simple harmonic motion 14.8 Some systems executing Simple Harmonic Motion 14.9 Damped simple harmonic motion 14.10 Forced oscillations and resonance **15. WAVES** 15.1 Introduction 15.2 Transverse and longitudinal waves 15.3 Displacement relation in a progressive wave 15.4 The speed of a travelling wave 15.5 The principle of superposition of waves 15.6 Reflection of waves (except fundamental mode and harmonics) 15.7 Beats		
8	**2ನೇ ಕಿರು ಪರೀಕ್ಷೆ 28-01-2022 ರಿಂದ 31-01-2022 ವರೆಗೆ**	**ಮೂರನೇ ಅವಧಿಯಲ್ಲಿ ಬೋಧಿಸಿದ ಪಠ್ಯವಸ್ತು**		
9	**ನಾಲ್ಕನೇ ಅವಧಿ 01-02-2022 ರಿಂದ 31-03-2022 ವರೆಗೆ**	**13. KINETIC THEORY** 13.1 Introduction 13.2 Molecular nature of matter 13.3 Behaviour of gases 13.4 Kinetic theory of an ideal gas 13.5 Law of equipartition of energy 13.6 Specific heat capacity 13.7 Mean free path **1. PHYSICAL WORLD** 1.2 Physics-scope and excitement 1.3 Physics, technology and society 1.5 Nature of physical laws **3. MOTION IN A STRAIGHT LINE** Frame of reference: Position-time graph, speed and velocity **5. LAWS OF MOTION** 5.2 Intuitive concept of force 5.3 Inertia 5.4 Newton's first law of motion; momentum 5.5 Newton's second law of motion; impulse 5.6 Newton's third law of motion	14. Study of variation in volume (V) with pressure (P) for a sample of air at constant temperature 15. Sonometer 16. Resonance air column – Velocity of sound in air 17. Specific heat of a solid	**32**

		7. SYSTEM OF PARTICLES AND ROTATIONAL MOTION 7.10 Statement of parallel and perpendicular axes theorems and their applications **8. GRAVITATION** 8.2 Kepler's laws of planetary motion 8.5 Acceleration due to gravity **9. MECHANICAL PROPERTIES OF SOLIDS** 9.2 Elastic behaviour 9.6.3 Shear modulus of rigidity, 9.6.5 Poisson's ratio; 9.6.6 Elastic energy **11. THERMAL PROPERTIES OF MATTER** 11.2 Heat and temperature 11.9 Heat transfer 11.9.1 Conduction 11.9.2 Convection 11.9.3 Radiation **12. THERMODYNAMICS** 12.9 Heat engine 12.10 Refrigerator **15. WAVES** Fundamental mode and harmonics. 15.8 Doppler effect		
10	**ವಾರ್ಷಿಕ ಪರೀಕ್ಷೆ 24-03-2022 ರಿಂದ 30-03-2022**	**ಪೂರ್ಣ ಪ್ರಮಾಣದ ಪಠ್ಯವಸ್ತು**		

<u>ಸೂಚನೆ:</u> ಪ್ರಾಯೋಗಿಕ ಪರೀಕ್ಷೆಯ ಪ್ರಶ್ನೆಪತ್ರಿಕೆ ವಿನ್ಯಾಸದ ಅನುಗುಣ ಕನಿಷ್ಠ 14 ಪ್ರಯೋಗಗಳನ್ನು ಬೋಧಿಸುವುದು ಮತ್ತು ರೆಕಾರ್ಡ್ ಬರೆಸುವುದು (ಭೌತಿಕ ತರಗತಿಗಳು ಆರಂಭವಾದ ನಂತರ ವಿದ್ಯಾರ್ಥಿಗಳು ಪ್ರಯೋಗಗಳನ್ನು ಮಾಡಿ ರೆಕಾರ್ಡ್ ನಲ್ಲಿ observation ಮತ್ತು calculation column ಗಳನ್ನು ತುಂಬುವುದು).