MADURAI KAMARAJ UNIVERSITY

University with Potential for Excellence

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Department of Physics -DDE

Assignment Topics for 21AY B.Sc Physics(I Sem) – Mechanics and Properties of Matter (UPHYCS1)

Unit I

1. Collision - Elastic and Inelastic collision
2. Newton's law of impact – Direct and Oblique impact of moving two spheres

Unit II

3. Moment of inertia of circular disc about an axis passing through its center as perpendicular to its plane, through its diameter, through its tangent.
4. Kinetic energy of rotation and the work energy theorem – Conservation of angular momentum.

Unit III

5. Gravitation – Newton's Law of gravitation – Kepler's law of planetary motion
6. Determination of G (Boy's Method) – Variation of 'g' with altitude, depth and latitude

Unit IV

7. Elasticity – Stress, Strain – Poisson's Ratio – Hooke's Law – Moduli of Elasticity
8. Young's modulus, Bulk modulus, Rigidity modulus – Bending of a beam

Unit V

9. Fluids – Flow of a fluid – Rate of low – Viscosity – Coefficient of Viscosity – Critical velocity.
10. Laminar and Vortex flow – Poiseuille equation for flow of liquid through a tube.
11. Determination of gases – Rankine's method for the determination for the Viscosity of a gas.

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Assignment Topics for 21AY B.Sc Physics(I Sem) – Fundamentals of Physics (UPHYEC1)

Unit I

1. S.I. Units – measurements of length, mass, time and other physical quantities
2. Dimensional formula for area, volume, density and force – Uses of dimension.

Unit II

3. Matter – Solid, Liquid, Gas and Plasma – Application of Plasma.
4. Specific heat capacity – Specific latent heat of ice and steam.

Unit III

5. Kinds of energy – Mechanical energy, Thermal energy, Optical energy, Sound energy, Electrical energy.
6. Atomic and Nuclear Energy, (Examples) – Conservation of energy.

Unit IV

7. Renewable and Non-renewable energy – fossil fuel – coal oil – Biomass
8. Solar – Wind – Ocean thermal energy conversion(OTEC)

Unit V

9. Mirror – Laws of reflection – Image formation (Concave and Convex mirror) lens
10. Law of refraction – image formation(Concave and convex lens)
11. Defects of eye and rectification.

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Assignment Topics for 21AY B.Sc Physics(I Sem) – Programming in C (UPHYDEC1)

Unit I

1. Evolution of Computer- Computer generations- Classification of computers.
2. Introduction to C – History of C – Basics of C.

Unit II

3. Arrays, Functions and pointers: Arrays- one, two and multi-dimensional arrays
4. Structures – defining a structure – declaring structure variables – structure initialization – arrays o structures – arrays within structures and functions

Unit III

5. Operators, Expressions & I/O functions Types of operators- Arithmetic, Relational, logical, assignment, increment, decrement, conditional, bitwise, and special operators.
6. Arithmetic expressions- mathematical functions- priority of operators- data input and output – getchar(), putchar(), gets(), puts(), scanf(), and printf().

Unit IV

7. Control statements simple IF statement- simple IF-ELSE statement – Block IF statement – Block IFELSE statement
8. Looping operation using while statement – for statement – break statement – continue statement – switch statement – goto statement

Unit V

9. Pointers- declaring pointer variables – initialization of pointer variables – accessing a variable through its pointers.
10. Pointers to pointers – pointer expressions – pointer and arrays – array of pointers – pointers to functions –pointers and structures
11. Pre-processor derivatives, simple programs in arrays, functions, pointers, structures and union.