

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x8=16)

- Q.23 a) Derive the formula used to convert one system of units into another system of units. (4) (CO1)
- b) State Newton's Law of motion. (4) (CO2)
- Q.24 Explain banking of roads and derive an expression of angle of banking. (CO2)
- Q.25 a) Write note on free and forced vibrations. (4) (CO6)
- b) Explain Coulomb's Law of electrostatics between two point charges. (4) (CO8)

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1st Year / Advance Diploma in Tool and Die Making

Subject : Applied Physics

Time : 3 Hrs.

M.M. : 60

SECTION-A

Note: Multiple choice questions. All questions are compulsory (6x1=6)

- Q.1 Which among the following physical quantities is a derived quantity? (CO1)
- a) Length b) Temperature
- c) Electric current d) Speed
- Q.2 Which is a scalar quantity? (CO2)
- a) force b) displacement
- c) acceleration d) energy
- Q.3 The formula of potential energy is (CO3)
- a) mgh b) mg^2h
- c) m^2gh d) mgh^2

Q.4 Stress is directly proportional to (CO4)

- a) restoring force b) torque
c) area d) displacement

Q.5 The speed of thermal radiation is (CO5)

- a) $3 \times 10^9 \text{ m/s}$ b) $3 \times 10^{10} \text{ m/s}$
c) $3 \times 10^8 \text{ m/s}$ d) $3 \times 10^7 \text{ m/s}$

Q.6 In resonant vibration the amplitude of the vibrations is (CO6)

- a) maximum b) minimum
c) zero d) None of the above

SECTION-B

Note: Objective/ Completion type questions. All questions are compulsory. (6x1=6)

Q.7 Define CGS system of units. (CO1)

Q.8 Define angular momentum. (CO2)

Q.9 Define Pascal's law. (CO4)

Q.10 Define microscope. (CO7)

Q.11 Define ultrasonic waves. (CO6)

Q.12 Define electric current. (CO8)

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SECTION-C

Note: Short answer type questions. Attempt any eight questions out of ten questions. (8x4=32)

Q.13 Give four applications of nanotechnology. (Co10)

Q.14 Write down differences between intrinsic and extrinsic semiconductors. (CO9)

Q.15 Explain series combination of two resistances. (CO8)

Q.16 What is superposition of waves? Give at least two phenomenon arising due to superposition of waves. (CO7)

Q.17 Write note on longitudinal and transverse waves. (CO6)

Q.18 Write a note on different types of stress arising due to deforming force. (CO4)

Q.19 Find the kinetic energy of a ball of mass 500 gram moving at a speed of 20 cm/s in joules. (CO6)

Q.20 Establish relationship between linear velocity (v) and angular velocity (w) of a particle moving in a circle of radius (r). (CO2)

Q.21 Write limitations of dimensional analysis. (CO1)

Q.22 Write note on different scale of temperature measurement. Give formula connecting all of them. (CO5)

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