2669

Code : 15SC03S

Register Number | | | | | | | |

I Semester Diploma Examination, Nov./Dec. 2015

APPLIED SCIENCE

Time : 3 Hours] **[Max. Marks : 100**

Note : (i) Answer any **10** questions from Section – **A**, each carries **02** marks.
(ii) Answer any **10** questions from Section – **B**, each carries **05** marks.
(iii) Answer any **05** questions from Section – **C**, each carries **06** marks.

SECTION – A

1. Define fundamental and derived units.

2. Define least count of measuring instrument.

3. Define moment of force.

4. Write the conditions of equilibrium when number of co-planar parallel forces acting on a body.

5. Define elasticity.

6. Mention the types of flow of liquids.

7. Define pressure at a point inside a liquid.

8. Define heat. Write SI unit of heat.

9. State Boyle's law.

10. Define resonance.

11. Write the effect of humidity on velocity of sound in air.

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12. Define nanotechnology.

13. Give any two types of LASER.

14. Write any two types of fuel cells.

15. Define composite materials.

SECTION – B

1. Draw a neat diagram of Screw Gauge and label its parts.

2. Write the advantages of SI system.

3. Define stress. Write the types of stress.

4. Define K.E. of liquid. State Bernoulli's theorem.

5. Define surface tension. Mention factors which affect surface tension.

6. Define C_p and C_v. Write the relationship between them.

7. Define conduction. Write the application of conduction.

8. Explain Newton's formula for velocity of sound in air and apply Laplace correction to it.

9. Define simple harmonic motion. Derive an expression for displacement of a particle executing SHM.

10. Write any five advantages of LASER.

11. Explain satellite communication. List any three disadvantages of satellite communication system.

12. Explain the mechanism of electrolysis of HCl.

13. Define corrosion and give methods of corrosion control.

14. Write any five postulates of Arrhenius theory of electrolytic dissociation.

15. Explain any two methods of polymerization.

SECTION – C

1. Describe an experiment to verify law of parallelogram of forces.

2. Define thrust of liquid. Derive an expression for pressure at any point inside the liquid at rest.

3. Define specific heat of a substance. Derive an equation for specific heat of substance.

4. Describe an experiment to determine unknown frequency of tuning fork by absolute method using sonometer.

5. If the frequency of tuning fork is 400 Hz and velocity of sound is 300 m/s. Find how far the wave travels while the fork completes 25 vibrations.

6. State the laws of transverse vibration of stretched strings. Derive an expression for fundamental frequency of vibrations of stretched string.

7. Write the principle of optical fiber. Write four applications of optical fiber.

8. Define pH value of a solution. Write any four applications of pH value.