597

Code : 15SC03S

Register Number | | | | | | | | | | |

I/II Semester Diploma Examination, Oct./Nov.-2021

APPLIED SCIENCE

e : 3 Hours] [Max. Marks : 100

ial Note : Students can answer for max. of **100** marks, selecting any sub-section from any main section.

SECTION – A

(a) Define unit of a physical quantity. 2
(b) Define least count of measuring instruments. 2

(a) State converse law of triangle of forces. 2
(b) Write the conditions of equilibrium, when number of coplanar parallel forces acting on a body. 2
(c) Define Stress. 2

(a) Define viscosity. 2
(b) State Bernoulli's theorem. 2

(a) Define specific heat of a substance. 2
(b) State Charles' law. 2

(a) Define wavelength of the wave. 2
(b) Write any two factors which affects the velocity of sound in air. 2

(a) Write any two advantages of nanotechnology. 2
(b) Write any two disadvantages of satellite communication. 2

(a) State Faraday's first law of Electrolysis. 2
(b) Write any two applications of pH value of a solution. 2

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SECTION – B

8. (a) Draw a neat diagram of Vernier calipers & label its parts. 3 +
   (b) Define moment of force. Write the equation to measure moment of force and give its S.I. unit. 2 + 2 +

9. (a) Explain elasticity and plasticity with example. 2½ + 2½
   (b) Define cohesive force and adhesive force with example. 2½ + 2½
   (c) Define surface tension. Mention any three applications of capillarity. 2 +

10. (a) Define conduction, convection and write an example. 2½ + 2½
    (b) Define C_p and C_v. Write a Mayer's expression. 2 + 2 +

11. (a) Explain Newton's formula for velocity of sound in air and apply Laplace's correction to it. 5
    (b) Distinguish between longitudinal wave and transverse wave. 5

12. (a) Write any five properties of Electro-magnetic waves. 5
    (b) Write any five applications of LASER. 5

13. (a) Write any five postulates of Arrhenius theory of electrolytic dissociation. 5
    (b) Write the classification of batteries. Write any three applications of batteries. 2 + 3

14. (a) Define corrosion. Write any three preventive methods of corrosion. 2 + 3
    (b) Define pH of a solution. Write the pH values of acid, base and neutral solution. 2 + 1 + 1 + 1

SECTION – C

15. (a) Derive an expression for magnitude and direction of resultant of two forces acting at a point. 1 + 3 + 2
    (b) A uniform wire of length 0.5 m and diameter 0.0006 m. when stretched by a mass of 5 kg extends by 0.0004m. Calculate Young's modulus of material of the wire. 1 + 2 + 3

16. (a) Name any three gas laws. With usual notation derive PV = nRT. 1 + 1 + 1 + 3
    (b) Describe an experiment to determine unknown frequency of given tuning fork by absolute method using sonometer. 1 + 2 + 2 + 1

17. (a) Define simple harmonic motion. Derive an expression for displacement of a particle executing SHM. 2 + 4
    (b) State the laws of transverse vibrators of stretched strings. 2 + 2 + 2

18. (a) Write the principle of optical fiber. Give any four applications of optical fiber. 2 + 4
    (b) Write any six applications of polymers. 6
