1211

Code : 15SC-03S

Register Number | | | | | | | |

I/II Semester Diploma Examination, April/May-2017

APPLIED SCIENCE

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

Note : (i) Answer any **10** questions from Section – **A**, each carries **2** marks.
(ii) Answer any **10** questions from Section – **B**, each carries **5** marks.
(iii) Answer any **5** questions from Section – **C**, each carries **6** marks.

SECTION – A

(Answer any **10** questions)

1. Write any two advantages of SI system. **2**

2. Define least count of a measuring instrument. **2**

3. State law of parallelogram of vectors. **2**

4. Define like parallel forces. **2**

5. Define Young's modulus of elasticity. **2**

6. Define angle of contact of liquids. **2**

7. State Bernoulli's theorem of liquids. **2**

8. Define convection of heat. **2**

9. Define specific heat of a substance. **2**

10. Define resonance. 2

11. Give any two examples of resonance. 2

12. Define electromagnetic waves. 2

13. Write any two advantages of Nano technology. 2

14. State Faraday's first law of electrolysis. 2

15. Define Polymerisation. 2

SECTION – B

(Answer any **10** questions)

16. Draw a neat diagram of screw gauge and label its parts. 3 + 2

17. Define moment of force. Mention its SI unit. Explain positive and negative moment of force. 2 + 1 + 2

18. Explain stress-strain graph. 5

19. Explain streamline flow and turbulent flow of liquids with examples. $2\frac{1}{2} + 2\frac{1}{2}$

20. Define Capillarity. Write any three applications of surface tension. 2 + 3

21. State I law and II law of thermodynamics. Give one practical example for each. $2\frac{1}{2} + 2\frac{1}{2}$

22. Derive an expression for the coefficient of thermal conductivity (K). 5

23. Explain the effect of pressure, temperature and humidity on velocity of sound in air. 1 + 2 + 2

24. Differentiate mechanical and non-mechanical waves with examples. $2\frac{1}{2} + 2\frac{1}{2}$

25. List the properties of electromagnetic waves. 5

26. Explain Satellite communication. Write any two advantages of satellite communication. 3 + 2

27. Write any five postulates of Arrhenius theory of electrolytic dissociation. 5

28. Define composite materials. Write any three applications of composite materials. 2 + 3

29. Define alloys. Write the purpose and uses of alloys. 2 + 3

30. Define pH of a solution. Explain acid, base and neutral solution on the basis of pH value. 2 + 3

SECTION – C

(Answer any 5 questions)

31. Derive the expressions for the magnitude and direction of the resultant of two vectors acting at a point. 6

32. Describe an experiment to determine the co-efficient of viscosity of water by Poiseuille's method. 6

33. State Charles' law. Calculate the temperature of a gas must be heated at constant pressure so that its volume at 20 °C is doubled. 2 + 4

34. Define Simple Harmonic Motion. Derive an expression for the displacement of a particle executing SHM. **6**

35. Describe an experiment to determine the velocity of sound in air at room temperature by resonance air column method. **6**

36. Define Beat. A string 0.5 m long weighs 3.25×10^{-3} kg. If the fundamental frequency of vibration is 512 Hz, find the tension. **2 + 4**

37. Write the principle of optical fiber. Write any five applications of Laser. **1 + 5**

38. Define corrosion. Write any four preventive methods of corrosion. **2 + 4**
