

1314**Code : 15SC03S**Register
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I/II Semester Diploma Examination, Nov./Dec. 2017**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 **5** questions from Section – C, each carries **06** marks.

SECTION – A**10 × 2 = 20****(Answer any 10 questions)**

1. Define least count of a measuring instrument.
2. State the law of parallelogram of vectors.
3. Define Couple.
4. Write two conditions of equilibrium of coplanar parallel forces acting on a body.
5. Define Stress.
6. Define Capillarity.
7. Brief the effect of temperature on viscosity of liquids.
8. Define specific heat of a substance.
9. State Charle's law.

10. Write Newton-Laplace's equation for the velocity of Sound in air and name the symbols involved.
11. Define stationary waves.
12. Define electromagnetic spectrum.
13. Expand the term LASER.
14. Define electrolysis.
15. Define a solute.

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SECTION – B
(Answer any 10 questions)



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16. Draw a neat diagram of slide calipers and name its parts. 3 + 2
17. State Lami's theorem. Write line diagram and equation of Lami's theorem. 2 + 3
18. Define elasticity and name three types of moduli of elasticity. 2 + 3
19. Define cohesive force and adhesive force with one example for each. 2½ + 2½
20. Distinguish between streamline flow and turbulent flow of liquids. 2½ + 2½
21. Define radiation and write three applications of radiations. 2 + 3
22. Define C_p and C_v and write the relation between them. 2 + 2 + 1

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23. Distinguish between longitudinal and transverse waves. 5
24. Define frequency, obtain the relationship between v , n and λ . 2 + 3
25. Write any five uses of optical fibres. 5
26. Explain satellite communication. Mention the disadvantages of satellite communication. 3 + 2
27. Write any five postulates of Arrhenius theory of electrolytic dissociation. 5
28. State Faraday's I and II laws of electrolysis. **BETA CONSOLE!** 2½ + 2½
29. Define pH of a solution. Explain acid, base and neutral solutions on the basis of pH value. **Beta Console** 2 + 3
30. Write two types of fuel cell. List any three advantages of fuel cell. 2 + 3

SECTION – C

(Answer any 5 questions)

31. Describe an experiment to verify the converse of the law of triangle of forces. 6
32. Describe an experiment to determine surface tension of water by capillary rise method. 6
33. State Boyle's law and Gay-Lussac's law. Derive $PV = nRT$. 6
34. Describe an experiment to determine the velocity of sound in air at room temperature using resonance air column apparatus. 6

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35. A wave of frequency 600 MHz travels at a speed of 3×10^8 m/s, calculate its wave length and calculate the frequency of same type of wave whose wavelength is 40 m. 6
36. State three laws of transverse vibrations of a stretched strings. 6
37. List six applications of LASER. 6
38. Define corrosion. Write any four preventive methods of corrosion. 6
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