

DHAKSHINA EDUCATIONAL SERVICES PVT. LTD.

X MATRIC

PHY- SCIENCE

100 Marks

2 ½ Hours

PHYSICS

Part - I Section – A

50 Marks

10 x 1 = 10

I. Choose the correct answer.

- The center of gravity of a solid cone of height 12 cm lies at a point on its axis \_\_\_\_\_ from the base  
(a) 6 cm (b) 3 cm (c) 2 cm (d) 4 cm
- The ball on the ground is an example for  
(a) equilibrium (b) stable equilibrium (c) neutral equilibrium (d) unstable equilibrium
- The angular velocity of the minute hand in a clock is  
(a)  $\frac{\pi}{30}$  rad s<sup>-1</sup> (b)  $\frac{\pi}{1800}$  rad s<sup>-1</sup> (c)  $\frac{\pi}{3600}$  rad s<sup>-1</sup> (d)  $\frac{2\pi}{1800}$  rad s<sup>-1</sup>
- 10<sup>-10</sup> m to 3 x 10<sup>-8</sup>m is the wavelength range for  
(a) X-rays (b) uv rays (c) IR rays (d) radio waves
- A spectrum in which there is no overlapping of colours is called  
(a) pure spectrum (b) an impure spectrum (c) an electromagnetic spectrum (d) wide range spectrum
- The expression for De-Broglie wavelength is given by  
(a)  $\lambda = \frac{h}{nu}$  (b)  $\lambda = \frac{h}{mv}$  (c)  $\lambda = \frac{mv}{h}$  (d)  $\lambda = \frac{1}{2\pi mv}$
- \_\_\_\_\_ is due to absorption of light by the molecules and re-radiation in different directions.  
(a) Raman effect (b) De-Broglie (c) Tyndall effect (d) Scattering
- By connecting a low resistance in parallel, galvanometer can be converted into  
(a) a multimeter (b) an ammeter (c) an ohm meter (d) a voltmeter
- The strength of the electromagnet can be increased by  
(a) introducing a soft iron core inside the coil. (b) increasing the current in the coil  
(c) both (d) none of the above
- The value of one kwh is  
(a) 10<sup>6</sup> J (b) 1000 J (c) 36 x 10<sup>4</sup> J (d) 3.6 x 10<sup>6</sup> J

Section – B (Answer any five)

5 x 2 = 10

- Define one radian.
- Calculate the centripetal force required for a car of 500 kg mass, which takes a round turn of radius 50 m with a velocity of 72 kmph.
- How laundry washed white clothes have more whiteness?
- Mention few green house gases.
- What is meant by incoherent scattering? State example.
- State Motor rule.
- How can emf from an A.C or D.C generator be increased?
- Define magnetic induction. Give its unit.

Section – C (Answer any five)

5 x 3 = 15

- Define angular momentum and derive its formula.
- A ball is thrown up with a velocity of 19.6 ms<sup>-1</sup>. Find the maximum height reached and the time taken to reach it.
- Define angle of deviation. On what factors does it depend?
- The sun appears reddish during sun set and sun rise. Why?
- Find the cost of using a 1500 W immersion heater and 700 W electric iron for 30 minutes per day for 30 days at the cost of Rs.2 per unit.
- State Faraday's laws of electromagnetic induction.

Section – D (Answer any three)

3 x 5 = 15

- (a) What is a projectile? Give examples  
(b) Define the term range of a projectile.
- Explain Raman effect and write its applications.
- Describe an experiment to study photoelectric emission. (With a neat diagram)
- Describe the construction and working of a DC generator with a neat diagram.
- Explain the construction and working of a transformer

**CHEMISTRY****50 Marks****I. Choose the Correct Answer****(10 x 1 = 10)**

30. A substance which accepts, one or more electrons from the other atom is called \_\_\_\_\_  
(a) reducing agent (b) oxidizing agent (c) redox reagent (d) None
31. The number of replaceable hydrogen atoms present in one molecule of the acid is known as \_\_\_\_\_  
(a) acidity (b) basicity (c) molar mass (d) equivalent mass
32. Fixed weight of nitrogen combines with different weights of oxygen to form various nitrogen oxides. This illustrates the law of \_\_\_\_\_  
(a) conservation of mass (b) multiple proportions  
(c) reciprocal proportions (d) definite proportions
33. What is the condition of chemical equilibrium?  
(a)  $R_f = R_b$  (b)  $R_f = \frac{1}{R_b}$  (c)  $R_b = \frac{1}{R_f}$  (d)  $R_f \neq R_b$
34. Which one of the following metal occurs in nature form?  
(a) Iron (b) Aluminium (c) zinc (d) Platinum
35. The chief ore of Aluminium is \_\_\_\_\_  
(a) Sidevite (b) Haemeatite  
tite (c) Bancite (d) Malachite
36. The atomicity of sulphur is \_\_\_\_\_  
(a) 6 (b) 2 (c) 1 (d) 8
37. The IUPAC name of isobutyl alcohol is \_\_\_\_\_  
(a) Butan-2-ol (b) 2 methyl propan-1-ol  
(c) 2 methyl propan-2-ol (d) Butan-1-ol
38. \_\_\_\_\_ is a dilute solution of ethanoic acid  
(a) Formic acid (b) pyrolog neous acid (c) vinegar (d) power alcohol
39. Poisonous gases can be removed by \_\_\_\_\_  
(a) spray collector (b) Afforestation (c) Filtration (d) Using a catalyst

**II. Answer any five in one or two sentence****(5 x 2 = 10)**

40. What is electronic configuration? Write the electronic configuration of nitrogen.
41. State the law of definite proportion.
42. State Gay Lussac's law.
43. What are instantaneous reactions?
44. What is liquation? Name the metal that are refined by the method.
45. Mention 2 difference between rhombic and monoclinic sulphur?
46. What is denatured alcohol?
47. Mention 2 uses of diethyl ether.
48. Define: Green chemistry.

**III. Answer in brief : Any 5 questions****(5 x 3 = 15)**

49. What are the difference between orbit and orbital?
50. Write a note on Sommerfield model of atom.
51. Define mole. How many moles are contained in 60 g of sodium hydroxide?
52. How will you verify law of multiple proportion?
53. Mention 3 factors that influence the rate of a reaction.
54. What is rusting? Explain how it can be prevented by electroplating?
55. Give the IUPAC name of (a)  $\text{CH}_3 - \text{O} - \text{CH}_2\text{CH}_3$  (b)  $\text{CH}_3 - \text{O} - \text{CH}_2\text{CH}_2\text{CH}_3$  (c)  $\text{CH}_3 - \text{O} - \text{CH}_3$
56. What is esterification? Give an example.
57. How is acetic acid manufactured from pyrolygneous acid?

**IV. Answer any three questions****(3 x 5 = 15)**

58. State Avagadro's hypothesis. Apply it to deduce the atomicity of elementary gasses.
59. Explain "Zone refining method" of refining of metal?
60. Explain the three commercial forms of iron.
61. Mention 5 differences between white and red phosphorus.
62. Mention 2 tests to detect ethyl alcohol. Give equations.
63. How will you control soil and landscape pollution?