TED (21)1004
(Revision – 2021)

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DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/ MANAGEMENT/COMMERCIAL PRACTICE, NOVEMBER – 2025

APPLIED CHEMISTRY

[Maximum Marks: **75**] [Time: **3** Hours]

PART-A

I. Answer '*all*' the following questions in one word or one sentence. Each question carries *'one'* mark.

(9 x 1 = 9 Marks)

		Module Outcome	Cognitive level
1.	Write any two examples for an alloy.	M3.01	R
2.	Write the name of glass which helps to keep the room warmer in cold countries.	M3.01	R
3.	What do you understand by an Orbit?	M1.01	U
4.	Write the electronic configuration of element Magnesium (atomic number 12).	M1.02	U
5.	If P^H of the solution is 10. What is the nature of the solution?	M2.02	R
6.	What is the reason for the wastage soap in washing?	M2.03	R
7.	What is redox reaction?	M4.04	R
8.	What is Galvanization?	M4.05	R
9.	Write any one example for a primary cell.	M4.04	U

PART-B

II. Answer any '*eight*' questions from the following. Each question carries *'three'* marks.

(8 x 3 = 24 Marks)

		Module Outcome	Cognitive level
1.	State any three properties of refractories.	M3.01	U
2.	State and explain Heisenberg's uncertainty principle.	M1.01	U
3.	Calculate the Molarity and Normality of solution prepared by dissolving 5.3 gm Na_2CO_3 in 100 ml (Atomic mass of Na=23, O =16 C=12)	M2.01	A
4.	What is a solution? What is standard solution? Give an example for standard solution.	M2.01	U
5.	Explain the formation of ionic bond in MgO.	M1.03	U
6.	Calculate the pH of 0.02M NaOH.	M2.02	A
7.	Explain electrolytic refining of copper.	M4.03	U
8.	Write any three purposes of making alloy.	M3.01	R
9.	Explain electrolytic cell with diagram.	M4.02	U
10.	Why the water is liquid and hydrogen sulphide is gas?	M1.03	R

PART-C

Answer '*all*' questions from the following. Each question carries *'seven'* marks.

(6 x 7 = 42 Marks)

		Module Outcome	Cognitive level
III.	a. Write electronic configuration of Potassium and give all four quantum numbers of an electron present in the outer most shell of Potassium. (Atomic number of K= 19). (5 marks)	M1.02	A
	b. Explain Hund's rule of maximum multiplicity with an example. (2 marks)	M1.02	A
	OR		
IV.	a. Write any two benefits and limitation of Bohr model of atom. (4 marks)	M1.02	U
	b. Explain dual nature of matter with an equation. (3 marks)	M1.01	U
V.	Write briefly the classification of polymers based on structure, type of polymerization and monomers. Give on example for each. (7 marks)	M3.02	R
	OR		
VI.	a. What is vulcanization? Write any two advantages of vulcanization. (3 marks)	M3.02	R
	b. What is nanomaterial? Give any one example for 0D,1D and 2D Nanomaterial. (4 marks)	M3.03	R
VII.	a. Compare electrolytic cell and electrochemical cell. (4 marks)	M4.03	U
	b. Write any three factor which leads to corrosion. (3 marks)	M4.05	R
	OR		
VIII.	a. State Faraday's second law of electrolysis. A certain quantity of electricity is passed through an aqueous solution of $AgNO_3$ and $CuSO_4$ solution connected in series. The amount of silver deposited is 1.08 g. What will be the amount of copper deposited? (Equivalent mass of copper = 31.7g and equivalent mass of silver = 108 g). (5 marks)	M4.02	A
	b. State first law of electrolysis. Write its mathematical equation). (2 marks)	M4.02	R
IX.	a. Explain Daniel cell with diagram. (5 marks)	M4.04	U
	b. What is emf and how can it be calculated? (2 marks)	M4.04	U
	OR		
X.	a. Anodizing is not a corrosion prevention method in the case of iron. Why? (3 marks)	M4.05	U
	b. Explain cathodic protection and corrosion prevention using anti-rust solution. (4 marks)	M4.05	U

XI.	How will you relate pH and pOH? Write any three applications of pH in detail. (7 marks) **OR**	M2.02	R
XII.	a. What is buffer solution? Classify the buffer solution. Give any two example for buffer solution. (4 marks) b. What is mean by titration? Which indicator is suitable for the titration between 1) weak acid and strong base 2) strong acid and strong base (3 marks)	M2.02	R
XIII.	a. What do you mean by the term Hard water? Write any two salts causing hardness. (3 marks)	M2.03	R
	b. Explain any two disadvantages of using hard water in boilers. (4 marks)	M2.03	U
	OR		
XIV.	a. What is Molarity and Normality? Write the relation between Normality and Molarity in the case of sulphuric acid. (4 marks)	M2.01	U
	b. Explain strong and weak electrolyte with an example. (3 marks)	M2.01	U

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