$Na \rightarrow Na^+ + e^-$

$Cl^- + e^- \rightarrow Cl_2$

$Cl_2 \rightarrow 2Cl^- + e^-$

0 −1

VIT®

Vellore Institute of Technology

(Deemed to be University under section 3 of UGC Act, 1956)

SCHOOL OF ADVANCED SCIENCES

Department of Chemistry

B. Tech./M.Tech– Winter Semester 2018-19

Continuous Assessment Test–II, March 2019

Course Code	: CHY1701	Duration	: 90 min.
Course name	: Engineering Chemistry	Max. Marks	: 50
Semester	: Winter Semester 2018-19	Slot	: A1+TA1

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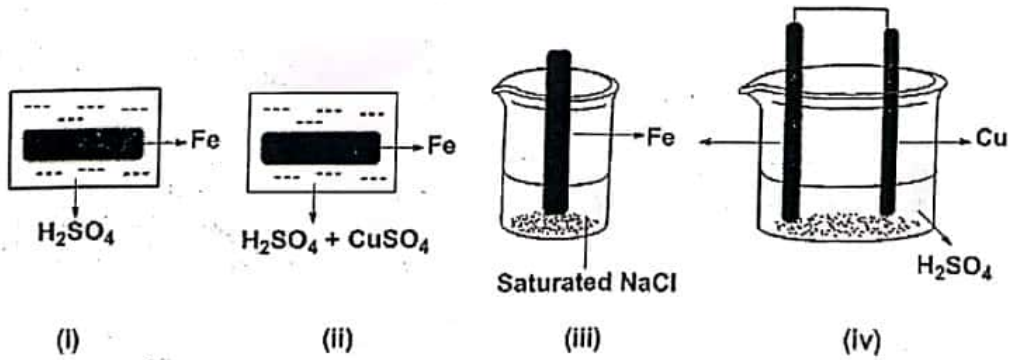
Instructions: *Students are allowed to carry their* ***self-hand written*** *note books/papers to the examination hall.*

Answer ALL the Questions. (10 x 5 = 50M)

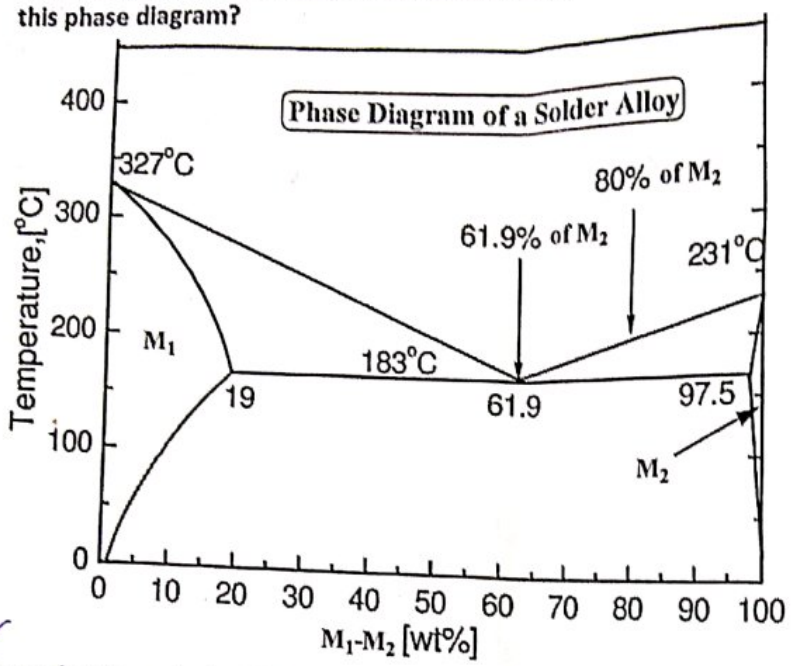
1. You are said to dip three Fe wires in (a) NaOH solution (b) dilute HCl solution (c) 10% brine solution. Justify the relative rate of corrosion in three differentsolutions.
2. Illustrate how to prevent the corrosion of (i) buried petrol tank in a gas station and (ii) water heater in the bathroom in detail.
3. Which type of alloying will you prefer for making of gear axies of motor vehicles? A metal of atomic number 29 is mixed with another metal of atomic number 30 to be alloyed, will it follow Hume-Rothery rule?
4. Ramesh has a pair of regular lens eye glasses. Now he wants to coat the lens with aluminium. How can he achieve this?
5. What is the method used for protecting cell phone towers from corrosion? Explain the process with diagram.
6. Elucidate the type of process employed for coating silica on a glass substrate.
7. Identify the type of corrosion from the following diagram and justify their relative rate of corrosion.



(i) (ii) (iii) (iv)

8. Iron nails are exposed in (i) air (ii) air + N_2H_4 + Alumina. In which case the higher rate of corrosion can occur? Explain with proper chemical reaction.

9. The picture given below shows the phase diagram of a solder alloy. Identify the different phases of M_1 and M_2, Eutectic point and Eutectic composition of this alloy. What is the inference from this phase diagram?



10. Iron plate is coated with (i) Silver and (ii) Aluminum. Illustrate these two procedures.