

Hall Ticket Number:

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Code No. : 11024 O2

VASAVI COLLEGE OF ENGINEERING (Autonomous), HYDERABAD
B.E. (CBCS) I-Semester Backlog (Old) Examinations, Dec.-2018/Jan.-2019

Engineering Chemistry

Time: 3 hours

Max. Marks: 60

Note: Answer ALL questions in Part-A and any FIVE from Part-B

Part-A (10 × 2 = 20 Marks)

1. How electronic conductors differ from electrolytic conductors?
2. Discuss any two applications of electrochemical series.
3. Write the principle of reverse osmosis.
4. Calgon treatment prevents scale formation in boilers. Explain with suitable equation.
5. If NH_4Cl (s) is allowed to dissociate in a vessel already containing NH_3 (g), What is the value of degrees of freedom?
6. Mention any two merits of phase rule.
7. Classify the nano materials and give examples for them.
8. Give any four applications of nano technology.
9. List the requisites of a good refractory.
10. What is thermal Spalling and why it happens?

Part-B (5 × 8 = 40 Marks)

(All sub-questions carry equal marks)

11. a) Explain the Principle of quinhydrone electrode, along with construction and advantages of this electrode.
b) What are potentiometric titrations? Explain the oxidation-reduction titration by using this technique.
12. a) With the help of a neat diagram explain the ion exchange method for softening of Water.
b) What is break point chlorination? Explain it with a neat graph and mention any four Advantages.
13. a) Draw a neat labeled phase diagram of Pb-Ag system and explain.
b) Draw and explain phase diagram of water system and explain areas, curves and triple point in it.
14. a) What are MWCNTs? Discuss the synthesis of CNTS by any one method.
b) What are the differences between the top down approach and bottom approach for the preparation of nanomaterials and give an example of each method.
15. a) Outline the synthesis of poly phenylene oxide and poly ether sulphone.
b) Write short notes on i) RUL determination ii) Applications of refractories.
16. a) Describe the calomel electrode giving the diagram, electrode notation and electrode reaction.
b) What are scales and sludges and how are they removed?
17. Answer any *two* of the following:
 - a) What are eutectics? Give their applications.
 - b) Nematic Liquid Crystals.
 - c) Discuss the working principle of membranes and give any two applications of Membranes.

