

QP Code

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 Register Number

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VELALAR COLLEGE OF ENGINEERING AND TECHNOLOGY
(An Autonomous Institution, Affiliated to Anna University, Chennai)

Semester Examinations – April / May 2017 Regulations-2016

Programme: B.E/B.Tech Semester: 1 Max. Marks: 100 Duration 3 Hrs

Course Code & Title: **16CYT11 APPLIED CHEMISTRY-I**

Knowledge Levels (KL)	K1 - Remembering	K3 - Applying	K5 – Evaluating
	K2 - Understanding	K4 – Analyzing	K6 – Creating

Part A - Answer ALL Questions.

10 x 2 = 20 Marks

No.	Question	KL
1.	Distinguish between scale and sludge.	K4
2.	What is break point chlorination?	K1
3.	Mention any two limitations of standard hydrogen electrode.	K3
4.	State Pilling Bedworth rule.	K5
5.	State the second law of thermodynamics.	K3
6.	Give any two Maxwell equations.	K2
7.	What is carbon nanotube?	K1
8.	Distinguish between molecules and nanoparticle.	K4
9.	Define knocking.	K1
10.	Mention the advantages of gaseous fuels	K4

Part B - Answer ALL Questions.

5 x 16 = 80 Marks

No	Question	Marks	KL
11.	a How will you estimate the hardness of water by EDTA method?	16	K5
OR			
	b i. What is desalination? With a neat diagram, describe the desalination by reverse osmosis process.	8	K4
	ii. Explain the demineralization process of water in detail.	8	K3
12.	a i. Derive Nernst equation and mention its applications.	10	K5
	ii. How will you control corrosion by sacrificial anodic protection method?	6	K4

OR

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|-----|-----|--|-------------------------------------|---------------|----|
| b | i. | Explain the mechanism of electrochemical corrosion by hydrogen evolution method. | 10 | K3 | |
| | ii. | Give a brief account of conductometric titration of strong acid and strong base. | 6 | K4 | |
| 13. | a | i. | Derive Gibb's - Helmholtz equation. | 10 | K5 |
| | | ii. | Define the following terms. | 6 | K2 |
| | | a)Entropy | b)Free Energy | c)Spontaneity | |

OR

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|-----|-----|--|----|----|
| b | i. | Derive Van't Hoff isotherm. | 10 | K5 |
| | ii. | State and explain the first law of thermodynamics. | 6 | K3 |
| 14. | a | Explain the synthesis of nanoparticles by
a. Laser ablation method.
b. Hydro thermal method. | 16 | K2 |

OR

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|-----|-----|---|----|----|
| b | i. | Discuss the applications and properties of nanoparticles. | 10 | K2 |
| | ii. | Distinguish between nanoparticles and bulk materials. | 6 | K3 |
| 15. | a | How will you prepare metallurgical coke by Otto Hoffmann by product method? | 16 | K4 |

OR

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|---|-----|--|---|----|
| b | i. | How will you synthesize petrol by Bergius method? | 8 | K4 |
| | ii. | Discuss in detail about the flue gas analysis by Orsat method. | 8 | K5 |
