Code No: P18BST06

R18

HALL TICKET NUMBER

PACE INSTITUTE OF TECHNOLOGY & SCIENCES::ONGOLE
(AUTONOMOUS)
I B.TECH I SEMESTER END SUPPLEMENTARY EXAMINATIONS, FEB - 2023
ENGINEERING CHEMISTRY
(Common to CE,ME,AME Branches)

Time: 3 hours Max. Marks: 60

Note: Question Paper consists of Two parts (Part-A and Part-B)

PART-A

Answer all the questions in Part-A (5X2=10M)

Q.No.		Questions	Marks	CO	KL
1	a)	Discuss the salient features of crystal field theory.	[2M]	1	2
	b)	What are fossil fuels? Give examples.	[2M]	2	1
	c)	Define oxidation potential	[2M]	3	1
	d)	Differentiate between priming & foaming	[2M]	4	2
	e)	Discuss the chemical shift	[2M]	5	2

PART-B

Answer One Question from each UNIT (5X10=50M)

Q.No.		Questions	Marks	CO	KL
		UNIT-I			
2.	a)	Explain the molecular orbital energy level diagram of O2 molecule	[5M]	1	2
	b)	Discuss the principle of linear combination of atomic orbitals.	[5M]	1	2
		OR			
3.	a)	Discuss the CFT-Crystal Field Splitting of transition metal ion d-orbitals in octahedral complexes.	[5M]	1	2
	b)	Write a short note on band spectra of solids.	[5M]	1	1
		UNIT-II			
4.	a)	What is knocking? How it is prevented with anti-knocking agents?	[5M]	2	1
	b)	Explain the process of manufacture of synthetic petrol by Bergius process.	[5M]	2	2
		OR			
5.	a)	Discuss the flue gas analysis by Orsat apparatus.	[5M]	2	2
	b)	Explain octane number and cetane number in detail.	[5M]	2	2
		UNIT-III			
6.	a)	Derive Nernst equation and give its importance.	[5M]	3	2
	b)	Describe differential aeration corrosion.	[5M]	3	2
		OR			
7.	a)	Explain the sacrificial anodic protection.	[5M]	3	2
	b)	Discuss the process involved in Electro less plating of Ni.	[5M]	3	2
		UNIT-IV			
8.	a)	Discuss about the formation and prevention of scales in boilers.	[5M]	4	2
	b)	Write a note on breakpoint of chlorination.	[5M]	4	1
		OR			
9.	a)	Discuss briefly the ion exchange method of softening of hard water.	[5M]	4	2

	b)	What is brackish water? Explain the reverse osmosis method.	[5M]	4	1
UNIT-V					
10.	a)	What is the principle and process involved in NMR spectroscopy?	[5M]	5	1
	b)	Discuss the principle of rotational and vibrational spectroscopy.	[5M]	5	2
OR					
11.	a)	Discuss the synthesis and uses of Ibuoprofen.	[5M]	5	2
	b)	Discuss the synthesis and uses of Aspirin.	[5M]	5	2

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