			Reg. N	0.											
		Questi	on Paper Cod	le	1	1290	0								
	B.E. / B.Tech DEGREE EXAMINATIONS, APRIL / MAY 2024														
First Semester															
			Civil Eng	gine	ering										
(Common to All Branches)															
		20BSCY1	01 - ENGINE	ERI	NG (	CHE	MIS	STR	Y						
			Regulatio	ns -	2020										
Du	ration	3 Hours								Ν	lax.	Ma	rks:	100	
<b>PART - A</b> $(10 \times 2 = 20 \text{ Marks})$											Marks <sup>K–</sup> Level CO				
1.	Why is the hardness of water expressed in terms of calcium carbonat									ate	2	K2	COI	1	
2.	How arsenic poisoning is removed from the body?										2	K1	COI	!	
3.	Write any two differences between electrochemical and electrolytic cells.										2	K2	CO2	?	
4.	What are the characteristics of a good paint?									2	<i>K1</i>	CO2	?		
5.	Define: Octane number.									2	<i>K1</i>	COS	?		
6.	Write the Dulong's Formula for GCV and NCV.									2	<i>K1</i>	COS	?		
7.	What is a Breeder Reactor?									2	<i>K1</i>	CO4	t		
8.	Mention the advantages of lithium ion cells.								2	K1	CO4	t			
9.	What is Co-Polymerization?									2	K1	COS	,		
10.	What are nano-clusters?											2	K1	COS	ī
		РА	$\mathbf{AT} - \mathbf{B} (5 \times 1)$	3 = <b>(</b> Oue	<b>55 Ma</b>	rks)	)								
11.	a)	What are boiler troub minimize boiler troubl	bles? How are	e th	ey ca	, used	? Sı	ıgge	st	steps	to	13	K2	COI	/
			OR												
	b)	Explain the role adsort	pent in pollution	on ab	ateme	ent.						13	K2	COI	,
12.	a)	Explain in detail the with a neat diagram.	mechanism of	f ele	ctrocł	nemi	cal (	(wet	) co	orros	ion	13	K2	<i>CO2</i>	?
			Ur	•											

- b) What is electroless plating? Describe electroless plating of Nickel and <sup>13</sup> K<sup>2</sup> CO<sup>2</sup> discuss its applications.
- 13. a) Describe the Otto Hoffman of coke manufacture and the recovery of <sup>13</sup> K<sup>2</sup> CO<sup>3</sup> various by-products.

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OR

- b) Explain flue gas analysis by ORSAT method with suitable diagrams. 13 K2 CO3
- 14. a) What is a nuclear reactor? Describe the components of a light-water <sup>13</sup> K<sup>2</sup> CO<sup>4</sup> nuclear power plant with a suitable block diagram.

## OR

- b) Explain the construction and working principles of Lead-acid battery. 13 K2 CO4
- 15. a) How can you prepare the following? Write its properties and uses. 13 K2 CO5 (i) Kevlar (ii) Peek

## OR

b) Describe the CVD and electrodeposition techniques for the synthesis <sup>13</sup> K<sup>2</sup> CO5 of nanoparticles.

## PART - C $(1 \times 15 = 15 \text{ Marks})$

- 16. a) i) How is the softening of water carried out using the zeolite process?
  8 K2 CO1
  ii) Explain the proximate analysis of coal. Write its significance.
  7 K2 CO3
  OR
  b) i) What are the constituents of paints? Discuss the functions with 8 K2 CO2
  - b) i) What are the constituents of paints? Discuss the functions with 8 K2 CO2 examples.
    - ii) Explain the charging and discharging reactions of Lithium-ion 7 K2 CO4 batteries.