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VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS), HYDERABAD B.E. (CBCS) II-Semester Backlog Examinations, May/June-2019

Applied Chemistry

Time: 3 hours

Max. Marks: 60

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

Part-A $(10 \times 2 = 20 \text{ Marks})$

- 1. Write the electrochemical reaction at the anode and cathode in Zinc-Carbon battery.
- 2. Discuss the electrochemical reactions at anode and cathode of a Mercuric oxide - Zinc cell.
- 3. Differentiate between thermoplastics and thermosets (any four differences).
- 4. Differentiate between addition polymerization and condensation polymerization, with one example each.
- Calculate the Higher Calorific value (H.C.V) of the given fuel using the Dulong's 5. formula, when the given fuel consists of 80% Carbon, 10% Hydrogen, 2% Sulphur and the remaining Ash Code No. 1 13 F -
- Define Octane Number and write its eignificance (AUTONOMOUS), HVDERAGE. 6.
- Write the principle of Rocket Propulsion. Examinations, May/Suns-2019 7.
- Mention any six characteristics of Explosives 8.
- Max. Master of 9. Define Beer-Lambert's law and write its mathematical formal and science from Page 8
- 10. Explain the principle involved in Flame-Photometry. James

is one the electrochemical reac Part-B (5 x18 40 Marks) do it. Zeno-Carbon battery.

- 11. a) Construct a Lead-acid Cell and discuss electrochemical reactions (at anode, cathode [4] and the overall) during the discharging process of the Lead-acid Cell.
 - b) i) Construct a Silver oxide-Zinc cell and discuss electrochemical reactions (at anode, cathode and the overall).
 Differentiate between addition polymerization and condensation polymerization, with
- ii) Write any two applications of the Silver oxide-Zinc cell. [1]
- 12. a) i) Explain the method of preparation and properties of phenol formaldehyde (Bakelite). [2] ii) Discuss any two applications of polymethyl methacrylate. Hydrogen, 2% Sulpton and [2]
 - b) i) Explain the method of preparation of Silicon Rubber. [2]
- ii) Discuss the properties and any two applications of Buna-S. [2]
- 13. a) i) The percentage of analysis of coal is found to be, Carbon=80%, Hydrogen=8%, [3] Sulphur=1%, Oxygen=1% and the remaining is ash. Calculate the minimum weight
 - of air required for complete combustion of 1kg of coal. [1] ii) Write the chemical composition of LPG.
- b) Explain the Fixed bed catalytic cracking method of producing gasoline. [4]
- 14. a) Write any eight characteristics of a good propellant. [4]

b) Conveyent to Silver ording Zibe real and disgues electrodeconium renegions in the contraction.

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hat Westerany two applications of the Silver exide Zinc cell.

Write the classification of rocket propellants. b) [4]

[3]

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15. a)	function of each of the components.	[4]		
b)	Discuss the principle involved in TGA and explain thermogram of calcium oxalate.			
16. a)	Construct a Zinc-alkaline Battery and discuss the electrochemical reaction at the anode, cathode and the overall cell reaction. Write the advantages of Zinc-alkaline Battery in comparison to Zinc-acidic Battery.			
b)	 i) Define co-polymer and mention two examples. ii) Differentiate between Homo chain and Hetero chain polymers with one suitable example for each. 	[2] [2]		
17.	Answer any two of the following:			
a)	i) Explain the trans-esterfication of Biodiesel and mention its advantages over perto diesel.	[4]		
b)	Explain the preparation of lead azide and precautions needed during its storage.	[4]		
c)	Explain how Copper (II) in the given sample is estimated using visible spectrophotometer.	[4]		

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