

2112E059

BACHELOR OF VOCATION
Solar Technology
Subject: Sustainable Chemistry
Subject Code: CHE-601
Semester: Third
December 2021
Theory (External): 35 Marks
Time: 03 Hours

Instructions to the Students

1. This Question paper consists of two Sections. All sections are compulsory.
2. Section A comprises 10 questions of objective type in nature. All questions are compulsory. Each question carries 1 mark.
3. Section B comprises 8 essay-type questions out of which students need to do any 5. Each question carries 5 marks.
4. Read the questions carefully and write the answers in the answer sheets provided.
5. Do not write anything on the question paper.
6. Wherever necessary, the diagram drawn should be neat and properly labeled

Roll Number									

SECTION -A (SHORT/OBJECTIVE TYPE QUESTIONS)
(10x1=10 Marks)

- A. What is the main objective of energy storage?
- a) Offset adverse effect of fluctuating demand
 - b) Assure steady output from existing plants
 - c) Meet peak demand on short notice
 - d) All of the above
- B. A flywheel's energy storage can be increased by
- a) Locating more mass at the circumference
 - b) Reducing frictional losses
 - c) Choosing material with high tensile strength
 - d) All of the above
- C. Corrosion of metals involves
- a) Physical reactions
 - b) Chemical reactions
 - c) Both
 - d) None
- D. Which of the following is/are the types of cathodic protection?
- a) External impressed current supply
 - b) Sacrificial anode
 - c) External impressed current supply and sacrificial anode
 - d) Neither external impressed current supply nor sacrificial anode

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E. Consider a reaction of polymer formation by condensation polymerization, completed in n -steps, with the liberation of a certain byproduct. How many total molecules of byproduct are released as a result of complete reaction?

- a) $n+1$
- b) n
- c) $n-1$
- d) $n/2$

F. Most polluted river in the world is

- a) Yamuna
- b) Cavery
- c) Chenab
- d) Ganga

G. Which of the following is a property of thermosetting plastics?

- a) Can be molded
- b) Soft
- c) Recyclable
- d) Can be used at high temperatures

H. On the basis of mode of formation polymers can be classified:

- a) as addition polymers only
- b) as condensation polymers only
- c) as copolymers
- d) as addition and condensation polymers

I. The process of heat softening, moulding and cooling to rigidity can be repeated for which plastics?

- a) Thermosetting plastics
- b) Thermoplastics
- c) Both (a) and (b)
- d) neither (a) and nor (b)

J. The capacity of a battery is expressed in terms of

- a) Current rating
- b) Voltage rating
- c) Ampere hour rating
- d) None of the above

SECTION -B (ESSAY TYPE QUESTIONS)
(5x5=25 Marks)

1. Explain working of H₂-O₂ fuel cell with neat and clean diagram.

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- 2. What is paint. Explain heat and fire resistant paint.
 - 3. Define monomer and polymer. Explain preparation and use of polythene and teflon.
 - 4. Write the fabrication and working principle of DSSC with neat and clean diagram.
 - 5. Explain primary and secondary pollutant of water.
 - 6. Explain the role of sustainable chemistry (Current subject) in renewable energy system.
 - 7. Explain thermal and pumped-hydro energy storage system with neat and clean figure.
 - 8. (a) Explain greenhouse effect. 2.5
(b) Explain Treatment of air pollution. 2.5

===END OF PAPER===