

PART 1 - CHEMISTRY

Topic : Polymers, Aldehydes, ketones and carboxylic acids

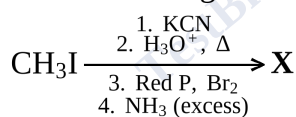
SECTION-B : (Maximum Marks : 16)

- This section contains **ONE** paragraph.
- Based on each paragraph, there are **FOUR** questions.
- The answer to each question is a **NUMERICAL VALUE**.
- For each question, enter the correct numerical value of the answer (in decimal notation, truncated / rounded-off to the **SECOND DECIMAL PLACE**; e.g. 6.25, 7.00, -0.33, -0.30, 30.27, -127.30) in the place designated to enter the answer.
- Answer to each question will be evaluated according to the following marking scheme :

Full Marks : +4 If ONLY the correct answer is entered;

Zero Marks : 0 In all other cases.

1. In the following reaction sequence, major products X and Y are acyclic monomers.



500 mol of X completely reacts with 500 mol of Y to give 1 mol of a single biodegradable acyclic copolymer Z as the only product. The amount of Z formed in grams is ____.

Given:

Atomic mass (in amu): H : 1, C : 12, N : 14, O : 16, Br : 80

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2. The monomer (X) involved in the synthesis of Nylon 6,6 gives positive carbylamine test. If 10 moles of X are analyzed using Dumas method, the amount (in grams) of nitrogen gas evolved is ____.

Use: Atomic mass of N (in amu) = 14

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Paragraph for Questions 3 and 4

An organic compound P with molecular formula $\text{C}_9\text{H}_{18}\text{O}_2$ decolorizes bromine water and also shows positive iodoform test. P on ozonolysis followed by treatment with H_2O_2 gives Q and R. While compound Q shows positive iodoform test, compound R does not give positive iodoform test. Q and R on oxidation with pyridinium chlorochromate (PCC) followed by heating give S and T, respectively. Both S and T show positive iodoform test.

Complete copolymerization of 500 moles of Q and 500 moles of R gives one mole of a single acyclic copolymer U.

[Given, atomic mass: H = 1, C = 12, O = 16]

Space for Rough Work

PYQSide

3. Sum of number of oxygen atoms in S and T is _____.

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4. The molecular weight of U is _____.

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Space for Rough Work

JEE ADVANCED POLYMERS — PYQS

Test Pattern : JEE (Advanced)

ANSWER KEY

SECTION-B

Ques.	1	2	3	4				
Ans.	85018 to 85138.02	280	2	93018				