

BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)

CLASS: BE
BRANCH: CHEMICAL ENGG-PLASTICS & POLYMER

SEMESTER : IV
SESSION : SP/19

SUBJECT: PC4003-POLYMER TECHNOLOGY-I

TIME: 3 Hours

FULL MARKS: 60

INSTRUCTIONS:

1. The question paper contains 7 questions each of 12 marks and total 84 marks.
 2. Candidates may attempt any 5 questions maximum of 60 marks.
 3. The missing data, if any, may be assumed suitably.
 4. Before attempting the question paper, be sure that you have got the correct question paper.
 5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
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- Q.1(a) Define bleeding and blooming. [2]
Q.1(b) Plasticisers play a critical role in PVC compounding - Justify with suitable examples. [4]
Q.1(c) What are the different types of antioxidants and how are they work in polymer oxidation stability? Write with suitable examples. [6]
- Q.2(a) How are flame retardants work in extinguishing fire? [2]
Q.2(b) Write short notes on nucleating agents. [4]
Q.2(c) What is coupling agents? Write down its working principle with suitable examples. [6]
- Q.3(a) What is chlorinated polyethylene? Write down the typical application areas of chlorinated polyethylene. [2]
Q.3(b) What are the roles of toughening agents in polymer industries? Give suitable examples. [4]
Q.3(c) Write short notes on antistatic agents. [6]
- Q.4(a) How is PTFE processed? [2]
Q.4(b) Discuss the crosslinking methodologies of XLPE. [4]
Q.4(c) Describe in detail the production of LDPE with flow diagram. [6]
- Q.5(a) The melting point of aliphatic nylons depends on the number of methylene groups present in it's structure - Discuss with suitable diagram. [2]
Q.5(b) Write a short note on polyamideimide (PAI). [4]
Q.5(c) How is nylons 6 synthesized? [6]
- Q.6(a) Write down the typical applications of polyvinyl alcohol. [2]
Q.6(b) How is acrylic sheet manufactured? [4]
Q.6(c) How is polystyrene synthesized by bulk polymerization process? Write down it's typical applications. [6]
- Q.7(a) VA content of EVA plays a critical role on its performance - discuss. [2]
Q.7(b) What is ionomer? Describe the salient features of ionomer. [4]
Q.7(c) How heat resistant, fire retardant and transparent ABS grades are manufactured? [6]

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