

**BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(MID SEMESTER EXAMINATION)**

CLASS: BE
BRANCH: CHEM & CHEM (P&P)

SEMESTER: VII
SESSION : MO/2019

SUBJECT : PC7011 PLASTICS PRODUCT DESIGN

TIME: 1.5 HOURS

FULL MARKS: 25

INSTRUCTIONS:

1. The total marks of the questions are 30.
 2. Candidates may attempt for all 30 marks.
 3. In those cases where the marks obtained exceed 25 marks, the excess will be ignored.
 4. Before attempting the question paper, be sure that you have got the correct question paper.
 5. The missing data, if any, may be assumed suitably.
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- Q1 Discuss the basic stages of plastics product design process. [5]
- Q2 (a) Why plastics in product design? [2]
 (b) Discuss the following design related plastics material properties. [2x1.5]
 (i) Short term stress-strain behavior
 (ii) Long term mechanical properties - Creep Behavior
- Q3 Discuss the process selection guidelines for the following plastics processing techniques. [2x2.5]
 (i) Blow Molding
 (ii) Thermoforming
- Q4 Discuss compression and transfer molding process with a neat sketch and its process selection criteria in plastics product design. [5]
- Q5 (a) Discuss the concept of structural design of plastics product using Limit States Principle. [2]
 (b) Discuss the design by experimental approach in structural design methodology of plastics product. [3]
- Q6 Discuss the different factors in structural design of plastics product which the designer will need to assess before beginning any type of structural design calculations. [5]

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