

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

**CLASS: BE  
BRANCH: PROD / MECH**

**SEMESTER: V  
SESSION : MO/2019**

**SUBJECT : PE5001 MANUFACTURING PROCESSES II**

**TIME: 1.5 HOURS**

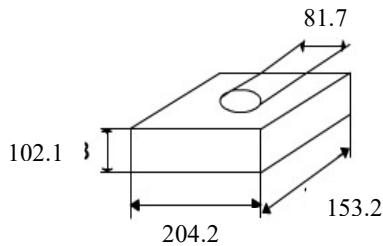
**FULL MARKS: 25**

**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 (a) What are the challenges facing by casting industries in recent times? [2]  
(b) How to select the pattern material? What are the advantages and limitations of using 'wood' as pattern material? [3]

- Q2 The casting shown in figure is to be made in steel using a wooden pattern. Provide draft allowance to the pattern. Show the final dimensions on the pattern. Assume  $1^\circ$  taper for external details and  $3^\circ$  taper for internal details. All dimensions are in mm. [5]



- Q3 (a) What is meant by 'investment' in investment casting process? [2]  
(b) Compare among true centrifugal casting, semi centrifugal casting and centrifuging process. [3]

- Q4 (a) Squeeze casting combines the advantages of casting and forging - justify. [2]  
(b) Which casting process is suitable to manufacture pressure cooker? Explain that process steps. [3]

- Q5 (a) What are the purposes of fettling operations? [2]  
(b) Discuss the causes and remedies of the following casting defects: Blow holes, Cold shut, Misrun [3]

- Q6 With neat sketch, show the zones of cupola furnace and mention the function of each zone. [5]