

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

**CLASS: BTECH
BRANCH: MECH**

**SEMESTER: III
SESSION: MO/2022**

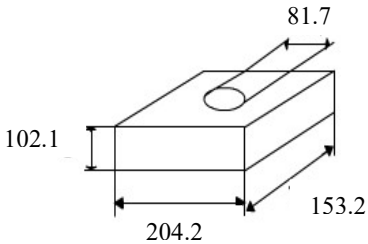
SUBJECT: PE213 MANUFACTURING PROCESSES

TIME: 2 HOURS

FULL MARKS: 25

INSTRUCTIONS:

1. The total marks of the questions are 25.
 2. Candidates attempt for all 25 marks.
 3. Before attempting the question paper, be sure that you have got the correct question paper.
 4. The missing data, if any, may be assumed suitably.
 5. Tables/Data handbook/Graph paper etc. to be supplied to the candidates in the examination hall.
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|---|--|-----------|---------------|
| Q1 (a) | Casting is the oldest manufacturing process, still it has significance in the field of manufacturing - Justify | [2] 1 | Analysing |
| Q1 (b) | Differentiate between hot chamber die casting and cold chamber die casting operation | [3] 1 | Analysing |
| 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° taper for external details and 3° taper for internal details. All dimensions are in mm. | [5] 4 | Applying |
|  | | | |
| Q3 (a) | Compare orthogonal cutting and oblique cutting | [2] 1/3 | Analysing |
| Q3 (b) | On a single point cutting tool, show the significant angles and edges involved in metal cutting | [3] 1 | Understanding |
| Q4 (a) | What are the different types of chips form in machining operations? | [2] 1 | Remembering |
| Q4 (b) | Taylor's tol life equation is given by: $VT^n = C$. In a turning operation, two tools X and Y are used. For X, $n=0.3$ and $C=60$; for Y, $n=0.6$ and $C=90$. Determine the cutting speed for which both the tools will have the same tool life. | [3] 1 | Applying |
| Q5 (a) | How can you specify a lathe machine? | [2] 1 | Understanding |
| Q5 (b) | Explain the parameters on the basis of which lathe machine can be classified. | [3] 1 | Understanding |

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