

**BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI**  
**(MID-SEMESTER EXAMINATION SP/2024)**

**CLASS: BTECH**  
**BRANCH: PIE**

**SEMESTER :**  
**SESSION: SP/2024**

**SUBJECT: PE336-TOOLING FOR MANUFACTURING**

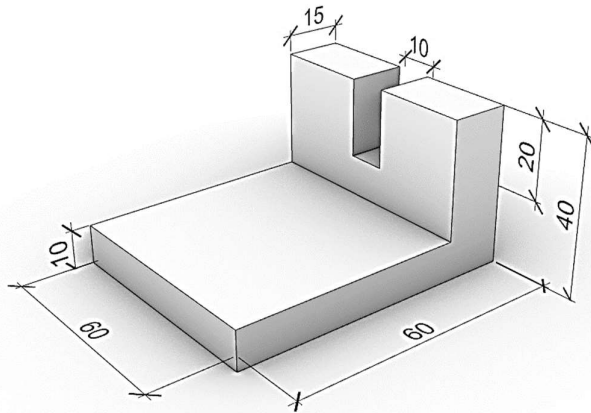
**TIME: 02 Hours**

**FULL MARKS: 25**

**INSTRUCTIONS:**

1. The question paper contains 4 questions and a total of 25 marks.
  2. Attempt all questions.
  3. The missing data, if any, may be assumed suitably.
  4. Tables/Data handbook/Graph paper etc., if applicable, will be supplied to the candidates
- 

		CO	BL
Q.1(a)	Make a brief note on HSS.	[2]	1 2
Q.1(b)	List out the characteristics of the material needed to make gauges.	[3]	1 3
Q.2(a)	What is a 3-2-1 principle in jigs and fixtures?	[2]	2 3
Q.2(b)	What is meant by over locations? Explain the effect of over-location on machining accuracy with simple examples	[3]	2 4
Q.3	Design and draw a suitable drill jig to drill 4 holes of 5 mm diameter at 70 pitch circle diameter on Ø 120 mm diameter 60 mm thickness mild steel plate	[8]	2 5
Q.4	Propose a milling fixture for the workpiece shown in the figure. The workpiece should be positioned to allow the slot to be machined on a horizontal milling machine using a staggered-tooth side-milling cutter. All dimensions are in mm	[7]	2 5



:::23/02/2024:::M