Reg. No.												

Question Paper Code	12153

B.E. / B.Tech. - DEGREE EXAMINATIONS, NOV / DEC 2023

Sixth Semester

Mechanical Engineering

(Common to Production Engineering)

ME8095 - DESIGN OF JIGS, FIXTURES AND PRESS TOOLS

(Regulations 2017)

(Use of Standard Design Data Book is permitted)

Duration: 3 Hours Max. Marks: 100

PART - A (10 × 2 = 20 Marks)

Answer ALL Questions

		Marks, K-Level, CO
1.	Differentiate jigs and fixtures.	*2,K2,CO1*
2.	What is fool proofing?	*2,K1,CO1*
3.	Mention any four different drill jigs.	*2,K1,CO2*
4.	Sketch a plate jig.	*2,K2,CO2*
5.	What are mandrels?	*2,K1,CO3*
6.	What is the purpose of modular fixtures?	*2,K1,CO3*
7.	What is a combination die?	*2,K1,CO4*
8.	What is the function of a stripper?	*2,K1,CO4*
9.	What is meant by forming?	*2,K1,CO5*
10.	Mention the applications of sheet metal.	*2,K1,CO6*

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

11.	a)	Explain 3-2-1 principle of location and show how many degrees of freedom are arrested using them.	*13,K2,CO1*
		OR	
	b)	List the different types of clamps and explain any five of them with neat sketches.	*13,K2,CO1*
12.	a)	Discuss the concepts of any three types of drill jigs with a neat sketch.	*13,K2,CO2*
		OR	
	b)	Design a channel jig for a mild steel component as shown in the Figure - 1 to drill the hole diameter of 18 mm.	*13,K3,CO2*

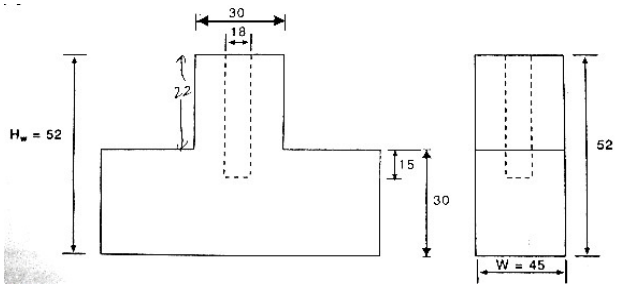

Figure - 1

13. a) Sketch and explain a turning fixture used for machining non-cylindrical components. *13,K2,CO3*

OR

b) Explain the Milling Fixture and Broaching Fixture with neat sketches. *13,K3,CO3*

14. a) Explain the various elements of a simple press with a neat sketch. *13,K2,CO4*

OR

b) Illustrate with a neat sketch for press working terminology. *13,K2,CO4*

15. a) A shell as shown in figure 2 has a height of 48 mm and a diameter of 48 mm. The corner radius is 2 mm and the material is mild carbon steel and is 1mm thick. Design a die for a drawing operation. *13,K3,CO5*

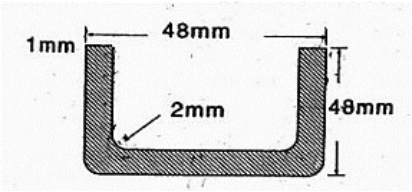

Figure - 2

OR

b) Explain single action and double action die with a neat sketch. *13,K3,CO5*

PART - C (1 × 15 = 15 Marks)

16. a) Briefly explain the concept of poka yoke. *15,K2,CO6*

OR

b) Write short notes on the following forming process with a neat sketch. (a)Fine blanking (b) Swaging (c) Shaving (d) Coining. *15,K2,CO6*