

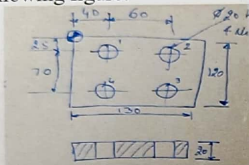
2112E046

BACHELOR OF VOCATION
Production-Tool and Die Manufacturing
Subject: Basics of Jigs & Fixtures
Subject Code: ME-602
Semester: Third
December 2021
Theory (External): 70 Marks
Time: 03 Hours

Q3 Explain the working principle of following with the help of neat sketches:

- (a) Quick action clamps
- (b) Toggle clamps

Q4 Design and draw a drill jig for drilling four holes of diameter 20 mm as shown in the following figure:



All Dimensions are in MM.

Q5 What is clamping? Describe any four types of clamping devices with neat sketches.

Q6 What is the function of jig bushes? Describe any four types of jig bushes with neat sketches.

Q7 Explain the function of following with neat sketches:

- (i) Diamond pin locator
- (ii) Equilising jacks
- (iii) Cylindrical locators

Q8 Sketch and describe an arrangement of fixed and sliding V-blocks for locating a round surface.

*****END OF PAPER*****

Instructions to the Students

1. This Question paper consists of two Sections. All sections are compulsory.
2. Section A comprises 10 questions of objective type in nature. All questions are compulsory. Each question carries 2 marks.
3. Section B comprises 8 essay type questions out of which students need to do any 5. Each question carries 10 marks.
4. Read the questions carefully and write the answers in the answer sheets provided.
5. Do not write anything on the question paper.
6. Wherever necessary, the diagram drawn should be neat and properly labelled.

Roll Number

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SECTION –A (SHORT/OBJECTIVE TYPE QUESTIONS)
(10x2=20 Marks)

- A Jigs are not used for
(a) Drilling
(b) Milling
(c) Reaming
(d) Tapping
- B A fixture does not
(a) Holds the workpiece
(b) Locates the workpiece
(c) Guides the tool
(d) All of these
- C Which of these is a quick action clamp
(a) Hinged clamp
(b) Edge clamp
(c) Bridge clamp
(d) Cam operated clamp
- D Number of degrees of freedom a workpiece in space is equal to
(a) 8
(b) 10
(c) 12
(d) 14
- E In which of the following operation jigs are preferred over fixture?
(a) Drilling
(b) Turning
(c) Milling
(d) Grinding
- F Which of the following is not correct about jig?
(a) It is used to hold the work
(b) It is used to position the work the work
(c) It is used to guide the cutting tool
(d) None of the mentioned

- G Lathe mandrels can be termed as a
(a) Jig
(b) Fixture
(c) Gauge
(d) Template
- H Which one of the following bushing is used to locate the renewable bushing
(a) Press fit bushing
(b) Liner bushing
(c) Special bushing
(d) Knurled bushing
- I Which among the following is a locate used for location from internal diameter
(a) Solid support
(b) Pin type locator
(c) Vee locator
(d) Nest locator
- J Drill jig bushings are generally made of
(a) Mild steel
(b) Cast iron
(c) Cast steel
(d) Tool steel

SECTION –B (ESSAY TYPE QUESTIONS)
(5x10=50 Marks)

- Q1 (a) Explain 3-2-1 principle of location with the help of neat sketches.
(b) What are the materials used for locating and clamping elements?
- Q2 Explain the working principle of following with the help of neat sketches:
(a) welding fixture
(b) boring fixture