

BACHELOR OF VOCATION
Tool and Die Manufacturing
Subject: Introduction to Jigs and Fixtures
Subject Code: CBME-201
Semester: Third
January 2021
Theory (External): 70 Marks
Time: 03 Hours

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										

SECTION –A (SHORT/OBJECTIVE TYPE QUESTIONS)

(10x2=20 Marks)

- A A fixture does not
- a) Hold the workpiece
 - b) Locate the workpiece
 - c) Guide the tool
 - d) All of the above
- B Which fluid is used in hydraulic power systems?
- a) Water
 - b) Oil
 - c) Non-compressible fluid
 - d) All of the above
- C Which fixtures are used for machining parts which must have machined details evenly spaced?
- a) Profile fixtures
 - b) Duplex fixtures
 - c) Indexing fixtures
 - d) None of the above
- D V-blocks (Vee locators) are used for clamping as well as locating when faces are inclined upto
- a) 30°
 - b) 12°
 - c) 9°
 - d) 3°
- E The following is a quick acting clamp
- a) Hinged clamp
 - b) Cam operated clamp
 - c) Bridge clamp
 - d) Edge clamp
- F The following material is commonly used for making locating and clamping devices
- a) High carbon steel
 - b) High speed steel
 - c) Low-carbon steel
 - d) Die steel

G Which one of the following devices is used for the fabrication of a job by welding which is set in this device so that it can be swiveled around 360° as per the requirement?

- a) Gauze
- b) Template
- c) Jig
- d) Fixture

H Tolerance on jig should be

- a) 5% of tolerance on job
- b) 10% of tolerance on job
- c) 20% of tolerance on job
- d) 50% of tolerance on job

I The following holds the workpiece securely in a jig or fixture against the cutting forces

- a) Locating device
- b) Clamping device
- c) Guiding device
- d) Indexing device

J Which among the following jigs is used for location from a bore?

- a) Plate jig
- b) Solid jig
- c) Post jig
- d) Box jig

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

- Q1 Enumerate the differences between fits and limits. What are their roles in jigs and fixtures?
- Q2 Describe the factors which influence the selection of pneumatic and hydraulic actuation systems for jigs and fixtures.
- Q3 Sketch and explain the parts of a typical jig. Name and briefly explain the different types of jigs with their applications.
- Q4 What are the roles of bushes in jigs? Name and sketch the different bushes used in jigs.
- Q5 What are the essentials of a typical fixture? Name and sketch the types of fixtures used in the industries.
- Q6 What are the basic principles of clamping devices? Explain the difference screw and strap types of clamping devices.
- Q7 Sketch and explain air operated drilling jig components.
- Q8 Write short notes on following:
- a) Fool proofing
 - b) Locating methods
 - c) Locating devices

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