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Question Paper Code: U8761

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2023

One credit

Mechanical Engineering

21UME861 – JIGS AND FIXTURES

(Regulations 2021)

Duration: 1.30 hours

Maximum: 50 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. The simplest and low cost clamp used in jigs and fixtures is CO1-U
(a) Strap clamp (b) Cam clamp (c) Toggle clamp (d) Equalizer
2. Select the operation that does not require a jig CO1-U
(a) drilling (b) reaming (c) tapping (d) turning
3. If the diameter of the hole is considerable variation, then for locating in jigs and fixtures, the type of locator is CO1-U
(a) Conical locator (b) Cylindrical locator
(c) Diamond pin locator (d) None of these
4. The jigs suitable for complicated workpieces with irregular contours is CO1-U
(a) Leaf jigs (b) Template Jigs (c) Plate Jigs (d) Pot jigs
5. Which of the following types of jig is used for machining more than one plane in single setting? CO1-U
(a) Open type jig (b) Box type jig (c) Plate type jig (d) Template jig
6. 3-2-1 principles related to CO1-U
(a) Work sampling (b) Tool design
(c) Plant layout design (d) Designing of locating devices
7. The uses of fixtures mainly reduces CO1-U
(a) Only operation time (b) tooling cost (c) Only setting time (d) Both (a) and (c)

8. Mandrel is used for a holding CO1-U
 (a) Rectangular job (b) hollow cylindrical job
 (c) cylindrical job (d) None of the above
9. The floating position of holding fixture in a rotary transfer device is used to CO1-U
 (a) Improve the accuracy of location
 (b) Reduce the tendency to over index
 (c) Reduce the cycle time
 (d) Improve upon the acceleration and deceleration characteristics
10. The workpiece can be held for machining on a surface grinder by CO1-U
 (a) Clamping (b) Magnetic chuck (c) special fixtures (d) all of the above

PART – B (2 x 20 = 40 Marks)

11. (a) List the various locating devices? Explain any four of them in CO2- U (20)
 with aid of suitable sketches.
- Or
- (b) With proper sketch explain the operation of a Modular fixture CO2- U (20)
 with example.
12. (a) Draw and explain the construction of plate jigs and box jigs. CO1-U (20)
- Or
- (b) Explain the tolerances and its types. What are the materials used CO1-U (20)
 in Jigs and Fixture.