

**B.E DEGREE EXAMINATIONS: NOV/DEC 2012**

Seventh Semester

**MECHANICAL ENGINEERING**

MEC133: Design of Jigs, Fixtures and Press Tools

**Time: Three Hours**

**Maximum Marks: 100**

**Answer all the Questions:-**

**PART A (10 x 1 = 10 Marks)**

1. Six point location principle is otherwise called as
  - a) 3-2-1 principle
  - b) 2-1-3 principle
  - c) 1-2-3 principle
  - d) none of the above
2. Stramp clamp is also called as
  - a) Screw clamp
  - b) Edge clamp
  - c) Lever clamp
  - d) Latch clamp
3. Post jigs are also called as
  - a) Turnover jigs
  - b) Pot jigs
  - c) Plate jigs
  - d) Angle plate jigs
4. Jig feet are provided at
  - a) Side of the jig
  - b) Bottom of the jig
  - c) Top of the jig
  - d) Inside the jig
5. Turning fixtures are otherwise called as
  - a) Lathe fixtures
  - b) Shaping fixtures
  - c) Milling fixtures
  - d) Assembly fixtures
6. A mechanical guage acts as an
  - a) Lathe fixtures
  - b) Inspection fixture
  - c) Milling fixtures
  - d) Assembly fixture
7. Upper die shoe is otherwise called as
  - a) Punch holder
  - b) pitman
  - c) Stop block
  - d) Die set
8. ----- is attached to the top surface of the press bed.
  - a) Bolster plate
  - b) pitman
  - c) Stop block
  - d) Die set
9. Die block area is approximately ----- times the die thickness
  - a) 2-3
  - b) 5-7
  - c) 8-9
  - d) 4-6

10. Metal working above recrystallisation temperature is called as
- a) Cold forging
  - b) hot forging
  - c) extrusion
  - d) casting

**PART B (10 x 2 = 20 Marks)**

- 11. Differentiate between jigs and fixtures.
- 12. Define clamping force.
- 13. State the use of clamps.
- 14. What are the disadvantages of leaf jigs?
- 15. Mention a few standard work holding devices in lathes.
- 16. What is the advantage of vacuum chucking?
- 17. Define clearance.
- 18. State the applications of press working operations.
- 19. What is the purpose of stock up?
- 20. What is meant by bending allowance?

**PART C (5 x 14 = 70 Marks)**

- 21. a) Highlight the factors to be considered for design of jigs and fixtures.  
(OR)  
b) Explain the working of mechanical actuated clamps in detail with sketches.
- 22. a) Describe the working of a rack and pinion operated drill jig in detail with sketches.  
(OR)  
b) Explain the working of pneumatic drill jig with sketches.
- 23. a) Sketch and explain the working of a grinding fixture.  
(OR)  
b) Explain the principle of working of broaching fixtures with sketches.
- 24. a) Discuss the operating procedures of compound dies.  
(OR)  
b) Elaborate on the elements of progressive dies in detail.

25. a) Explain the procedure of design of forming dies.

**(OR)**

b) Comment on the design considerations in forging and extrusion.

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