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Question Paper Code: 51732

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2016

Third Semester

Mechanical Engineering

15UME302 - MANUFACTURING TECHNOLOGY - I

(Regulation 2015)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

- Facing sand used in foundry work comprises of
 - alumina, silica and clay
 - clay and alumina
 - silica and alumina
 - clay and silica
- Which of the following is not a casting defect?
 - hot tear
 - decarburization
 - blow hole
 - scab
- In the resistance welding , the pressure is released
 - just at the time of passing the current
 - after completion of current
 - after the weld cools
 - during heating period
- A soldering iron 'bit' is made of
 - brass
 - tin
 - steel
 - copper
- An important product manufactured by rolling is
 - I- section
 - tubes
 - rollers
 - discs

6. The collapsible tooth paste tubes are manufactured by
- | | |
|----------------------|------------------------|
| (a) direct extrusion | (b) piercing |
| (c) impact extrusion | (d) indirect extrusion |
7. In press operation, the size of the pierced hole is dependent on the size of
- | | |
|------------------------------|-----------------------|
| (a) punch | (b) die |
| (c) average of punch and die | (d) die and clearance |
8. The cold heading is the process of
- | | |
|-------------------------|------------------------------|
| (a) chip less machining | (b) high energy rate forming |
| (c) explosive forming | (d) magnetic pulse forming |
9. Injection molding is the ideal method of processing
- | | |
|--------------------|-----------------------------|
| (a) plastics | (b) thermo-setting plastics |
| (c) thermoplastics | (d) None of these |
10. Plastic bottles are manufactured using the process of
- | | |
|------------------|-----------------------|
| (a) blow molding | (b) injection molding |
| (c) atomizing | (d) die casting |

PART - B (5 x 2 = 10 Marks)

11. List some of the major disadvantages of the expendable mold casting processes.
12. What is filler metal, and why might it be needed to produce a joint?
13. Why heated dies are generally employed in hot-press forging operations?
14. State the principle of working of hydro forming.
15. Enlist the difference between a positive mold and a negative mold in thermoforming.

PART - C (5 x 16 = 80 Marks)

16. (a) (i) Discuss the various properties of molding sands. (8)
- (ii) Describe how permeability and moisture content of molding sand are determined. (8)

Or

(b) Explain briefly step by step procedure for the following:

- | | |
|-------------------------------|-----|
| (i) Shell Molding. | (8) |
| (ii) Co ₂ Molding. | (8) |

17. (a) (i) Sketch and briefly describe the working of oxy-acetylene gas welding and also explain the three types of flames can be produced by varying the oxygen–fuel ratio with neat sketch. (10)
- (ii) Discuss the attractive features of submerged arc welding with a neat sketch and list its major limitations. (6)

Or

- (b) (i) Describe the sequence of steps in thermit welding process with a neat sketch and states its applications. (8)
- (ii) Sketch and briefly describe the working of friction welding. (8)
18. (a) (i) Describe the operational features of closed die forging with a neat sketch. (6)
- (ii) Sketch and describe the important features of various rolling mills. (10)

Or

- (b) (i) Explain the basic methods of lubrication used in wire drawing. (6)
- (ii) Explain with a neat sketch of the attractive features of the direct and indirect extrusion processes. (10)
19. (a) (i) Explain the sheet metal operations like flanging, hemming and beading with a neat sketch. (6)
- (ii) Illustrate with neat sketches the deep drawing and stretch forming operations. (10)

Or

- (b) Explain in details about the principle of operation of super plastic forming with a neat sketch. (16)
20. (a) Sketch and briefly describe the working of transfer molding processes. (16)

Or

- (b) Discuss briefly the working principle and most attractive feature of rotational molding with a neat sketch. (16)
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