

**B.E. DEGREE EXAMINATIONS: APRIL / MAY 2010**

Fourth Semester

**MECHATRONICS ENGINEERING**

U07MH401: Manufacturing Technology

**Time: Three Hours**

**Maximum Marks: 100**

**Answer ALL the Questions:-**

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

1. Investment casting uses pattern made of  
A. Wax                      B. Clay                      C. Metal                      D. Wo
2. Cast iron and steel pipes are produced by  
A. die casting                      B. slush casting  
C. investment casting                      D. true centrifugal casting
3. Process of increasing the cross-section of a bar and reducing its length is known as  
A. spinning                      B. upsetting                      C. drawing down                      D. reaming
4. Process used for making seamless tube is  
A. extrusion                      B. piercing                      C. forging                      D. casting
5. Angle on which the strength of the tool depends is  
A. Lip angle                      B. rake angle                      C. cutting angle                      D. clearance angle
6. Included angle of the lathe centre is  
A. 30°                      B. 45°                      C. 60°                      D. 90°
7. The usual ratio of forward and return stroke in shaper is  
A. 2:1                      B. 1:2                      C. 2:3                      D. 3:2
8. The glazing of the grinding wheel is due to  
A. Cracks on grinding wheel                      B. wear of bond  
C. wear of abrasive grains                      D. breaking up of abrasive grains
9. TIG welding is preferred for  
A. Mild steel                      B. aluminium                      C. silver                      D. copper
10. Grey cast iron is usually welded by  
A. Submerged arc                      B. plasma arc                      C. Manual arc                      D. TIG

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

11. List out the different types of sand moulds.
12. Write the requirements of a good pattern.
13. Define Forging.
14. Compare “metal spinning” and “deep drawing”.

15. Name the various cutting tool materials.
16. Differentiate between reaming and boring process.
17. Enumerate the advantages and limitations of broaching process.
18. Differentiate between up milling and down milling.
19. Sketch the three types of flames used in gas welding process.
20. Distinguish between “welding”, “brazing” and “soldering” process.

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

21. (a) With the help of a diagram, explain the working of a “cupola”.

**(OR)**

- (b) Explain the machine architecture of SIC / XE in detail.

22. (a) Differentiate between hot and cold working of metals. Bring out the advantages and disadvantages of each of these techniques.

**(OR)**

- (b) Describe the common ways of extruding metals.

23. (a) Describe in brief an engine lathe. How a lathe is specified?

**(OR)**

- (b) Describe twist drill nomenclature using sketches.

24. (a) Name different broaching machines. Sketch block diagram of any one and identify parts. Describe the machine in brief.

**(OR)**

- (b) Describe the principle of quick return mechanism as used in shapers.

25. (a) with neat sketches explain the following electric arc welding processes:

(i). Shielded metal arc welding (7)

(ii). Gas Tungsten arc welding (7)

**(OR)**

- (b) With neat sketches explain the following welding methods:

(i). Friction welding (7)

(ii). Ultra-sonic welding (7)

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