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**Question Paper Code: U3706**

B.E./B.Tech. DEGREE EXAMINATION, NOV 2025

Third Semester

Mechanical Engineering

21UME306 - MANUFACTURING PROCESSES

(Regulations 2021)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. A casting defect which occurs due to improper venting of sand is known as CO1- U  
(a) cold shuts (b) blow holes  
(c) shift (d) swell
2. The sand in its natural or moist state is called as CO1- U  
(a) green sand (b) loam sand (c) dry sand (d) none of the above
3. In arc welding, arc is created between the electrode and work by CO1- U  
(a) contact resistance (b) flow of voltage (c) flow of current (d) electrical energy
4. Which flame is suitable for welding steel? CO1- U  
(a) oxidising flame (b) carburising flame (c) neutral flame (d) none of the above
5. Gear finishing operation is CO1- U  
(a) shaping (b) milling (c) hobbing (d) saving or burnishing
6. Cold working of steel is defined as working CO1- U  
(a) at its recrystallization temperature  
(b) above its recrystallization temperature  
(c) below its recrystallization temperature  
(d) at two third of the melting temperature of the metal
7. Punching a number of holes in a sheet is known as CO1- U  
(a) perforating (b) parting (c) notching (d) lancing

8. The process of cutting extra metal flange is called as CO1- U  
 (a) drawing (b) shearing (c) trimming (d) piercing
9. Sintering is performed CO1- U  
 (a) At room temperature (b) Below melting point  
 (c) Above boiling point (d) At cryogenic temperature
10. Which of the following tool is manufactured by powder metallurgy? CO1- U  
 (a) High speed steel (b) Sintered carbides  
 (c) High carbon steel (d) Low carbon steel

PART – B (5 x 2= 10Marks)

11. Outline any four types of patterns. CO1- U
12. How resistance welding is performed? CO1- U
13. Compare the cold and hot forging methods. CO1- U
14. List out the types of closed type forging. CO1- U
15. Outline the various post sintering operations adopted in powder metallurgy. CO1- U

PART – C (5 x 16= 80Marks)

16. (a) With neat sketch, discuss the working principle of investment casting process and list the advantages & limitations of it. CO1- U (16)  
 OR  
 (b) Build a neat diagram of a cupola furnace, indicate important parts and show various stages. CO1- U (16)
17. (a) Identify and explain about submerged arc welding process with neat sketch. CO1- U (16)  
 OR  
 (b) Identify and explain about laser and friction welding process with neat sketches. CO1- U (16)
18. (a) Develop with neat sketch explain the working of a pneumatic hammer for forging. CO1- U (16)  
 OR  
 (b) Identify the usual defects in rolled parts and explain different types of rolling mills. CO1- U (16)

19. (a) Identify and explain with a neat sketch about deep drawing operation. CO1- U (16)
- OR
- (b) Identify and explain super plasticity forming and its types with neat sketch. CO1- U (16)
20. (a) Explain the different pressure less powder shaping methods. CO1- U (16)
- OR
- (b) Additive manufacturing is the key component for the “future of manufacturing”. Explain your understanding of the statement and outline two process that are in use today. CO1- U (16)

