

Reg. No. :

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

**Question Paper Code:U3702**

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

Third Semester

Mechanical Engineering

21UME302–FUNDAMENTALS OF MANUFACTURING PROCESSES

(Regulations 2021)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. Cast iron and steel pipes are produced by CO1- U  
(a) Slush casting (b) Investment casting  
(c) True centrifugal casting (d) Die casting
2. Chills are used in moulds to CO1- U  
(a) Achieve directional solidification (b) Increase freezing zone  
(c) Reduce freezing zone (d) Smoothen metal flow for reducing spatter
3. In arc welding, arc is created between the electrode and work by CO2- U  
(a) Contact resistance (b) Flow of voltage (c) Flow of current (d) Electrical energy
4. A casting defect which occurs due to improper venting of sand is known as CO2- U  
(a) Cold shuts (b) Blow holes (c) Shift (d) Swell
5. The process of formation of new grains is known as CO3- U  
(a) Pre-crystallization (b) Re-crystallization  
(c) crystallization (d) Post-crystallization
6. The sand in its natural or moist state is called as CO3- U  
(a) green sand (b) loam sand  
(c) dry sand (d) none of the above
7. Punching a number of holes in a sheet is known as? CO4- U  
(a) Perforating (b) Parting (c) Notching (d) Lancing

8. Shearing the sheet into two or more pieces is known as? CO4- U  
 (a) Perforating (b) Parting (c) Notching (d) Lancing
9. Which plastic materials contain strong cross linkings in their molecular structure? CO5- U  
 (a) Thermoplastic materials (b) Thermosetting materials  
 (c) Both (a) and (b). (d) None of the above
10. Which of the following is an example of thermoplastic material? CO5- U  
 (a) Camera bodies (b) Automobile parts (c) Electric plugs (d) Electric insulation

PART – B (5 x 2= 10Marks)

11. Explain the purpose of runner and riser in casting process. CO1- U
12. Classify fission welding and fusion welding. CO2- U
13. Explain the different types of furnaces used for casting? CO3- U
14. Show the differences between hydro forming and rubber pad forming. CO4- U
15. Summarize the advantages of submerged arc welding. CO5- U

PART – C (5 x 16= 80 Marks)

16. (a) Identify and briefly explain about lost wax process in casting. State its advantages and limitations. CO1-App (16)  
 Or  
 (b) Build a neat diagram of a cupola furnace, indicate important parts and show various stages. CO1-App (16)
17. (a) Identify and sketch the Investment casting process and explain its working CO2-App (16)  
 Or  
 (b) Identify and explain with neat sketch of Shell moulding process CO2-App (16)
18. (a) Identify and describe deep drawing process with neat sketch and list its advantages, disadvantages and applications. CO3- App (16)  
 Or  
 (b) Identify the usual defects in rolled parts and explain different types of rolling mills. CO3- App (16)
19. (a) Identify and illustrate the equipment set up and functioning of gas tungsten-arc welding process. CO4- App (16)  
 Or  
 (b) Build and show the components of ultrasonic welding machine for lap welds and explain the working principle. CO4- App (16)

20. (a) Construct transfer molding process with neat sketches. CO5- App (16)  
Or  
(b) Construct blow molding process with its salient features CO5- App (16)

