Total No. of Questions: 6 *Total No. of Printed Pages:3*

Enrollment No.....

Faculty of Engineering

End Sem (Odd) Examination Dec-2022

AU3CO18 / FT3CO24 / ME3CO18

Manufacturing Processes-I / Manufacturing Processes

Programme: B.Tech. Branch/Specialisation: AU/FT/ME

Duration: 3 Hrs. **Maximum Marks: 60**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d.

Q.1 i. Which is a type of allowance? **1**

(a) Draft (b) Shrinkage (c) Machining (d) All of these

ii. Which of the following sand has 50 % sand and dries hard? **1**

(a) Loam sand (b) Dry sand

(c) Green sand (d) Natural sand

iii. Fluidity of molten metal decreases with increase in _____. **1**

(a) Viscosity

(b) Density

(c) Percentage of water in sand

(d) All of these

iv. Hot tearing is caused by- **1**

(a) High fluidity

(b) High melt temperature

(c) Wide range of solidification temperature

(d) Low coefficient of thermal expansion

v. Which of the following sheet metal operation involves loss of metal? **1**

(a) Bending (b) Blanking

(c) Deep drawing (d) Stretching

vi. Manufacturing process in which localized compressive force is used for shaping the metal is termed as _____. **1**

(a) Forging (b) Welding (c) Casting (d) Moulding

P.T.O.

vii. Which type of flame cannot be produced in oxy- acetylene welding? **1**
(a) Neutral (b) Carburising
(c) Oxidizing (d) None of these

viii. Which of the following is a type of Autogenous welding? **1**
(a) TIG (b) Thermit (c) Friction (d) All of these

ix. Part produced by powder metallurgy is termed as _____. **1**
(a) Welded part (b) Casted part
(c) Forged part (d) Sintered part

x. Which of the following powder production method produces spongy and porous particles? **1**
(a) Atomization (b) Reduction
(c) Electrolytic deposition (d) Pulverization

Q.2 i. Define: **4**
(a) Pattern allowance (b) Green sand
(c) Cores (d) Chaplets

ii. What is pattern? Explain any five types. **6**

OR iii. Explain shell moulding with neat sketch. **6**

Q.3 i. Explain the following terms: **4**
(a) Riser (b) Chills
(c) Gating ratio (d) Pouring basin

ii. Explain construction and working of electric furnace with neat sketch. **6**

OR iii. Explain any four casting defects. Also write their causes and remedies. **6**

Q.4 i. Write classification of extrusion. **2**

ii. What do you mean by forging? Explain any one type of forging. **3**

iii. Explain deep drawing with the help of neat sketch. Also write its application **5**

OR iv. A disc of 200 mm diameter is blanked from a strip of aluminium alloy of thickness 3.2 mm. The material shear strength to fracture is 150 MPa. Determine the blanking force in KN. **5**

Q.5 i. Give classification of welding. **2**

ii. Explain any three welding defects along with their causes and remedies as well. **3**

iii. Explain the principle and operation of TIG welding with help of neat diagram. **5**

OR iv. Explain the principle and working of Thermit welding with help of neat diagram. **5**

Q.6 Attempt any two:

i. What are the advantages and limitations of powder metallurgy? Also write the applications of power metallurgy. **5**

ii. Write a short note on processes involved in powder metallurgy. **5**

iii. Write a short note on forming and shaping of glass. **5**

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Scheme of Marking

Faculty of Engineering
End Sem (Odd) Examination Dec-2022
Manufacturing Processes-I-AU3CO18-FT3CO24-ME3CO18

Programme: B.Tech. | Branch/Specialisation: AU/FT/ME

Q.1	i)	d) All of these	1
	ii)	a) Loam sand	1
	iii)	d) All of these	1
	iv)	c) Wide range of solidification temperature	1
	v)	b) Blanking	1
	vi)	a) Forging	1
	vii)	d) None of these	1
	viii)	c) friction	1
	ix)	d) Sintered	1
	x)	b) Reduction	1
Q.2	i.	1 mark each x 4 — 4 marks	4
	ii.	Pattern definition — 1 mark Explanation of patterns 1mark each x 5 — 5 marks	6
OR	iii.	Diagram — 3 marks Explanation — 3 marks	6
Q.3	i.	1 mark for each definition x 4 — 4 marks	4
	ii.	Electric furnace diagram — 3 marks Explanation — 3 marks	6
OR	iii.	1.5 marks for each defect, cause , remedy x 4 — 6 marks	6
Q.4	i.	Classification — 2 marks	2
	ii.	Forging definition — 1 mark Explanation of forging process — 2 marks	3
	iii.	Deep drawing Diagram — 2 marks Explanation — 2 marks Application — 1 mark	5
OR	iv.	Formula $P = \pi d \cdot \tau t$ — 2 marks Blanking force (KN) 301.59KN. — 3 marks	5
Q.5	i.	Welding Classification — 2 marks	2
	ii.	Welding defect, cause, remedy 1 mark x 3 — 3 marks	3
	iii.	TIG diagram — 2.5 marks Explanation — 2.5 marks	5
OR	iv.	Thermit diagram — 2.5 marks Explanation — 2.5 marks	5
Q.6	i.	Advantages — 2 marks Disadvantages — 2 marks Applications — 1 mark	5
	ii.	Processes involved in powder metallurgy — 5 marks	5
	iii.	Forging and shaping of glass — 5 marks	5

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