

**End-Term Examination**  
**(CBCS)(SUBJECTIVE TYPE)(Offline)**  
**Course Name: <B Tech MAE/ DMAM>, Semester: <3<sup>rd</sup>>**  
**(November-December, 2023)**

Subject Code: BMA 201

Subject: Production Technology 1

Time : 3 Hours

Maximum Marks : 60

Note: Q1 is compulsory. Attempt one question each from the Units I, II, III &amp; IV.

Q1		(2.5*8=20)	
	a. Explain with a neat sketch how a sweep pattern can be used to make mould.		
	b. Explain cold chamber die casting process with a neat sketch?		
	c. Brief about Resistance spot welding with a neat sketch?		
	d. Explain metal forging process and reasons for its popularity in manufacturing?		
	e. Differentiate between hot working and cold working?		
	f. Brief about Extrusion Process used to make metal extrudes having desired cross section.		
	g. Brief about the advantages and disadvantages of powder metallurgy for manufacturing?		
	h. Explain the working of DM 3D printer machine with a neat sketch.		

**UNIT-I**

- Q2 (a) Briefly explain about the five types of Pattern Allowances?  
 (b) The casting shown in fig 1 is to be made in cast iron using a wooden pattern. Assuming only shrinkage allowance, calculate the dimensions of the pattern and show in drawing. All Dimensions are in Inches. (Note: Shrinkage allowance data of cast iron is given as: upto 2 feet- 0.125 inch/ft; 2ft to 6ft- 0.191 inch/ft; over 6 ft- 0.155 inches/ft)

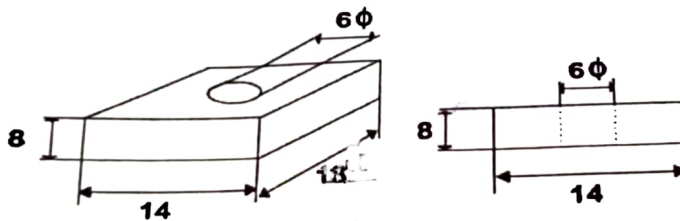


Fig 1.

- Q3 (a) Explain the Investment casting process along with advantages and disadvantages.  
 (b) Brief about Radiography and Ultrasonic Testing Techniques.

**UNIT-II**

- Q4 a) With a neat sketch explain GMAW process and differentiate between MIG & MAG welding.  
 b) Brief about the modes of metal transfer in GMAW process.

- Q5 (a) With a schematic diagram, brief about the components and process of TIG Welding. Why is TIG welding preferred than MIG Welding.  
 (b) Explain the process involved in Induction welding. Brief with suitable diagrams about its applications for welding of: (i) Plastics and metallic compounds and (ii) The seams of pipes.

**UNIT-III**

- Q6 With neat sketches, write about: a) drop forging; b) roll forging; c) Press Forging and d) Upset forging?

<b>Q7</b>	Consider that you are a production manager in an organization using Wire Drawing operation to reduce the diameter of a wire. (a) How will you explain the process to new GETs who have joined the organization, with a neat sketch; (b) Explain the reason when and why you will require intermediate annealing and also explain about lubrication techniques.	<b>(10)</b>	
-----------	--	-------------	--

#### UNIT-IV

<b>Q8</b>	(a) Explain about Selective Laser Sintering 3D Printing process and materials that can be printed with this technology? (b) Brief about issues involved in SLS technology?	<b>(10)</b>	
<b>Q9</b>	As a production manager of a firm making sleeve bearings, how will you explain Powder Metallurgy and the processes involved in Powder Metallurgy technique to your trainees?	<b>(10)</b>	