

II B. Tech I Semester Regular/Supplementary Examinations, January-2023
PRODUCTION TECHNOLOGY
(Mechanical Engineering)

Time: 3 hours

Max. Marks: 70

Answer any **FIVE** Questions, each Question from each unit
All Questions carry **Equal** Marks

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UNIT-I

- 1 a) What is a pattern? Explain the following patterns with neat sketch: [7M]  
(i) Cope and drag pattern,  
(ii) Sweep pattern,  
(iii) Segmental pattern,  
(iv) Loose piece pattern.  
b) Explain any two types of moulding methods with neat sketches. [7M]

OR

- 2 a) Define core. What are the characteristics of core. [7M]  
b) How are moulding sands classified? Explain. [7M]

UNIT-II

- 3 a) Define gating system. What are the various design requirements of a gating system. [7M]  
b) Explain the process of cooling and solidification in casting. [7M]

OR

- 4 a) What are various methods of melting the metals for casting? [7M]  
b) What is die-casting? Mention its advantages, limitations and applications. [7M]

UNIT-III

- 5 a) Describe thermit welding with neat diagram. Write its advantages, disadvantages and applications. [7M]  
b) Describe plasma arc welding with neat diagram. Write its advantages, disadvantages and applications. [7M]

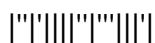
OR

- 6 a) What are the various Nondestructive methods conducted to test the welded materials? [7M]  
b) What is oxy-acetylene welding? Draw and explain forward and backward welding. [7M]

UNIT-IV

- 7 a) What is forging? Explain drop and roll forging in detail. [7M]  
b) What is extrusion process? Mention its advantages, disadvantages and applications. [7M]

OR



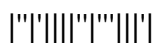
- 8 a) Describe hot working process. What are advantages, limitations of hot working process? [7M]  
b) Describe wire drawing operation in detail also mention the defects in wire drawing operation. [7M]

UNIT-V

- 9 a) Explain the process of deep drawing with neat sketch. [7M]  
b) Explain the process of rubber pad forming. Write its advantages, disadvantages. [7M]

OR

- 10 a) Explain the process of stretch forming with neat sketch. [7M]  
b) What are the various types of presses? Explain detail. [7M]



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UNIT-I

- 1 a) Define pattern. What are the requirements of a good pattern? [7M]
b) Discuss briefly moulding machines. [7M]

OR

- 2 a) Explain various steps involved in core making process. [7M]
b) What are the various tests conducted to test the moulding sand? [7M]

UNIT-II

- 3 a) Draw and explain the construction and working of cupola furnace. [7M]
b) What is the Importance of Risel? Explain different types of Risel. [7M]

OR

- 4 a) Explain any two types of furnaces for metal melting. [7M]
b) Explain in detail about the semi-centrifugal and centrifuging casting. [7M]

UNIT-III

- 5 a) What is the basic principle of arc welding? Explain shielded arc welding in detail. [7M]
b) What is soldering? Explain the procedure of soldering. Mention its advantages, disadvantages. [7M]

OR

- 6 a) Explain the weldability of pure metals and alloys. [7M]
b) Define welding. What are the various types of welded joints? Mention the power characteristics of welding machine. [7M]

UNIT-IV

- 7 a) Discuss the types of forging operation. [7M]
b) What is Impact Extrusion? Mention the process in detail with its applications. [7M]

OR

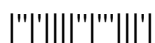
- 8 a) What is rolling? Explain the principle and process of rolling in detail. [7M]
b) Explain hydrostatic extrusion with neat sketch. Write its advantages and applications [7M]

UNIT-V

- 9 a) Explain the principle and working of explosive forming with neat sketch. [7M]
b) Explain the process of bending with neat sketch. [7M]

OR

- 10 a) Explain various sheet metal operations in brief. [7M]
b) Enumerate and explain various commonly used machines in sheet metal shop. [7M]



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UNIT-I

- 1 a) Briefly explain the process of 'mould making'. [7M]  
b) Mention various properties of moulding sand. [7M]

OR

- 2 a) Explain any four pattern allowances briefly with sketches. [7M]  
b) Explain any four of the following cores: [7M]  
(i) Green sand cores,  
(ii) Loam cores,  
(iii) Oil sand cores,  
(iv) Dry sand cores.

UNIT-II

- 3 a) Describe direct arc and indirect arc furnaces with sketches. [7M]  
b) Describe investment casting with neat diagram. Mention its advantages and disadvantages. [7M]

OR

- 4 a) What is a riser? What are the various requirements of a riser? Mention the location of the riser in the gating system. [7M]  
b) Explain the centrifugal casting with neat sketch. [7M]

UNIT-III

- 5 a) What is brazing? Explain the process involved in brazing with its advantages and limitations. [7M]  
b) Describe resistance spot welding with neat diagram. What are the process's advantages, limitations and applications. [7M]

OR

- 6 a) Describe MIG welding process with neat sketch. Mention its advantages, disadvantages and applications. [7M]  
b) Draw and explain the friction welding process. Mention its advantages and limitations. [7M]



## UNIT-IV

- 7 a) Define forging. What are the various forging hammers that are employed in process of forging? [7M]  
b) What is the process of Tube drawing? Explain the principle of Tube drawing in detail. [7M]

OR

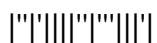
- 8 a) Explain the terms 'recovery', 'recrystallisation', and 'grain growth' in detail. [7M]  
b) Explain the principle and process of cold working. Write its advantages, limitations. [7M]

## UNIT-V

- 9 a) Explain the process of blanking in detail. [7M]  
b) Explain the process of electro-magnetic forming with neat sketch. [7M]

OR

- 10 a) What is coining? Enumerate the process of coining. [7M]  
b) What is spring back effect? How to prevent it? Explain. [7M]



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UNIT-I

- 1 a) Discuss hand and machine moulding. Mention their advantages and disadvantages. [7M]
b) What do you understand by the terms 'core box' and 'core print'? Explain. [7M]

OR

- 2 a) Define pattern. Explain following patterns with neat sketch: [7M]
(i) Match plate pattern,
(ii) Gated pattern,
(iii) Split pattern,
(iv) Skeleton pattern
b) Define casting. Why casting is preferred over other manufacturing methods? [7M]

UNIT-II

- 3 a) Explain the process of shell moulding. What are its advantages, disadvantages, applications? [7M]
b) Discuss various casting defects. [7M]

OR

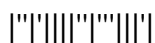
- 4 a) Define gating system. What are the basic elements of a gating system? Explain with neat sketch. [7M]
b) With neat sketch, explain how the solidification takes place using chills. [7M]

UNIT-III

- 5 a) Explain electroslag welding in detail with diagram. Mention its applications. [7M]
b) Describe the classification of electric arc welding. Explain atomic hydrogen welding with neat sketch. [7M]

OR

- 6 a) What is submerged arc welding? Explain it with neat sketch. Mention its advantages and limitations. [7M]
b) What is heat affected zone in welding? How its effects the quality of the weld bead? [7M]



UNIT-IV

- 7 a) Draw and explain Indirect extrusion process. Mention its advantages, disadvantages and applications. [7M]
b) What are the various forging defects? Explain in brief. [7M]

OR

- 8 a) Compare hot and cold working process. [7M]
b) What is rolling process? Explain various types of rolling processes in brief. [7M]

UNIT-V

- 9 a) What are the various press tools employed in sheet metal forming process? [7M]
b) Describe the process of electro-hydraulic forming with neat sketch. [7M]

OR

- 10 a) Differentiate between blanking and piercing operations with a suitable sketch. [7M]
b) What are various types of HERF? Explain any two types of HERF forming with neat sketch. [7M]

