

Code No: 114DM

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B.Tech II Year II Semester Examinations, April - 2018

PRODUCTION TECHNOLOGY

(Common to ME, MCT, AME)

Time: 3 Hours

Max. Marks: 75

Note: This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer all questions in Part A.
Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART-A

(25 Marks)

- | | | |
|------|---|-----|
| 1.a) | State the application of casting process. | [2] |
| b) | Draw the complete casting process with neat sketch. | [3] |
| c) | Classify the welding processes. | [2] |
| d) | What are the basic requirements of welding? | [3] |
| e) | What are the disadvantages of bare wire electrode? | [2] |
| f) | What are the modes of metal transfer in arc welding? | [3] |
| g) | What do you mean by neutral section in a rolling process? | [2] |
| h) | Why is it needed to perform annealing during cold working? | [3] |
| i) | Differentiate between forward and backward extrusion processes. | [2] |
| j) | What is hydrostatic extrusion process? | [3] |

PART-B

(50 Marks)

2. Explain the working principle of shell moulding process with neat sketch. Also discuss the advantages, limitations and applications of shell moulding process. [10]

OR

- 3.a) What are the advantages of true centrifugal casting process? Discuss the influence of average rotational speed upon centrifugal casting.
- b) Discuss the advantages and limitations of different pattern materials. [6+4]
- 4.a) The voltage-length characteristics of a DC arc is given by $V=20+40l$, where V is the arc voltage and l is the length of arc in cm. The power source characteristics is approximate by a straight line with an open circuit voltage 80V and short circuit current 1000 Amp. Determine the optimum arc length and corresponding arc power.
- b) Explain resistance weld cycle with neat sketch. [6+4]

OR

- 5.a) Explain the three types of oxy-acetylene flames with neat sketch.
- b) What is heat affected zone? Explain briefly heat affected zone in thermit welding with neat sketch. [4+6]

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- 6.a) Write the weld properties, advantages, limitations and applications of friction welding.
b) Differentiate between TIG and MIG welding and explain. [6+4]

OR

- 7.a) What is the principle of laser welding? Mention the applications, advantages and limitations of the process.
b) What is soldering? [8+2]

- 8.a) Explain cold work-annealing cycle.
b) Calculate the bite angle when rolling plates 15 mm thick using work rolls 400 mm diameter and reducing the thickness by 3 mm. [6+4]

OR

- 9.a) A strip with a cross section 150×4.5 mm is being rolled with 20% reduction of area using 450mm diameter rolls. The angle subtended by the deformation zone of the roll center is?
b) Explain briefly the theory of rolling. [4+6]

- 10.a) What is hot extrusion? Discuss different hot extrusion processes.
b) Explain the role of container and die in the analysis of extrusion. [5+5]

OR

- 11.a) With the help of neat sketches briefly discuss different forging processes.
b) What are the various methods of making seamless pipes? Discuss any two methods in brief. [6+4]

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