

**Code No: 124DM****JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD****B.Tech II Year II Semester Examinations, April - 2018****PRODUCTION TECHNOLOGY****(Common to ME, MCT, AME, MSNT)****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]

- 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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