Code No: 136FB

R16

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech III Year II Semester Examinations, May - 2019

FABRICATION PROCESSES

(Common to CE, EEE, CSE, IT, AE)

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)	What is the role of clay in moulding sand?	[2]
b)	Why is it important to provide a means of venting gases from the mold cavity?	[3]
c)	Explain the principle of arc welding	[2]
d)	Why do most welding failures occur in HAZ? Explain.	[3]
e)	What is the effect of strain rate on the formed components?	[2]
f)	What is spring back? Why is it a concern during bending?	[3]
g)	What are the specific applications of cold extrusion?	[2]
h)	Distinguish between forward extrusion and backward extrusion.	[3]
i)	How does roll forging differ from a conventional rolling operation?	[2]
j)	What role is played by temperature in forging operation?	[3]

PART - B

(50 Marks)

2.a) Describe some special types of patterns and indicate the production circumstances in which each would be used.

b) Write the advantages, limitations and product applications of investment casting methods. [5+5]

OR

3.a) Calculate the size of a cylindrical riser (Height and diameter equal) necessary to feed a slab casting 20 × 20 × 5 cm with a side riser, casting poured horizontally in to the mould. Use caine's equation and take constants in caine equation as a = 0.15, b = 0.04 and c = 1.0.

b) What are the principal precautions to be observed in pouring moulds? [5+5]

4.a) Explain the process of thermit welding and discuss its advantages.

b) Classify different regions of Oxy-acetylene flame and with the help of neat sketches explain their characteristics? [5+5]

OR

5.a) What is the basic principle of explosive welding? Explain.

b) What is meant by weld quality? Discuss the factors that influence it. [5+5]

6.a) Explain the changes in structure and properties during cold working, recovery and recrystallization.

b) Sketch and explain wire drawing process. [5+5]

OR

7.a) How do you estimate cutting forces in blanking and piercing?

b) What are some of the attractive manufacturing and metallurgical features of hot working process? [5+5]

8.a) Derive an equation for ideal extrusion pressure.

b) Write a note on impact extrusion and list the advantages of impact extrusion over other extrusion processes. [5+5]

OR

9.a) Explain the effect of extrusion variables on extrusion pressure.

b) Explain the process of hydrostatic extrusion. [5+5]

10.a) What are the advantages and limitations of smith forging?

b) What are the various forging defects? Discuss briefly. [5+5]

OR

11.a) Do you think it is possible to forge all the materials? Justify.

b) What principles are normally considered good practice in the design of drop forgings? [5+5]

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