

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

End Semester Examination – May 2019

Course: B. Tech in Mechanical Engineering

Sem: IV

Subject Name: Manufacturing Processes I

Subject Code: BTMEC401

Max Marks: 60

Date: 14-05-2019

Duration: 3 Hr.

Instructions to the Students:

1. Solve ANY FIVE questions out of the following.
2. The level question/expected answer as per OBE or the Course Outcome (CO) on which the question is based is mentioned in () in front of the question.
3. Use of non-programmable scientific calculators is allowed.
4. Assume suitable data wherever necessary and mention it clearly.

	(Level/CO)	Marks
Q. 1 Solve Any Two of the following.		
A) What is meant by Manufacturing Processes? How will you select any suitable manufacturing process for the products?	K1 and K4/CO1	6
B) What is the requirement of shrinkage allowances? Explain the defects in the casting processes.	K1 and K2/CO1	6
C) Describe any suitable metal casting process for manufacturing the pump casing.	K6/CO1	6
Q.2 Solve the following.		
A) How will you roll any sheet material? Explain one rolling process in detail.	K3/CO2	6
B) Differentiate between open die and closed die forging with its suitability and applications	K4 and K5/CO2	6
Q. 3 Solve Any One of the following.		
A) What do you understand by extrusion and drawing processes? Explain one of the both in detail.	K2 and K4/CO2	12
B) Define formability. Elaborate the sheet metal forming processing with various characteristics and types of shearing dies?	K1 and K2/CO2	12
Q.4 Write a short note on any Two of the following.		
A) Arc welding and Oxy-fuel gas welding processes	K1 and	6
B) Friction welding and resistance welding	K2/CO3	6
C) Soldering techniques and Mechanical fastening		6

Q. 5 Solve Any One of the following.

- A) What are the types of lathe machines? Explain the various operations performed lathe machines with developments, attachment and accessories. **K3 and K4/CO4** **12**
- B) What is the need of drill machine and boring machines? Explain the various types of drilling machines with reaming and tapping processes **K3 and K4/CO4** **12**

Q. 6 Solve Any One of the following.

- A) What is the need of milling machines? Comment on the face and end milling machines with its suitable applications and processes capabilities. **K6/CO5** **12**
- B) If you would like to fabricate gears for the gear box of any vehicle, which suitable manufacturing method will you select? Explain any two suitable gear manufacturing processes. **K6/CO6** **12**

*** End ***

**DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY,
LONERE – RAIGAD -402 103**
Supplementary Winter Semester Examination – Nov - 2019

Branch: Mechanical Engineering

Sem.: IV

Subject :- Manufacturing Processes –I (BTMEC401)

Marks: 60

Date:- 26/11/2019

Time:- 3 Hr.

Instructions to the Students

1. Attempt any five questions of the following.
2. Illustrate your answers with neat sketches, diagram etc., wherever necessary.
3. If some part or parameter is noticed to be missing, you may appropriately assume it and should mention it clearly.

Q. N.	Question	Marks
1 a	Sketch the cross section of a sand mould which is ready for pouring and label the various important parts. Give a brief write-up on the following casting terms - Sprue, Gate, Runner, Riser.	4 2
1b	Explain the following properties of a moulding sand. i) Adhesivness ii) Collapsibility iii) Permeability	6
2a	How does a cold rolling differ from hot rolling in terms of the process and product? Explain what do you understand by the terms slab and billet?	4 2
2b	Distinguish between open- and closed- die forging processes. What do you understand by the term flash in forging.	4 2
3a	A hole of $10 \text{ mm} \times 25 \text{ mm}$ is to be cut in a 3 mm thick sheet. The shear strength of the material is 80 MPa . Estimate the press load required.	6
3b	Explain with sketches the difference between direct and indirect extrusion. List the variables which affect the extrusion process performance.	4 2
4a	List out any three differences between brazing and soldering. Write two applications of each of them. Explain the undercut and cracking defects in welding.	6
4b	Describe the submerged arc welding process in respect of working principle, advantages and limitations.	6
5a	List the methods of taper turning on a lathe. In a turning operation, a cutting speed of 55 m/min has been selected. At what rpm should a 15 mm diameter bar be rotated?	6
5b	Show with a neat sketch the various parts and angles of a twist drill. Explain the various allied operations that can be performed on drilling machine, draw a simple sketch.	6
6a	What are three basic forms of milling process? Differentiate between the up milling and down milling. Any three differences.	6
6b	Classify gear manufacturing methods. Explain gear hobbing process with a neat sketch.	6

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