

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VII (NEW) EXAMINATION – WINTER 2023****Subject Code:3172016****Date:16-12-2023****Subject Name: Process Planning and Cost Estimation****Time: 10:30 AM TO 01:00 PM****Total Marks:70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

		MARKS
Q.1	(a) Turning a rod of 60 mm diameter and the maximum spindle speed is 500 RPM. Calculate the cutting speed in m/min.	03
	(b) Define 'tool approach' and 'tool over travel.'	04
	(c) Discuss in detail ERP.	07
Q.2	(a) The fixed cost for a factory for the year 2009-10 are Rs. 1,50,000 and the variable cost is Rs. 10 per unit produced. The selling Price per unit is Rs. 25. Calculate the break even quantity.	03
	(b) Discuss the different costs associated with inventory.	04
	(c) Explain how to develop manufacturing logic and knowledge.	07
	OR	
	(c) Estimate the machining time to turn a 3 cm diameter mild steel bar 10 cm long, down to 25 cm diameter in a single cut, using high speed steel tool. Assume the cutting speed of the tool to be 30 m/min and a feed rate of 0.4 mm per revolution.	07
Q.3	(a) Briefly discuss about indirect material cost.	03
	(b) In a manual operation, observed time for a cycle of operation is 0.5 minute and the rating factor as observed by the time study engineer is 125%. All allowances put together are 15% of normal time. Estimate the standard time.	04
	(c) What is the scope of process planning?	07
	OR	
Q.3	(a) Define continuous production.	03
	(b) What are the functions of estimating?	04
	(c) Describe various approaches to process planning.	07
Q.4	(a) What is relation between tolerance and surface finish?	03
	(b) Explain Detection Strategy and Prevention strategy.	04
	(c) Explain allowances in estimation.	07
	OR	
Q.4	(a) What are the factors in tooling selection constraints?	03
	(b) What are the benefits of computer aided process planning?	04
	(c) Write basic steps in cost estimation.	07
Q.5	(a) What is machining time?	03
	(b) Define prime cost?	04

(c) Describe material selection parameters. 07

OR

Q.5 (a) Write a short note on tear down time. 03

(b) A power hacksaw machine was purchased for Rs. 25000. After 5 years the machine was valued at Rs. 10,000. Find out the depreciation amount according to the sinking fund method, the rate of interest being 5%. 04

(c) What is time study? Explain briefly its benefits. 07
