

GUJARAT TECHNOLOGICAL UNIVERSITY
BACHELOR OF ENGINEERING – SEMESTER 7 – EXAMINATION – SUMMER 2026

Subject Code: 3172016

Date: 05/06/2026

Subject Name: Process Planning and Cost Estimation

Time: 02:30 PM TO 05:00 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.**

- Q.1**
- (a) Define process planning. State its objectives. **03**
 - (b) Explain the importance of drawing interpretation in manufacturing. **04**
 - (c) Explain foundry shop cost estimation step by step. **07**
- Q.2**
- (a) What is meant by economics of process planning? **03**
 - (b) Explain calculation of process parameters for machining operations. **04**
 - (c) Discuss selection, design, and advantages of jigs and fixtures. **07**
- OR
- Q.2**
- (c) Explain quality assurance techniques used during process planning. **07**
- Q.3**
- (a) Differentiate between costing and estimation. **03**
 - (b) Discuss various methods of costing with advantages. **04**
 - (c) Compare manual process planning and computer-aided process planning (CAPP). **07**
- OR
- Q.3**
- (a) What is job order costing? **03**
 - (b) Explain calculation of depreciation using any one method. **04**
 - (c) Describe economic analysis in process planning with relevant examples. **07**
- Q.4**
- (a) What is operation sequencing? **03**
 - (b) Explain machining time calculation for drilling. **04**
 - (c) In a manufacturing process, the observed time for one cycle of operation is 0.75 minute. The rating factor is 110 percentage. The following are the various allowances as the percentage of normal time. Personal allowance=3%, Relaxation allowance=10%, Delay allowance=2%. Estimate the standard time. **07**
- OR
- Q.4**
- (a) List factors affecting production cost estimation. **03**
 - (b) Describe machining time calculation for grinding process. **04**
 - (c) A CNC machine was purchased for Rs. 1,25,000 on 15th june 1995, the erection and installation cost was Rs. 10,000. The CNC machine is to be replaced by a new one on 14th june 2010. If the estimated scrap Value is Rs. 25,000, what should be the rate of depreciation and depreciation fund on june 14th 2002. If after 9 years of running, some machine parts are replaced and the estimated replacement cost is Rs. 4000, what will be the new rate of depreciation? **07**

- Q.5** (a) What is the difference between fixed and variable cost? **03**
(b) What is manufacturing logic? **04**
(c) Discuss ERP (Enterprise Resource Planning) in Detail. **07**

OR

- Q.5** (a) Define tear-down time and explain its significance. **03**
(b) What are the common sources of material loss in forging? Explain briefly **04**
(c) Discuss the steps involved in developing manufacturing logic and knowledge. **07**
