



- Notes :
1. All questions carry equal marks.
 2. Due credit will be given to neatness and adequate dimensions.
 3. Assume suitable data wherever necessary.
 4. Illustrate your answers wherever necessary with the help of neat sketches.
 5. Attempt Q. 1 or Q. 2, Q. 3 or Q. 4, Q. 5 or Q. 6, Q. 7 or Q. 8, Q. 9 or Q. 10.

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| 1. | a) | Classify the metal forming process and explain any one process. | 8 |
| | b) | Discuss in detail. | 8 |
| | i) | Rolling. | |
| | ii) | Extrusion. | |
| 2. | a) | Explain methods of analysis of the metal forming process. | 8 |
| | b) | Discuss in detail | 8 |
| | i) | Drawing. | |
| | ii) | Open die forging operation | |
| 3. | a) | Discuss | 8 |
| | i) | Characteristics of cutting fluids | |
| | ii) | Applications of cutting fluids | |
| | b) | Explain different methods of cutting force measurements and their requirements. | 8 |
| 4. | a) | List various types of cutting flids used in metal cutting. | 8 |
| | b) | What are the various sources of heat generation in the machining process? | 8 |
| 5. | a) | Explain different methods of gear manufacturing methods. | 8 |
| | b) | Explain various methods used for cutting external and internal threads. | 8 |
| 6. | a) | Define gear hobbing. Sketch a gear hog, and name its part. | 8 |
| | b) | Stat and explain the types of threads with a neat diagram. | 8 |
| 7. | a) | Define sales forecasting. Explain the different methods involved in it. | 8 |
| | b) | List functions of PPC. Explain in detail any three functions. | 8 |
| 8. | a) | Explain types of production systems. | 8 |
| | b) | Define the breakeven point. Explain with a suitable graph, how the profit can be enhanced by break-even analysis. | 8 |
| 9. | a) | Explain machine tool replacement in detail. | 8 |
| | b) | Define inventory control. Define the different terms related to inventory control with a diagram. | 8 |
| 10. | a) | Explain mathematical analysis for economical equipment selection. | 8 |
| | b) | Explain return on investment. | 8 |
