

(3 Hours)

Max. Marks: 80

NB:

- 1) Question No **ONE** is compulsory.
- 2) Attempt any **THREE** out of remaining **FIVE** questions.
- 3) Figures to the right indicate full marks.
- 4) Illustrate answers with proper justification and neat sketches wherever required
- 5) Answers to questions should be grouped and written together.



- Q.1** Attempt the following (Any Four) 20
- i) Give brief classification of manufacturing process based on chip and chip-removal
 - ii) Name and briefly explain the milling cutters.
 - iii) Explain any four operations performed on the lathe machine with neat sketch.
 - iv) Explain the broaching process with neat sketch.
 - v) Explain in brief Thread Milling process.
 - vi) Define grit, grade and structure in the context of grinding wheels.
- Q.2** (a) Draw neat sketch of Vertical Band Saw machine and explain function of each part of the machine. 06
- (b) Differentiate between: 08
- a. Drilling and reaming operations
 - b. Counter-sinking and counter-boring operations
 - c. Reaming and boring operations
- (c) Explain cutting speed, feed and depth of cut for Lathe Machine. 06
- Q.3** (a) How milling machines are classified? Explain with neat sketch the universal milling machine. 10
- (b) Explain principle parts of lathe machine with block diagram of lathe or how the lathe machine is specified? Explain with neat sketch. 10
- Q.4** (a) Explain principle of working of Shaping Machine with neat sketch. 08
- (b) Differentiate between up milling and down milling operations. 08
- (c) Differentiate between Shaping and Planing machine. 04
- Q.5** (a) Explain loading, glazing, and dressing of grinding wheels. How to specify the grinding wheel. 10
- (b) What is gear hobbing? With neat sketches explain the principles of gear hobbing. 10
- Q.6** (a) Briefly explain different types of surface grinding machines. 10
- (b) Explain the process of thread whirling with its advantages, limitations and applications. 10