



- Notes :
1. All questions carry marks as indicated.
 2. Solve Question 1 OR Questions No. 2.
 3. Solve Question 3 OR Questions No. 4.
 4. Solve Question 5 OR Questions No. 6.
 5. Solve Question 7 OR Questions No. 8.
 6. Solve Question 9 OR Questions No. 10.
 7. Solve Question 11 OR Questions No. 12.
 8. Due credit will be given to neatness.
 9. Illustrate your answers whenever necessary with the help of neat sketches.

1. a) Explain mechanics of chip formation with neat sketch. Also enlist various types of chips with neat sketch. **6**

b) Explain geometry of single point cutting tool and tool signature with neat sketch. **7**

OR

2. a) State and explain factors affecting tool life. Also, define tool life. **6**

b) Differentiate between orthogonal & oblique cutting. Explain various types of chip breakers. **7**

3. a) Explain various principal parts of lathe with block diagram. **7**

b) Explain tumbler gear feed mechanism with neat sketch. **7**

OR

4. a) Explain with neat sketch Geared head stock in lathe machine. **7**

b) Explain any two types of taper turning methods in detail with neat sketch. **7**

5. a) Explain working of Hydraulic mechanism of shaper with neat sketch. **6**

b) Explain crank & slotted link mechanism used in shaper machine. **7**

OR

6. a) Compare shaper, planner & slotter. **6**

b) Explain puncher slotter & production slotter with sketch. **7**

7. a) Explain column & knee type milling machine with neat sketch. 7
b) Describe elements of plain milling cutter with neat sketch. 7

OR

8. a) What is indexing? Describe differential indexing method. 7
b) Name various work holding & tool holding devices in milling. Also, explain face milling operation. 7
9. a) Describe "grit", "grade" & "structure" of a grinding wheel. 6
b) Draw & explain horizontal spindle rotary table type of grinding machine. 7

OR

10. a) Explain Honing, Lapping & metal spraying processes with neat sketch. 6
b) Enlist various bonds used for making Grinding wheels and explain any two. 7
11. a) Draw a neat sketch of Radial drilling machine. Name various parts & describe their function. 6
b) Name various work holding devices used in drilling machines. Explain any one with neat sketch. 7

OR

12. a) Classify & list boring machines. Explain Jig boring machine with neat sketch. 6
b) What is broaching? How broaches are classified? 7
