

B.E. Sixth Semester (Aeronautical Engineering) (C.B.S.)  
**Manufacturing Process - II Paper – II**

P. Pages : 2

Time : Three Hours



**KNT/KW/16/7428**

Max. Marks : 80

- 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. Assume suitable data whenever necessary.
  9. Illustrate your answers whenever necessary with the help of neat sketches.

1. a) What do you understand by Machinability? By which parameters it is generally influenced? **7**

b) How is the chip formed in metal cutting? Explain the term 'Shear plane' and 'Shear Zone'? **6**

**OR**

2. a) Describe the Merchant circle with neat sketch? **7**

b) What do you understand by 'orthogonal' and 'oblique' cutting? How do they differ from each other? **6**

3. a) What are the factors Affecting Tool Life. **5**

b) A Twist Drill of 32 mm dia. is used to drill a hole in a mild steel plate. The following data is recorded. **9**

Vertical force ( $F_v$ ) = 60 kg.

Cutting force at the Lips ( $F_{v_1}$ ) = 36 kg.

Feed Rate ( $F$ ) = 0.6 mm/rev.

Speed of Drill ( $N$ ) = 500 r.p.m.

Consider the value of  $C$  for mild steel = 0.36. and neglecting frictional effect.

Calculate

i) Thrust Force.

ii) Torque acting on the drill.

and iii) Power required for drilling.

**OR**

4. a) Explain the importance and function of different Tool Angles and other parameters associated with the Geometry of a Single point cutting tool. **8**

b) Explain the term 'Cutting Speed', 'Feed' and 'Depth of cut' as applicable to metal cutting. **6**

5. a) Explain with the help of neat sketch the principle parts of Lathe? 7  
b) With the help of neat sketch show the main parts of 'Sensitive Drill' and describe? 6

**OR**

6. a) Differentiate between Turret and a capstan Lathe with neat sketch? 6  
b) Describe the principle parts of column and Knee type Milling Machine with neat sketch? 7
7. a) How are presses classified according to the frame position? 6  
b) Explain the principle of 'Six-Point Location'? 7

**OR**

8. a) Explain the principle of Die cutting operation with neat sketch? 7  
b) Describe different types of clamps used in Jigs & Fixtures? 6
9. a) Explain the variables that influence rate of metal removed and accuracy of Abrasive Jet machining. 7  
b) Explain with neat sketch principle of Electric Discharge Machining with its Applications, Advantages and Disadvantages. 7

**OR**

10. a) Explain with neat sketch Ultrasonic Machining process. Also explain its effect on different materials? 7  
b) Explain with neat sketch Electrochemical Machining. What are the factors which need to be considered while selecting electrolyte? 7
11. a) Explain with neat sketch Electron Beam Welding, also state its Applications? 7  
b) Explain Resistance welding. Also state its types? 6

**OR**

12. a) Explain with neat sketch plasma Arc welding with its Advantages and Applications? 7  
b) Differentiate Between TIG and MIG welding with neat sketch? 6

\*\*\*\*\*