

UNIT II

LATHE

Essay Questions:

1. Define lathe and explain working principles of lathe.
2. Classify various types of lathes.
3. Explain principal feature of automatic lathes.
4. Describe various work holder devices.
5. Explain machining time calculations.
6. State and explain various work holding devices on lathe.
7. What is basic difference between a turret and capstan lathes, compare their merits and demerits.
8. Explain the function of CMM in automatic lathes.
9. Define taper and explain various methods in taper turning.
10. Explain the automatic bar feeding mechanism in capstan / turret lathe

UNIT-VIII

PRINCIPLES OF DESIGN OF JIGS AND FIXTURES

Essay Questions:

1. Explain the location methods for the design of fixtures for machining components with flat and cylindrical surfaces.
2. Compare compressed and air hydraulic power as means for operating clamping devices.
3. What do you understand by principle of least points and principle of extreme points?
4. Discuss about choosing a location surface.
5. Discuss about profile location.
6. Explain equalizing jacks and setting blocks.
7. Explain various principles of design of jigs.
8. Classify jigs and fixtures.
9. Explain principle of location a clamping.
10. Explain examples of jigs and fixtures.
11. Explain various principles of design of fixtures.

UNIT- III

SHAPING, SLOTTING AND PLANING MACHINES

Essay Questions:

1. Discuss on kinematic scheme of the shaping slotting and planning machines.
2. Explain various shaping slotting and planning machines.
3. Classify the various shaping slotting and planning machine s.
4. Explain machining time calculations.
5. Explain principal parts of shaping slotting and planning machines
6. Draw the following machines and maintain the specifications
7. Describe various applications of Shaper, slotting, planner
8. Explain the jig boring machine and deep hole drilling machine
9. Explain various methods used for holding work in shaper and planner
10. How the torque is define in drilling.
11. What are the factors that influence torque ad thrust in drilling?

UNIT-IV

DRILLING AND BORING MACHINES

Essay Questions:

1. Explain various drilling and boring machines.
2. Explain working principle and specifications of drilling and boring machines.
3. Explain twist drill and fine boring machines.
4. Explain deep hole drilling machine.
5. Explain kinematics scheme of the drilling and boring machines.
6. Explain how the milling cutters are classified and mention with suitable sketches various milling cutters.
7. Explain the terms: cutting speed, feed and depth of cut with reference to drilling operation.
8. Differentiate between gang drilling and multiple drilling.
9. Explain counter boring and counter sinking.
10. Explain with a suitable sketch the working of a fine boring and deep hole drilling machine.
11. Explain the Drill Speed and feed mechanism with suitable sketches.
12. Calculate the spindle speed in rpm for HSS drill 10mm diameter, cutting mild steel. Cutting speed = 35mpm.

UNIT-V
MILLING MACHINE

Essay Questions:

1. Make a neat sketch of universal milling machine indicating the various controls and constructional features. Give brief descriptions
2. Explain how the milling cutters are classified and mention with suitable sketches of various milling cutters and milling machines.
3. Explain about milling machine.
4. Explain vertical and universal milling machines.
5. Explain methods of indexing.
6. Explain machining operations, types and geometry of milling cutters.
7. Explain working principle and specifications of milling machine
8. Explain the functions of universal dividing head.
9. Explain the procedure of cutting a gear on universal milling machine.
10. Sketch and explain principal angles of plain milling cutter.

UNIT-VI

GRINDING MACHINE

Essay Questions:

1. Explain how the grinding wheel specified.
2. Explain the theory of grinding process and state the advantages of grinding over other cutting process.
3. Explain various operations possible on universal cylindrical grinding machine.
4. Explain reciprocating and rotary type vertical spindle surface grinders.
5. Explain centerless grinding machine.
6. Define grinding machine.
7. Classify the grinding machines.
8. Give different types of abrasives and bonds.
9. Explain kinematic scheme of grinding machines.
10. Explain surface grinding machine.