School of Engineering
B.TECH Mechanical Engineering
Mid Term Examination - May 2024

Duration : 90 Minutes
Max Marks : 50

Sem IV - G3UB403B - Manufacturing Processes II and Metrology

General Instructions
Answer to the specific question asked
Draw neat, labelled diagrams wherever necessary
Approved data hand books are allowed subject to verification by the Invigilator

1) Interpret the primary operations performed on a lathe machine — K2 (2)

2) Recall the concept of dry and wet cutting processes — K1 (3)

3) Contrast between up and down milling operation — K2 (4)

4) Explain the mechanism of heat generation in metal cutting and its effects on tool life and workpiece quality — K2 (6)

5) Identify the difference between surface grinding and cylindrical grinding. Discuss the typical applications and advantages of each process. — K3 (6)

6) Construct the geometry of a single point cutting tool with neat sketch. — K3 (9)

7) During turning a mild steel component with a 0-10-7-7-8-9-1.5mm shaped orthogonal shaped tool a depth of cut of 1.8mm is used. If feed is 0.18mm/revolution and a chip thickness of 0.36mm is obtained, determine the following: (a) chip thickness ratio (b) shear angle — K4 (8)

8) A tool life of 80minute is obtained at a speed of 30 mpm and 8 minute at 60 mpm. Determine the following: (a) tool life equation (b) cutting speed for 4 minute tool life — K4 (12)

OR

Describe the functions of different parts of lathe in detail with neat sketch. — K4 (12)