Code No.: ME504PC

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CMR ENGINEERING COLLEGE: : HYDERABAD
UGC AUTONOMOUS
III–B.TECH–I–Semester End Examinations (Supply) - June- 2024
METROLOGY & MACHINE TOOLS
(MECH)

[Time: 3 Hours]   [Max. Marks: 70]

Note: This question paper contains two parts A and B.
    Part A is compulsory which carries 20 marks. Answer all questions in Part A.
    Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks.

PART-A   (20 Marks)

1. a)	What are the parts of Lathe machine?	[2M]
b)	What is automatic lathe?	[2M]
c)	How a shaper can be specified.	[2M]
d)	Define any two parameters of a slotter.	[2M]
e)	What is an abrasive in grinding machine?	[2M]
f)	Distinguish between up milling and down milling.	[2M]
g)	Write the applications of autocollimator.	[2M]
h)	Interpret the function of optical flat?	[2M]
i)	Distinguish between the terms roughness and surface waviness.	[2M]
j)	What is the use of CMM?	[2M]

PART-B   (50 Marks)

2. Explain about concept of chip formation and its types in detail with suitable sketches. [10M]

OR

3. Describe the construction and working principle of capstan lathe with a neat sketch in detail. [10M]

4. a) What is a slotter? Contrast its working principle and main parts of a slotter with a neat sketch. [5M]

   b) Describe the construction and working principle of a jig boring machine. [5M]

OR

5. Discuss about the twist drill and label the important features with neat a sketch. [10M]

6. a) What is indexing of a milling machine? Explain in detail. [5M]

   b) Discuss about the selection procedure of grinding wheel. [5M]

OR

7. Compare grinding, honing and lapping. Also, list out the applications of lapping and honing. [10M]

8. Explain importance of the following:
   i.   Interchangeability.
   ii. Selective assembly.   [10M]
   iii. Unilateral & Bilateral tolerance system.

OR

9. a) Describe with a neat sketch about sine bar. [5M]

   b) Explain about straight edge in measuring flatness with a neat sketch. [5M]

10. Explain the alignment test on milling machine with the help of neat sketch. [10M]

OR

11. Explain the following methods of qualifying surface roughness. [10M]
    i) R_a value.
    ii) R.M.S value.
    iii) R_z value

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