



Regulation: R17
TKR COLLEGE OF ENGINEERING AND TECHNOLOGY
(Autonomous, Accredited by NAAC with 'A' Grade)

Subject code: 1P5CC

B.Tech III Year I Semester Supplementary Examinations, January 2023
METROLOGY AND MACHINE TOOLS
(MECHANICAL ENGINEERING)

Maximum Marks: 70

11/01/23

Duration: 3 hours

- Note:
1. This question paper contains two parts A and B.
 2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
 3. Part B consists of 5 Units. Answer any one full question from each unit.
 4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks

(10x2M=20 Marks)

- 1 Describe single point cutting tool geometry with diagram.
- 2 what are the elements of cutting process?
- 3 What is drilling & boring?
- 4 Mention working principle of drilling & boring.
- 5 Write working principle of milling machine with neat sketch
- 6 What is lapping, honing, broaching?
- 7 Differentiate between flat and smooth surface
- 8 Give the symbolic representation of flatness of surface.
- 9 Write a note on the adverse effects of poor surface finish.
- 10 What is Coordinate measuring machine?

Part-B

Answer All the following questions.

(5X10M=50Marks)

- 11 Mention various coolants used while machining and their purpose. 10
OR
- 12 What is a LATHE? Mention its working principle, specifications and types of lathe operations. And various types of lathe in brief. 10
- 13 Write brief description mentioning the differences in shaper, slotter and planner machines. 10
OR
- 14 Define machining time calculation for shaper, planner & slotter process with some examples. 10
- 15 What is a MILLING? Mention types of Milling machine and its working principle, specifications and classifications of milling machines. 10
OR
- 16 Briefly discuss about work holding and supporting devices of milling machine. 10
- 17 A) Explain the Taylor's principle applied in limits. 5
B) Explain the principle of optical flat and auto collimator. 5
OR

- 18 A) Describe the measuring method by using sine bar. 5
B) Explain Hole basis system and shaft basis system. 5
- 19 A) What are the types and applications of CMM? 5
B) Describe the screw thread measurement with sketch. 5
- OR
- 20 A) Explain the machine tool alignment test on drilling machine. 5
B) Explain the Roughness parameters and Roughness profiles. 5