Regulation: R17 *Subject code: 1P5CC*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A' Grade)

B.Tech III Year I Semester Supplementary Examinations, December 2021

METROLOGY AND MACHINE TOOLS

(MECHANICAL ENGINEERING)

Maximum Marks: 70 *Date:03.01.2022* 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 Mention specification of milling machine.
7 What are types of fits?
8 Discuss about the Bevel protractor. Where it is used?
9 Describe the importance of surface roughness?
10 What is Coordinate measuring machine?

Part-B

Answer All the following questions. (5X10M=50Marks)

11 Explain brief about-
a) Elements of cutting process
b) Methods of metal cutting
c) Classifications of cutting tools
d) Types of lathe. (10M)

OR

12 What is a chip? Explain its formation, chip Types and chip breakers, (10M)

13 Explain briefly about quick return motion mechanism and types of mechanisms used in shaper. (10M)

OR

14 Explain shaper machine briefly. Working principle, its specifications, and operations performed on shaper. (10M)

15 What is a MILLING? Mention types of Milling machine and its working principle, specifications and classifications of milling machines. (10M)

OR

16 Briefly discuss about work holding and supporting devices of milling machine. (10M)

17 A) Explain the Taylor's principle applied in limits. (5M)
B) Explain the principle of optical flat and auto collimator. (5M)

OR

18 A) Describe the measuring method by using sine bar. (5M)
B) Explain Hole basis system and shaft basis system. (5M)

19 A) What are the types and applications of CMM? (5M)
B) Describe the screw thread measurement with sketch. (5M)

OR

20 A) Explain the machine tool alignment test on drilling machine. (5M)
B) Explain the Roughness parameters and Roughness profiles. (5M)