R18 Regulation *Subject code: 2P5CC*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech V Semester Supplementary Examinations, July 2021

MACHINE TOOLS

(ME)

Maximum Marks: 70 Date:30.07.2021 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 What are the principle angles of the single point cutting tools?
2 Explain shear zone with respect to a machining process.
3 Why automatic lathes are preferred in industries.
4 What are the advantages of taper turning attachment?
5 Describe the differences between planer and shaper.
6 What is boring?
7 Explain the differences between end milling and face milling.
8 How a milling machine is specified.
9 List out different types of abrasives.
10 What is form grinding? Explain.

Part-B

Answer All the following questions. (10M X 5=50Marks)

11 Explain the effects of the following parameters on chip formation. [10M]
i) Velocity ii) Material of work piece iii) Depth of cut iv) Tool Geometry

OR

12 a) The tool signature is given as follows 6-6-5-10-5-5-0.8, label each in the diagram. [5M]
b) Explain ideal properties of cutting tool materials. [5M]

13 a) What are the differences between capstan and turret lathe? [5M]
b) Explain the various types of chucks in detail. [5M]

OR

14 a) How lathe is specified. Explain briefly the operations that are performed on a lathe. [5M]
b) Discuss in detail the taper turning by compound rest swivelling method. [5M]

15 Explain briefly a Jig boring machine with a neat sketch. [10M]

OR

16 a) Describe the operation of quick return motion in mechanical shaper. [5M]
b) Draw kinematic scheme of a boring machine. [5M]

17 Discuss briefly the vertical milling machine. [10M]

OR

18 Determine the indexing crank movement for milling a square bolt by simple indexing. [10M]

19 a) What are the various methods of centreless grinding. [5M]
b) How the grinding wheel is selected for a particular job? [5M]

OR

20 a) Explain the process of precision grinding with a neat sketch. [5M]
b) Draw kinematic scheme of a grinding machine. [5M]