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 2022

MACHINE TOOLS

(Mechanical Engineering)

Maximum Marks: 70 Date:05.07.2022 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 Define BUE. How does it forms?
2 Define metal chip and chip breaker.
3 Define the working principle of an Engine lathe and state the various parts of Turret lathe.
4 Differentiate between single spindle and multi spindle automat lathes.
5 What is drilling & boring?
6 Mention the working principle of Shaping and slotting machines.
7 Mention the specifications of milling machine.
8 What is indexing? Classify the different methods of Indexing.
9 Differentiate between cylindrical grinding and surface grinding.
10 What are abrasives? Classify different types of abrasive bonds.

Part-B

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

11 a) Describe the basic requirements of machining.
b) Explain the construction of Merchant force diagram. [5+5]

OR

12 a) List of various tool materials and their applications.
b) Explain the geometry of single point cutting tool. [5+5]

13 a) Discuss about the thread turning attachment on a lathe.
b) Discuss the working of various tool holding devices of lathe. [5+5]

OR

14 a) Differentiate between Engine, Capstan, Turret lathes.
b) What is a tool layout? Explain with an example. [5+5]

15 a) Explain the operation of vertical boring machine with a neat sketch.
b) Explain the nomenclature of twist drill with a neat sketch. [5+5]

OR

16 a) Differentiate between JIG and Fine Boring machines.
b) Explain the kinematic scheme of Shaping and Planing machines. [5+5]

17 a) Sketch and describe a Vertical milling machine.
b) Explain the factors to be considered while selecting a milling cutter. [5+5]

OR

18 a) Explain the kinematic scheme of milling machine
b) What are the advantages and limitations of milling cutter over single point and double point cutting tools? [5+5]

19 a) Explain the working of Tool and cutter grinder with a sketch.
b) What is the necessity of grinding process for a specimen, explain the grinding process using tool and cutter grinder. [5+5]

OR

20 a) With an example elaborate the process of specifying a grinding wheel.
b) Explain different types of abrasives used in grinding wheel. [5+5]

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