

R20 Regulation

Subject code: 3P6CC



# TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech VI Semester Regular/Supplementary Examinations, July 2024

## Machine Tools and Metrology (Mechanical Engineering)

Maximum Marks: 70

Date:24.07.2024 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 which carries 10M.
  4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A		CO	Bloom Tx
All the following questions carry equal marks (10x2M=20 Marks)			
1	Give the uses of chip breakers.	1	I
2	List the specifications of an engine lathe.	1	I
3	Mention the function of quick return mechanism in shapers.	2	I
4	Compare drilling and boring.	2	II
5	List the various types of milling machines.	3	I
6	State the factors involved in selection of a grinding wheel.	3	I
7	Write the important precautions to be followed when using slip gauges.	4	I
8	Mention any four angular measuring instruments used in metrology.	4	I
9	Differentiate between roughness and waviness.	5	II
10	What is progressive error in screw thread?	5	I
Part-B			
Answer All the following questions. (5X10M=50Marks)			
11	Discuss about the process of external thread cutting in an engine lathe with neat sketch. (10)	1	III
OR			
12	Describe the different types of chips formed during machining with sketches. (10)	1	III
13	Compare shaping, planning and slotting operations with regards to the relative tool and work motions. (10)	2	IV
OR			
14	Explain the working of a jig boring machine with necessary sketch. (10)	2	III
15	Differentiate between up milling and down milling with diagrams. (10)	3	IV
OR			
16	Explain with a neat sketch (a) Centre less grinding (b) Internal grinding. (5+5)	3	III
17	(a) Discuss the use of sine bar for setting a component for a given angle. (5) (b) Compare and contrast unilateral and bilateral tolerance system. (5)	4	III

	OR		
18	Explain about GO gauges and NOGO gauges with an applications. (10)	1	III
19	(a) The heights of peak and valleys of fifteen successive points on a surface are 35, 25, 40, 22, 37, 19, 41, 21, 42, 18, 42, 24, 44, 25, 40 microns respectively, measured over a length of 20 mm. Determine CLA and RMS values of roughness surface. (5) (b) Write a short note on Tool maker's microscope and its applications. (5)	2	IV
	OR		
20	Illustrate and explain an accurate method of measuring the effective diameter of screw threads. (10)	2	III