QP Code: RN22BTECH269 | Reg. No | | | | | | | | | | | AR 22

Gandhi Institute of Engineering and Technology University, Odisha, Gunupur
(GIET University)

B. Tech (Fifth Semester - Regular) Examinations, November – 2024

22BMEPC35003 – Manufacturing Science - II

(Mechanical Engineering)

Time: 3 hrs | Maximum: 70 Marks

Answer ALL questions

(The figures in the right hand margin indicate marks)

PART – A **(2 x 5 = 10 Marks)**

Q.1. Answer ***ALL*** questions		CO #	Blooms Level
a.	Explain the terms cutting speed, feed and depth of cut.	CO1	K1
b.	Why lathe bed is made of Cast iron?	CO2	K1
c.	Difference between drilling, boring and reaming.	CO3	K1
d.	List the five component names of milling machine.	CO3	K1
e.	List the limitations in AJM.	CO4	K1

PART – B **(15 x 4 = 60 Marks)**

Answer ***All*** the questions		Marks	CO #	Blooms Level
2. a.	What are the desirable characteristics of cutting tool material? Describe them briefly.	8	CO1	K1
b.	Draw the Merchants force diagram and show the various forces acting in the chip.	7	CO1	K1
	(OR)			
c.	Derive the expression for finding out mean shear stress, mean normal stress and shear strain experienced by a chip during metal cutting with suitable diagram.	10	CO1	K2
d.	Difference between orthogonal and oblique cutting. What is the utility of orthogonal cutting?	5	CO1	K1
3.a.	Difference between Turret and Capstan lathe	7	CO2	K1
b.	Explain taper turning operation in a lathe by a taper turning attachment. Discuss its advantages.	8	CO2	K2
	(OR)			
c.	Explain any one quick return mechanism of a shaper with neat sketch.	8	CO2	K1
d.	Differentiate between slotter, shaper and planner machine.	7	CO2	K2
4.a.	A hollow work piece of 60 mm outside diameter and 150 mm length is held on a mandrel between centres and turned over in 4 passes. If the approach length= 20 mm, over travel= 12mm, average feed= 0.8 mm/rev, cutting speed= 30 m/min. Calculate the machining time	8	CO3	K2
b.	Explain various power transmission devices used in conventional machines..	7	CO3	K2
	(OR)			
c.	What are the different methods of indexing? Describe briefly	8	CO3	K2
d.	Explain various types of milling fixtures with their merits and demerits.	7	CO3	K2
5.a.	Write short note on ECM.	5	CO4	K2
b.	Explain the working principle of Abrasive Jet Machining with neat sketch.	10	CO4	K2
	(OR)			
c.	Write short note on Plasma Arc Machining.	5	CO4	K2
d.	Explain the working principle of Ultrasonic Machining with neat sketch.	10	CO4	K2

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