Register Number:……..

KUMARAGURU
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B.E DEGREE EXAMINATIONS: APRIL / MAY 2023

(Regulation 2018)

Sixth Semester

MECHANICAL ENGINEERING

U18MEE0013: Modern Machining Processes

COURSE OUTCOMES

CO1: Apply the appropriate advanced machining components recognizing the industrial requirements

CO2: Apply the knowledge of advanced machining process using mechanical energy

CO3: Apply the principle of material removal by electrical discharge machining

CO4: Apply the principle of material removal by Chemical and electro chemical energy based processes

CO5: Apply the fundamentals of radian energy processes

CO6: Apply the knowledge and concepts in micro machining process

Time: Three Hours **Maximum Marks: 100**

Answer all the Questions:-
PART A (10 x 2 = 20 Marks)
(Answer not more than 40 words)

1.	Mention the requirements of modern machining processes.	CO1	[K_1]
2.	Write down the applications of modern machining process.	CO1	[K_2]
3.	List out the shapes of concentrator in ultrasonic machining process.	CO2	[K_1]
4.	State the limitations of the abrasive water jet cutting.	CO2	[K_2]
5.	Classify the spark erosion generators in Electrical Discharge Machining.	CO3	[K_1]
6.	Name the electrode materials and design considerations for Electrical Discharge Machining.	CO3	[K_2]
7.	In what way, the electro chemical grinding differ from conventional grinding?	CO4	[K_1]
8.	Outline the steps in chemical milling process.	CO4	[K_2]
9.	List out different types of lasers.	CO5	[K_1]
10.	Mention the process parameters of electron beam machining.	CO5	[K_2]

Answer any FIVE Questions:-
PART B (5 x 16 = 80 Marks)
(Answer not more than 400 words)

11.	a)	Classify modern machining processes based on type and sources energy, mechanism, transfer medium.	8	CO1	[K_3]
	b)	Write down the characteristics of modern machining processes.	8	CO1	[K_2]
12.	a)	Describe the principle and process parameters of Ultra Sonic Machining (USM) processes with neat sketch.	8	CO2	[K_3]
	b)	Demonstrate the Water Jet Machining and Abrasive Jet Machining in terms of process capabilities and limitations.	8	CO2	[K_3]
13.	a)	Describe the components, mechanism of metal removal of EDM and list its applications.	8	CO3	[K_3]
	b)	Describe the process of Wire cut EDM and list its advantages and disadvantages, applications, limitations.	8	CO3	[K_3]
14.	a)	Discuss in detail, the method of masking and metal removal rate in electro chemical machining (ECM) with neat sketch.	8	CO4	[K_3]
	b)	Describe the types of maskants used in chemical machining.	8	CO4	[K_3]
15.	a)	Illustrate the principle, machining system and process capabilities of Laser Beam Machining (LBM) with neat sketch.	8	CO5	[K_3]
	b)	Describe the principle, applications and advantages of plasma arc machining.	8	CO5	[K_3]
16.	a)	Classify nano finishing process. Explain the principle of abrasive flow machining process with sketch.	8	CO6	[K_3]
	b)	Discuss in detail the thermal micro machining process with sketch.	8	CO6	[K_3]

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