KUMARAGURU
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B.E. DEGREE EXAMINATIONS: APRIL / MAY 2023

(Regulation 2018)

Second Semester

MECHANICAL ENGINEERING

U18MET2001 / 2005**:** Manufacturing Technology

COURSE OUTCOMES

CO1: Apply the knowledge of various metal casting processes that are useful in designing system components or processes and create appropriate techniques and apply modern tools and research to model complex design and making processes of components.

CO2: Discuss the various welding techniques with their equipment, process capabilities and principle of operations that match specific manufacturing needs with considerations for public health, safety and social issues.

CO3: Apply the knowledge of metal working processes understanding and studying the physics behind it and focus on typical forging operations

CO4: Identify various rolling, piercing and extrusion operations and study and make use of them in solving complex design needs through specific manufacturing tools and methods

CO5: Understand the applications of heat treatment processes and non- destructive testing of materials.

CO6: Study the formability, characteristics, test methods and working principle of sheet metals by applying the knowledge of engineering and make use of sheet metal processing knowledge in practical engineering applications.

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

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

1.	State any four types of Pattern.	CO1	[K_1]
2.	Mention the function of core prints.	CO1	[K_2]
3.	Distinguish between Filler and flux material in welding process.	CO2	[K_2]
4.	Differentiate between brazing and soldering process.	CO2	[K_2]
5.	Mention the major drawbacks of hot working.	CO3	[K_2]
6.	Define Wire drawing Process.	CO4	[K_1]
7.	Mention the purpose of process heat treatment.	CO5	[K_2]
8.	What is the purpose of tempering process?	CO5	[K_2]
9.	List the factors affecting shearing operations.	CO6	[K_1]
10.	Difference list the between punching and blanking.	CO6	[K_2]

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

11.	a)	Explain the steps involved in sand moulding process with a neat sketch.	8	CO1	[K2]
	b)	Explain the high pressure die casting process with a neat sketch? Also write its advantages and disadvantages.	8	CO1	[K2]
12.	a)	With a neat sketch explain the oxyfuel gas welding process. What are the three basic types of oxyacetylene flames used in oxyfuel gas welding and cutting operations?	8	CO2	[K2]
	b)	Illustrate the TIG welding processes with neat sketch.	8	CO2	[K2]
13.	a)	Compare Hot working and Cold Working process.	4	CO3	[K2]
	b)	Explain the wire drawing process with neat sketch.	12	CO3	[K3]
14.	a)	Mention the different types of extrusion process and explain any two extrusion process with neat sketch.	12	CO4	[K2]
	b)	Explain the defects in rolling process.	4	CO4	[K2]
15.		Write short note on the following processes highlighting the purpose and applications. (i) Annealing. (ii) Normalizing. (iii) Hardening. (iv) Tempering Process.	16	CO5	[K2]
16.	a)	Describe shearing operations in a sheet metal work with neat sketch.	8	CO6	[K2]
	b)	Illustrate the hydroforming process with its application.	8	CO6	[K3]

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