06 FEB 2023

Reg. No.												

Question Paper Code	11685

B.E. / B.Tech. - DEGREE EXAMINATIONS, NOV/DEC 2022

Third Semester

Mechanical Engineering

20MEPC301 - MANUFACTURING PROCESSES

(Regulations 2020)

Duration: 3 Hours | Max. Marks: 100

PART - A (10 × 2 = 20 Marks)

Answer ALL Questions

		Marks, K-Level, CO
1.	Infer the causes for the formation of blow holes in the sand casting.	2,K2,CO1
2.	Compare Transferred and Non-Transferred Plasma arc welding.	2,K2,CO1
3.	Summarize the effects of cold working.	2,K2,CO2
4.	Define springback effect and how it is overcome in sheet metal work.	2,K1,CO2
5.	Outline the factors responsible for built-up edge in cutting tools.	2,K2,CO3
6.	Identify the functions of feed rod and lead screw.	2,K2,CO3
7.	Compare up milling and down milling.	2,K2,CO4
8.	Infer the rule for gear ratio in differential indexing.	2,K2,CO4
9.	Identify the defects responsible for inadequate surface integrity.	2,K2,CO5
10.	Define 'loading of grinding wheels'.	2,K1,CO5

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

11.	a)	Explain the various step involved in lost wax-process with suitablesketches.	13,K2,CO1
		OR	
	b)	Exemplify the process of Friction stir weldingand submerged arcweldingprocess with neat sketches.	13,K2,CO1
12.	a)	Explain the following operations with neat sketches, (i) Upsetting (ii) Bending (iii) Swaging (iv) Shaving	13,K2,CO2
		OR	
	b)	Illustrate the different types of roll standarrangements used in the rolling mill with neat sketches and infer the purpose each arrangement.	13,K2,CO2

13. a) Explain the various types of taper turning methods with neat sketches. *13,K2,CO3*

OR

b) During an orthogonal cutting a chip length of 160 mm was obtained from an uncut chip length of 350 mm. The cutting tool has 22^{0} rake angles and a depth of cutis 0.8 mm. Determine the shear plane angle and chip thickness. *13,K2,CO3*

14. a) (i) Illustrate the various operations performed in drilling machine with neat diagrams. *8,K2,CO4*

(ii) Exemplify any two types of milling cutter with suitable sketches. *5,K2,CO4*

OR

b) (i) Explain the construction and principle of operation of gear hobbing process with neat diagram. *9,K2,CO4*

(ii) Infer the advantages and limitations of gear finishing. *4,K2,CO4*

15. a) Explain the salient features of a centre less grinding machine and discuss the different operations that can be carried out in it. *13,K2,CO*

OR

b) Explain the construction and working principles of push and pull type broaching machine and continuous broaching machine with neat sketches. *13,K2,CO5*

PART - C (1 × 15 = 15 Marks)

16. a) Outline the technological steps for manufacturing a crane hook with best mechanical properties. Sketch the various stages andname the operations. *15,K4,CO2*

OR

b) Summarize the steps involved in manufacturing an automobile vehicle bodypanel with neat sketches. *15,K4,CO2*