Sanjay Ghodawat University, Kolhapur

2020-21

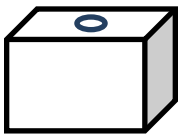
Established as State Private University under Govt. of Maharashtra. Act No XL, 2017

EXM/P/09/00

Year and Program: 2020-21 T.Y.B.Tech	**School of Technology**	**Department:Mechanical Engineering**
Course Code: MET305R1	**Course Title: Mechanics of Metal cutting and Tool Design**	**Semester : V**
Day : Monday **Date: 21 Dec 2020**	**End Semester Examination**	**Time:2 Hrs.** **Max Marks:50**

Instructions: 1) All Questions are compulsory.
2)Draw neat diagrams whenever necessary.

		Marks	Bloom's Level	CO
Q.1	**Answer the following (any Two)**			
a)	In an Orthogonal Turning test with a tool of rake angle 10^0 . These observations were made: Horizontal component of the cutting force = 1200N, Vertical component of the cutting force = 1600N, From merchant circle calculate the various components of the cutting forces ,shear stress and the coefficient of fraction at the chip tool interface.	8	L3	CO1
b)	What phenomenon is happening during the metal cutting? Write with a neat sketch.	8	L2	CO1
c)	Which tool materials are used in metal cutting? Discuss their importance in machining.	8	L2	CO3

Q.2	**Answer the following (any two) –**			
a)	Enumerate the types of cutting fluids and mention the composition and applications any three types.	8	L2	CO2
b)	Draw and describe how you will use 3:2:1 principle of location for following component as shown in fig.1 and explain degree of freedom.  Fig.1	8	L3	CO4
c)	How would you compare the functions of elements of jigs and fixtures	8	L2	CO4

Q.3 **Answer the following (any two) –**

a) Design and draw neat sketch of milling fixture to face mill diameter ▲ 100mm(markedby)asshowninfig.2.Showlocatingpart,clamping componentandsettingblockwithdimensions.DrawF.VandT.Vwith scale1:3. All dimensions are in mm. — 9 L4 CO4

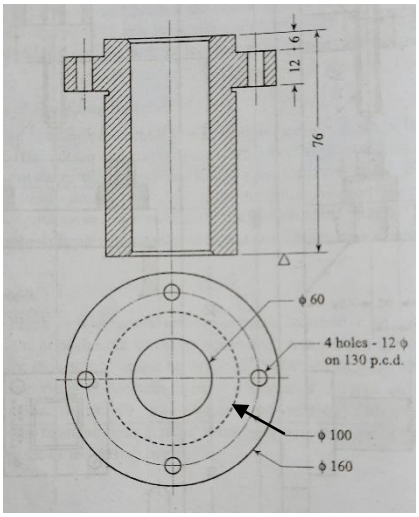


Fig.2

b) How would you explain with applications, the different cutting and noncutting operations on press? — 9 L2 CO5

c) Calculate the cutting force and press capacity for the following component as shown in fig.3 Assume the material thickness 5mm with USS=320N/mm^2. — 9 L3 CO5

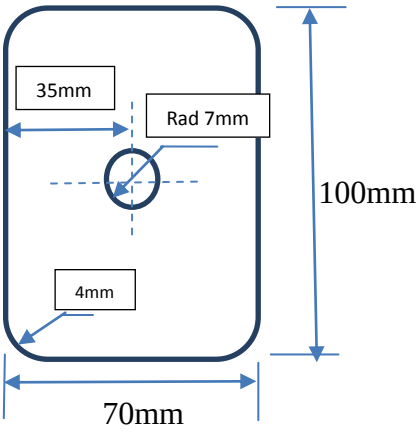


Fig.3

****