

**University of Mumbai**  
**Examination summer 2022**  
**Program: Mechanical Engineering**  
Curriculum Scheme: R 2019

Examination: TE

Course Code: AEDLO6021

and

Course Name: Press Tool Design

Semester: VI

Time: 2 hour 30 minutes

Max. Marks: 80

Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	In blanking operation the shear is provided on following element
Option A:	On Punch
Option B:	Punch holder
Option C:	On die
Option D:	Stripper plate
2.	The value of the scrap bridge for 2mm material thickness is following
Option A:	0.8mm
Option B:	2mm
Option C:	3.2mm
Option D:	5mm
3.	Spring back in sheet metal bending depends on the
Option A:	Elastic limit
Option B:	Bend radius
Option C:	Degree of bend
Option D:	Thickness of sheet
4.	Wrinkling is a common defect found in
Option A:	Bent components
Option B:	Deep drawn components
Option C:	Embossed components
Option D:	Blanked component
5.	The distance from the top of the bed to the bottom of the slide with stroke down and adjustment up is called as.....
Option A:	Shut height
Option B:	Top height
Option C:	Bottom height
Option D:	Height
6.	Which of the following parameter correctly describes the size of press
Option A:	Maximum force its ram can exert
Option B:	Stroke length
Option C:	Ram speed
Option D:	Die space
7.	In which of the following die, more than one cutting operation is performed at one station of the press in one stroke of the ram

Option A:	Compound die
Option B:	Embossing die
Option C:	Progressive die
Option D:	Combination die
8.	Material utilization is ratio of
Option A:	Area of blanks from strip to area of the strip before blanking
Option B:	Area of blanks from strip to area of the strip after blanking
Option C:	Diameter of blanks from strip to area of the strip before blanking
Option D:	Diameter of blanks from strip to area of the strip after blanking
9.	In sheet metal blanking, shear is provided on punches and dies so that
Option A:	Press load is reduced
Option B:	Good cut edge is obtained
Option C:	Warping of sheet is minimized
Option D:	Cut blanks are straight
10.	The shear strength of a sheet metal is 300 MPa. The blanking force required to produce a blank of 100 mm diameter from a 1.5 mm thick sheet is close to
Option A:	45KN
Option B:	70KN
Option C:	141KN
Option D:	3500KN

<b>Q2</b>	<b>Solve any Four out of Six</b>	<b>5 marks each</b>
A	Write benefits, limitations and applications of press tools.	
B	With Suitable example explain calculations for Economic Strip Layout.	
C	Write Significance of Optimum Clearance.	
D	Explain basic construction & working of Shaving dies.	
E	Explain the condition of energy overloading of press.	
F	Differentiate between hydraulic press and mechanical press.	

<b>Q3</b>	<b>Solve any Two Questions out of Three</b>	<b>10 marks each</b>
A	What is Bending? Explain types of Bending Operation.	
B	Explain with the help of neat sketch working of Combination Die.	
C	A deep drawing operation is used to make a cup of diameter 50mm, height of 50mm & corner radius of 1.4mm from medium Carbon Steel material of 0.8mm thick. Design die for the same. Yield strength is $427\text{N/mm}^2$ , $C=0.65$ .	

<b>Q4</b>	<b>Solve any Two Questions out of Three</b>	<b>10 marks each</b>
A	Explain the phenomenon of spring back and the reasons that develop it. Also discuss the factors on which spring back depends upon.	
B	What is stripping force and on what factors does it depends upon? Also compare between fixed and spring loaded stripper.	
C	A press is designed to offer 90 ton of force at $20^\circ$ crank angle with a stroke of 15cm. Stroke is variable from 1cm to 15cm. Calculate tonnage available when ram is 3cm above its BDC. Take stroke length equal to 10cm.	