SIDDHARTH INSTITUTE OF ENGINEERNG & TECHNOLOGY :: PUTTUR

(AUTONOMOUS)

Siddharth Nagar, Narayanavanam Road – 517583

QUESTION BANK (DESCRIPTIVE)

Subject Code : MFP (16ME329) **Course & Branch :** B.Tech – ME

Year & Sem : IV - B.Tech & I - Sem **Regulation :** R16

UNIT – I

S.No			BT	CO	Marks
1.	**a.**	Define engineering stress and true stress.	L1	CO1	6M
	b.	Compare engineering strain and true strain.	L2	CO1	6M
2.		Discuss in detail about recovery, recrystallisation and grain growth.	L6	CO1	12M
3.		Develop an expression for two dimensional stress analysis.	L6	CO1	12M
4.		Summarize the merits and demerits of hot working and cold working.	L2	CO1	12M
5.		Explain Tresca yield criterion in metal forming process.	L5	CO1	12M
6.	**a.**	Explain theory of Plasticity.	L2	CO1	6M
	b.	Outline the elastic and plastic deformation behavior of metals.	L2	CO1	6M
7.		Develop an expression for three dimensional stress analysis.	L6	CO1	12M
8.		Discuss yield criteria and yield locus in metal forming processes.	L6	CO1	12M
9.		Explain about Von mises yield criteria.	L5	CO1	12M
10.	**a.**	Compare the differences between hot working and cold working processes.	L4	CO1	6M
	b.	Explain the concept of strain hardening.	L2	CO1	6M

UNIT – II

S.No			BT	CO	Marks
1.		Explain the principle and theory of rolling process with a schematic diagram.	L2	CO2	12M
2.		Define forging. Explain smith forging and roll forging processes with the necessary sketches.	L1&L2	CO2	12M
3.		Classify the types of rolling mills with the necessary sketches.	L2	CO2	12M
4.		Explain various types of Rolling defects that occur in rolling operation in detail.	L2	CO2	12M
5.		Discuss briefly the working principle and various stages in drop forging with a neat sketch.	L6	CO2	12M
6.	**a.**	Outline the working principle of ring rolling process with a neat sketches.	L2	CO2	6M
	b.	Estimate the power required for the rolling operation in kW for a single pass rolling operation a 20 mm thick plate with plate width 100 mm is reduced to 18 mm. The roller radius is 250 mm and rotation speed is 10 RPM. The average flow stress for the plate material is 300 MPa.	L6	CO2	6M
7.		Explain the rotary forging with a neat sketch and summarize the advantages of rotary forging.	L2	CO2	12M
8.		Develop an expression for force and power requirement in rolling operation.	L6	CO2	12M
9.		Discuss in detail about the various types of forging hammers.	L6	CO2	12M
10		Explain the various types of Forging defects that occur in Forging operation.	L2	CO2	12M

UNIT – III

S.No			BT	CO	Marks
1.	**a.**	Summarize the characteristics of extrusion process.	L2	CO3	8M
	b.	Compare forward and backward extrusion.	L2	CO3	4M
2.	**a.**	Construct and explain the typical draw die used for wire drawing process.	L3	CO3	6M
	b.	Explain the defects occurred in wire drawing process.	L2	CO3	6M
3.		Classify the extrusion process. Explain the mechanism of hot and cold extrusion processes.	L4	CO3	12M
4.		Develop an expression for force and power required for wire drawing process.	L6	CO3	12M
5.		Outline the working principle of forward and backward extrusion process with the proper sketches.	L2	CO3	12M
6.		Explain the wire drawing operation with a schematic diagram.	L2	CO3	12M
7.		Explain the process of hydrostatic extrusion and impact extrusion with a neat sketch.	L2	CO3	12M
8.	**a.**	Summarize the characteristics of drawing process	L2	CO3	6M
	b.	Construct the sketch for measuring the degree of drawing with expressions.	L3	CO3	6M
9.	**a.**	Discuss in detail about the extrusion defects with neat sketch.	L6	CO3	8M
	b.	Estimate the force required for extruding a brass billet is to be extruded from its initial diameter of 100mm to a final diameter of 50mm. The working temperature of 7000°C and extrusion constant is 250 Mpa.	L6	CO3	4M
10.		Explain in detail about the stages involved in wire drawing process.	L5	CO3	12M

UNIT – IV

S.No			BT	CO	Marks
1.	**a.**	Summarize the economic considerations in sheet meat working operations.	L2	CO4	8M
	b.	Classify the sheet metal working operation and clearly indicate the stresses induced.	L2	CO4	4M
2.		Define drawing and explain cup and tube drawing process with proper sketches.	L1&L2	CO4	12M
3.		Explain the mechanism of shearing in sheet metal operation with neat sketch.	L2	CO4	12M
4.		Outline the working principle of stretch forming and embossing which are carried out in sheet metal work with neat sketches.	L2	CO4	12M
5.		Explain the following sheet metal working shearing operations performed in a workshop with neat sketch. a) Blanking b) Piercing c) Nibbling d) Notching	L2	CO4	12M
6.		Explain the working principle of hot and cold metal spinning operation with a neat diagram.	L2	CO4	12M
7.		Classify the different types of bending operations and explain them in detail with suitable sketches.	L4	CO4	12M
8.		Outline the working principle of coining and ironing process with neat sketch	L2	CO4	12M
9.	**a.**	Explain the concept of spring back in sheet metal bending with a suitable sketch.	L2	CO4	6M
	b.	Estimate the shear force and work required for shearing a hole of rectangular cross section steel sheet of 100X50 mm with thickness of 4 mm and the penetration required is 20%. Shear strength of material is given as 400 MPa.	L6	CO4	6M

10.	**a.**	Discuss briefly about the defects in sheet metal products.	L6	CO4	8M
	b.	Explain the concept of spring back in sheet metal shearing with a suitable sketch.	L2	CO4	4M

UNIT – V

S.No			**BT**	**CO**	**Marks**
1.		Explain the injection moulding process in detail with suitable sketch. Mention its applications and limitations.	L2&L3	CO5	12M
2.		Discuss any two high energy rate forming methods with the proper sketches.	L6	CO5	12M
3.		Explain briefly the blow moulding process with the help of suitable figures. Mention its applications and advantages.	L2&L3	CO5	12M
4.	**a.**	Outline the working principle of calendaring process.	L2	CO5	6M
	b.	Summarize the applications of rapid proto typing process.	L2	CO5	6M
5.		Explain the working principle of thermoforming process with neat sketch.	L2	CO5	12M
6.		Classify the various rapid prototyping methods. Explain the working principle involved in selective laser sintering process.	L4	CO5	12M
7.		Discuss in detail about the compression moulding process with a neat sketch. Mention its applications and advantages.	L6&L3	CO5	12M
8.		Discuss the working principle of Stereolithography technique with neat sketch.	L6	CO5	12M
9.		Explain the transfer moulding process with a neat sketch.	L2	CO5	12M
10		Explain the fused deposition modeling process with a neat sketch.	L2	CO5	12M

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