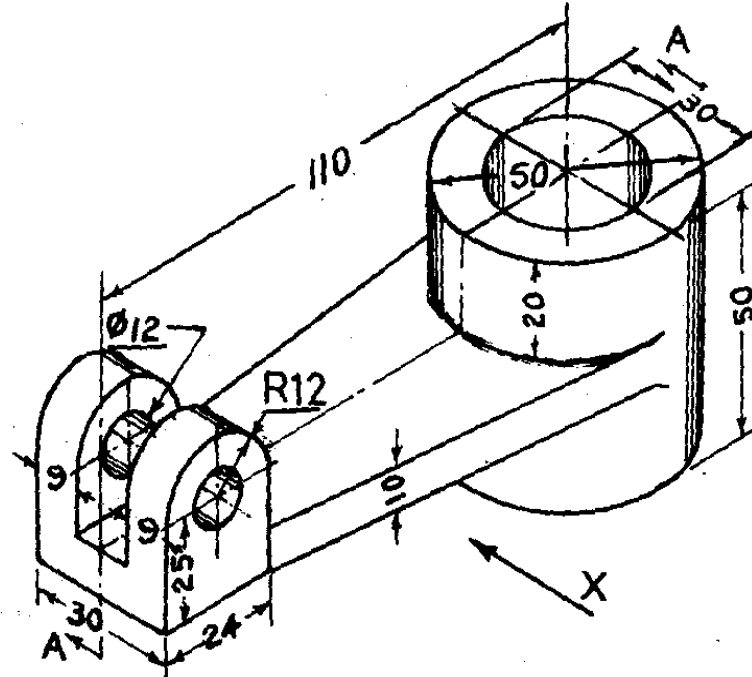


GUJARAT TECHNOLOGICAL UNIVERSITY**BE- IVth SEMESTER-EXAMINATION – MAY/JUNE- 2012****Subject code: 141403****Date: 25/05/2012****Subject Name: Materials & Manufacture of Food Equipment****Time: 10:30 am – 01:00 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

Q.1	(a) Using first angle projection method draws (i) Sectional Front view (ii) Left hand side view & (iii) Top view of a given pictorial view. All the dimensions are in mm.	07
		04
	(b) Fill in the blanks. (i) In a small size hole the thread is cut by a tool called _____. (ii) The slope of the thread is equal to one half its _____. (iii) The _____ of Unified threads are rounded while its _____ are cut parallel to the axis of the screw. (iv) The diameter of the screw at the crests is called _____ diameter, while that at the roots is called _____ diameter.	03
Q.2	(a) Describe different types of welding defects in detail. Two steel sheets of 1mm thickness are resistance welded in a lap joint with a current of 10000A for 0.1 seconds. The effective resistance of the joint can be taken as 100μΩ. The joint can be considered as a cylinder of 5mm diameter and 1.5mm height. Density of steel is 0.00786 g/mm ³ and heat required for melting is taken as 10J/mm ³ . Calculate heat lost to the surrounding and the percentage of heat required for melting.	07

	(b)	Discuss about composite material.	04
		OR	
	(b)	Write the applications of SBR and silicone rubber.	04
	(c)	Draw British Association thread and write uses of it.	03
		OR	
	(c)	Draw Whitworth thread and write uses of it.	03
Q.3	(a)	List out the purpose of heat treatment as well as various heat treatment processes. Discuss the carburizing in detail.	07
	(b)	Draw Wing nut and mention application of it.	03
	(c)	Sketch one foundation bolt used to secure a machine?	04
		OR	
Q.3	(a)	What is S-curve? Explain the importance of S-curve. Write down various steps involved in construction of S-curve.	07
	(b)	Write the difference between Thermo plastics and Thermosetting plastics.	03
	(c)	What is condensation polymerisation? Discuss in details.	04
Q.4	(a)	Sketch a binary thermal equilibrium diagram for a system where two metals which form a homogeneous liquid, exhibit partial solubility on solidification. Name clearly all points, lines and area of diagram.	07
	(b)	Explain Eutectic and Peritectic system. Discuss the iron allotropy in detail with diagram	07
		OR	
Q.4	(a)	What are the disadvantages of raw rubber? Write advantages of vulcanized rubber?	07
	(b)	What is annealing? Discuss the advantages of annealing. How are annealing process classified? Discuss any two.	07
Q.5	(a)	What is quenching and quenching medium? Describe various industrial quenching medium. List the criteria for selection of quenching medium.	07
	(b)	Define the followings; 1. Tack weld 2. Double V joint and Single bevel joint 3. Rated current 4. Oxidizing flame 5. Basicity Index 6. Inclusion 7. Fatigue	07
		OR	
Q.5	(a)	Discuss different modes of heat transfer. Draw temperature profile of parallel and counter flow. Discuss the advantaged of PHE.	07
	(b)	Differentiate between single effect and multiple effect evaporators. Explain types of evaporators according to methods of feeding.	07
