Seat No.:	Enrolment No
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GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-IV (NEW) - EXAMINATION - SUMMER 2017

Subject Code: 2141403 Date: 06/06/2017

Subject Name: Materials & Manufacture of Food Equipment

Time: 10:30 AM to 01:00 PM Total Marks: 70

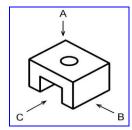
Instructions:

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

Q.1 Short Questions

14

- 1 In third angle method of projectionlies betweenand object.
- 2 Draw type of section line used to indicate steel.
- 3 Define composite material.
- 4 What is degree of polymerization?
- 5 Draw and define pitch of a screw.
- **6** Which view shows most about the object?



- 7 What are the dimensions of tapering of a round key?
- * Make the following sentences true or false
- **8** Failure due to excessive deformation is controlled by Design & Dimensions. (T/F)
- **9** Usually materials with following crystal structure fail in ductile mode by BCC. (T/F)
- **10** Cooling rate is not an important heat treatment process parameter. (T/F)
- 11 Spot welding is used to weld metal pieces whose thickness Lies between 15 to 20 mm. (T/F)
- 12 In spot welding Momentary arc is established at the spot under weld. (T/F)

	13	The weld time in spot welding is measured in second. (T/F)	
Q.2	14 (a)	The heat required by the weld is produced due to the contact resistance between the two pieces and is inversely proportional to the current. (T/F) Discuss thermal, electrical and mechanical properties of materials	03
	(b)	Discuss the followings with diagram 1. Proportional limit 2. Yield stress	04
	(c)	3. Proof stress Differentiate between ferrous and non ferrous metals with example. Discuss the properties of aluminium. OR	07
	(c)	Discuss the process of crystallization of metal. Describe the cooling curve with diagram.	07
Q.3	(a)	Do you agree with the statement "fatigue is more dangerous than static or impact load" justify.	03
	(b)	List out the purposes to perform the heat treatment. Discuss phase diagram.	04
	(c)	Why case hardening is important? Discuss different types of carburizing in details.	07
		OR	
Q.3	(a)	What do you understand by quenching media? List out the cooling rates at 200°C of different quenching media.	0.
	(b)	Explain the importance of Isothermal Transformation Curve.	04
	(c)	Discuss the followings with diagram; Base metal, Deposition rate, Puddle, Root, Heat affected zone, Fusion zone and Tack weld.	07
Q.4	(a)	Draw simplified representation of blinded threaded hole.	0.
	(b)	Differentiate between first angle and third angle method of projection.	04
	(c)	Classify keys and draw woodruff key with dimension and knuckle joint	0
		with labeling.	
		OR	
Q.4	(a)	What are the rules to follow while drawing section lines through any	03
		object?	
	(b)	Write a short note on co-polymerization.	04
	(c)	Describe in detail about reinforced composite materials with example.	0′
Q.5	(a)	Draw a buttress thread with dimensions having total 3 threads.	03
	(b)	Do as directed	04
		1. What is Tolerance?	

- 2. Define: flatness of a surface
- 3. What does M30 indicates in a screw drawing?
- 4. Write an application of cutting plane line.
- (c) Draw and explain the drawing steps for a hexagonal nut. Also explain anyone method of representing screw schematically.

OR

Q.5 Draw Sectional Front and top view using first angle method of projection 14 for a figure given below.

