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GUJARAT TECHNOLOGICAL UNIVERSITY BE- IVth SEMESTER-EXAMINATION - MAY/JUNE- 2012

Subject Name: Metallurgy for Non metallurgists Time: 10:30 am – 01:00 pm Instructions: 1. Attempt all questions. 2. Make suitable assumptions wherever necessary. 3. Figures to the right indicate full marks. Q.1 (a) Define corrosion. Discuss various protection methods to minimize corrosion. (b) Discuss various Heat treatment processes of copper alloys. Explain age hardening parameters of it. (b) What is carburizing? Discuss the liquid carburizing process in detail. OR (b) Explain the BCC and HCP structure and calculate their atomic packing factor. Q.3 (a) Briefly explain the effect of various alloying elements on the properties of steel. (b) What is TTT diagram? Describe the effect of alloying elements on TTT diagram OR Q.3 (a) Discuss the detailed classification of steel. Mention properties and applications stainless steels. (b) Define hardenability and give significance of hardenability. Explain Jominy of quench test for hardenability measurement. Q.4 (a) Give the classification of Cast iron. Mention the properties and applications of Grey cast iron. (b) Define rolling. Briefly discuss different rolling mills. OR Q.4 (a) Define casting. Explain the Centrifugal casting method. Compare it we Investment casting method. (b) What are different metal forming processes? Discuss about wire drawing method. Q.5 (a) What is Welding? Explain SMAW welding process. (b) "Material Testing is an important task for industry." Justify the statement a classify material testing methods. OR Q.5 (a) Explain GMAW welding process and compare it with SAW welding process. (b) Enlist various NDT methods. Explain the Eddy current testing method and list limitations.	5	Subject code: 142104	Date: 31/05/2	012
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