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GUJARAT TECHNOLOGICAL UNIVERSITY

ME - SEMESTER- I (New course) • REMEDIAL EXAMINATION - SUMMER 2015 Subject Code: 2712801 Date: 13/05/2015 Subject Name: Advance Casting Technology Time: 10:30 am to 1:00 pm **Total Marks: 70 Instructions:** 1. Attempt all questions. 2. Make suitable assumptions wherever necessary. 3. Figures to the right indicate full marks. Define Advance Casting Technology and Give Principle difference between 0.1 07 (a) Casting Technology and Welding Technology. Give the types of foundry sands. Describe the properties and characteristics of **(b)** 07 Green Sand and Loam sand. 0.2 Describe the Bonding Mechanism of Silica ó Water Clay Systems. **07** (a) Compare and contrast between the characteristic features of natural and (b) 07 synthetic sands. OR What is meant by Mould Constant and its Significance in Metal Casting? **07 (b)** Q.3Why Homogeneous nucleation much more difficult than heterogeneous (a) 07 nucleation in actual practice? Explain Quick Casting process with Industrial Case study. **(b)** 07 Discuss the working principle, applications and limitations of shell moulding Q.3(a) 07 process. (b) Discuss the difference between homogeneous and heterogeneous nucleation. **07 Q.4** The metal contracts in volume as it cool in the mould. Discuss the stages in 07 which the contraction of the metal takes place. Discuss all the formulas used to calculate the gating system dimensions **07** (b) OR **Q.4** Elaborate the Concept Fluidity & its Measurements. 07 (a) (b) Give a short review about the directional solidification process. Discuss how 07 the directional solidification can be controlled. 0.5 Compare die casting and full mould process from the point of process, product 07 and applications Write three stages involves in Castability analysis. (b) 07 0.5 Explain the description, causes and prevention of the following casting defects: **07** (a) (i) Scab expansion (ii) Cross-joint (iii) Flash (iv) Hot tears (v) Pinholes (vi) Swell/Mould burst What is Software Application in Casting Processes and give any Pro-cast 07 (b) Programming of Casting Components.
