

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-V • EXAMINATION – SUMMER 2013

Subject Code: 151901**Date: 14-05-2013****Subject Name: Manufacturing Processes - II****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.
4. Draw neat sketches in support of your answers wherever applicable.

- Q.1** (a) Sketch the cross section of sand mould which is ready for pouring and label the various important parts. **05**
- (b) What type of allowances is generally incorporated into a casting pattern? Explain **05**
- (c) What are chills? State their functions? **04**
- Q.2** (a) Explain with neat sketches types of gating systems used in casting. **07**
- (b) i) What is the benefit of a split pattern over a one piece or solid pattern? **03**
- ii) What defects are likely to be caused due to (i) Undersized core, (ii) Oversized core? State only properties of core sand. **04**
- OR**
- (b) What is a core-print and what is its purpose? Explain with neat sketch any two types of cores. **07**
- Q.3** (a) In industry the rolls are cooled with a spray of water during hot rolling of steels. Why? State of least a products, which are manufactured by rolling process. **5**
- (b) Discuss suitability of casting process over welding process for making reduction gear box body. **5**
- (c) What would be the consequence of having different speeds of the two rolls during rolling? **4**
- OR**
- Q.3** (a) What are the advantages and disadvantages of hot working of metals? **5**
- (b) What mechanical property is most important for its swaging? What type of stress is experienced by the material being swaged? **5**
- (c) What is the role of electrode coatings in shielded metal arc? **4**
- Q.4** (a) What is meant by balancing a die in a drop forging? Explain with example **5**
- (b) Distinguish between wire drawing and tube drawing with sketches. **5**
- (c) Give examples of typical products manufactured by the following forging processes and why? i) Machine forging ii) Smith forging iii) Drop forging. **4**
- OR**
- Q.4** (a) Compare shell moulding and precision investment casting from the standpoint of process and products. **5**
- (b) Explain cupola furnace with neat sketch showing temperature zones and important reactions that are taking places in it. **5**
- (c) How do you compare forged components with cast components? **4**

- Q.5** (a) What are the common welding troubles, causes and remedies for them? **5**
- (b) Explain with neat sketch resistance spot welding process along with advantages and limitations. **5**
- (c) Why electrodes for A.C. welding are generally coated with potassium silicate binder and those for D.C. arc welding with sodium silicate? **4**
- OR**
- Q.5** (a) Explain with neat sketch injection moulding process. What are the limitations of this process? **5**
- (b) Enlist types of super finishing processes. Discuss the selection criteria for appropriate super finishing process. **5**
- (c) Write a short note on friction welding. **4**
