

GUJARAT TECHNOLOGICAL UNIVERSITY
BE – SEMESTER III (NEW) – • EXAMINATION – SUMMER 2015

Subject Code: 2133405**Date: 09/06/2015****Subject Name: Manufacturing and Assembly Drawing****Time: 02.30pm-05.00pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions including dimensions (if not readable) wherever necessary.
3. Figures to the right indicate full marks.
4. Use answer book for analytical and drawing sheet for graphical solutions. (Follow first angle projection method)

- Q1** (a) Explain Ra Value and Roughness Grade Number. Also give symbols for roughness grade. **07**
 (b) Draw the convection for the following (i) External Thread (ii) Spur gear (iii) Leaf Spring (iv) **07**
 Spiral Spring (v) Trapezoidal section (vi) Knurling (vii) Chain wheel
- Q.2** (a) What is meant by the term “Fit”? Explain various types of fits. **07**
 (b) Explain and compare “Hole basis system” and “Shaft basis system” of fits. From manufacturing **07**
 point of view which system is preferred? Why?
- OR**
- (b) Find the values of allowances, hole tolerances and shaft tolerance for the following dimensions **07**
 of mated parts according to the basic hole system.
 Hole : 37.50 mm Shaft : 37.47 mm
 37.52 mm 37.45 mm.
- Q.3** (a) Give brief classification of ferrous and non-ferrous metals. **07**
 (b) What is “alloying”? Explain the effect of adding following alloying element on steel (i) Mn (ii) **07**
 Si (iii) Cr (iv) Mo (v) Ti (vi) W.
- OR**
- Q.3** (a) Brass and Bronze are alloys of which non-ferrous material? Give composition and application of **07**
 (i) Cartridge Brass (ii) Gun Metal (iii) Muntz Metal.
 (b) Duralumin, Magnalium and Hindalium are alloys of which non-ferrous material? Give their **07**
 composition and application.
- Q.4** (a) Draw any SEVEN elementary welding symbols with its designation and illustration. **07**
 (b) With the help of sketches, show how the geometrical tolerances are indicated, as prevalent in **07**
 industry, for the following cases: (i) parallelism, (ii) perpendicularity (iii) symmetry and (iv)
 radial run out.
- OR**
- Q.4** (a) What is production drawing of a component? What information must be provided on **07**
 production drawing of a machine to facilitate its manufacturing and assembly?
 (b) Draw sectional front view of an assembly of injection mould assuming suitable dimensions. **07**

