

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
MCA - SEMESTER– III EXAMINATION – SUMMER 2016

Subject Code: 2630005

Date: 01-06-2016

Subject Name: System Software

Time: 02.30p.m. To 05.00p.m.

Total Marks: 70

Instructions:

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

- Q.1 (a)** 1. Explain the following term. **03**
(a) Semantic gap (b) Execution Gap (c) Problem Oriented Languages
2. Explain the usage of MDTP (w.r.t. Macro Preprocessor). **01**
3. What is an Address Sensitive instruction? **01**
4. Differentiate : Compiler Vs Interpreter **02**
- (b)** 1. Write a short note on User Interface. **03**
2. Write a short note on Static and Dynamic Memory Allocation. **03**
3. A DS 20 **01**
How much memory will be allocated by the above statement?
- Q.2 (a)** 1. Explain the usage of STOP and END statement in Assembly Language in detail. **02**
2. Why SET statement is used to assign a value to expansion time variable of macro preprocessor rather than MOVEM statement? **02**
3. Explain the usage of Macro Name Table during Macro processing. **03**
- (b)** 1. Write stepwise - operations perform by 2-Pass Assembler for the following statements during First and Second Pass and also create the required data structure entry for the same. **07**
- START 100
- A DS 2
- P1 MOVER AREG,B
- ORIGIN 200
- B DC '3'
- END
- OR**
- (b)** 1. Compare Variant-I and Variant-II of the intermediate code. **03**
2. Explain the following statements with respect to Macro preprocessor. **04**
LCL, SET, AIF, ANOP
- Q.3 (a)** Explain code optimizing techniques with example. **07**
- (b)** Explain accessing local and non local variables in block structure language. **07**
- OR**
- Q.3 (a)** 1. Explain (a) Non-relocatable (b) Relocatable and (c) Self relocatable program. **03**
2. Write a short note on design of an Editor. **04**
- (b)** E::= T + E | T **07**
T:= V*T | V
V::= <id>
Validate the given string <id> + <id> * <id> using top down parsing and discuss the drawbacks of above technique.

- Q.4 (a)** 1. Explain derivation and reduction with suitable example. **04**
2. Explain different types of statement of an assembly program. **03**
(b) Explain the stage wise parsing status of following string using Operator precedence parser. **07**
|-<id> + <id> * <id> -|

OR

- Q.4 (a)** 1. Explain the usage of different types of parameters used in Macro. **04**
2. Write the advantages of overlays. **03**
(b) Explain all the component of object module of a program. **07**

- Q.5 (a)** 1. Explain the following terms. **07**
(a) Translated origin, (b) Linked origin (c) Relocation Factor
(d) Linking (e) Relocation (f) Macro (g) PFG
(b) Explain how nested Macro call is processed by Macro preprocessor using extended stack model? **07**

OR

- Q.5 (a)** Explain an algorithm of Pass-1 of Linker. **07**
(b) 1. Explain the classification of Grammar. **04**
2. Explain forward reference. How 1-Pass assembler handle forward reference? **03**
