



M.Tech II Semester Supplementary Examinations August/September 2018

SYSTEMS PROGRAMMING

(Digital Systems & Computer Electronics)

(For students admitted in 2013, 2014, 2015 & 2016 only)

Time: 3 hours

Max. Marks: 60

Answer any FIVE questions
All questions carry equal marks

- 1 (a) Describe analysis and synthesis phases of language processing with suitable examples.
(b) Enlist the program generation activities. How does these activities reduce the semantic gap?
- 2 (a) Explain the significance of search data structures in language processing.
(b) Describe allocation and deallocation in stacks.
- 3 (a) Write a formal definition of grammar and draw the parse tree for the string aabbba using following grammar:
$$G = (\{ s, A \}, \{ a, b \}, P, S)$$

Where P consists of:
$$S \rightarrow a A S \mid a$$

$$A \rightarrow SbA \mid SS \mid ba$$

(b) Compare top down parser with bottom up parser with respect to their suitable usability.
- 4 (a) Describe the issue of forward referencing and the mechanism to handle it.
(b) Write an algorithm for pass I of a two pass assembler with neat flow chart.
- 5 (a) What is macroprocessor? Explain the basic tasks performed by macroprocessor.
(b) Explain the different ways in which we can specify the arguments to a macro call with suitable example.
- 6 (a) Describe the various types of code optimization techniques in compiler.
(b) Define the following terms: (i) Incremental compiler. (ii) Cross compiler.
- 7 (a) Explain design issues of a direct linking loader with respect to various data structures used.
(b) Justify the statement "Relocatable programs are more efficient than self relocating programs".
- 8 (a) Differentiate between line editor and screen editor.
(b) Draw the structure of user interface and explain the functions of presentation manager and dialog manager.
