

Code: 5G151

III B.Tech. I Semester Supplementary Examinations February 2022

**Compiler Design**

(Computer Science and Engineering)

Max. Marks: 70

Time: 3 Hours

Answer any five full questions by choosing one question from each unit (5x14 = 70 Marks)

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Marks

**UNIT-I**

1. a) Explain the different phases of the Compiler, showing the output of each phase using an example for the statement  $z = (a*20) + b - c$ ? 10M
- b) What is the difference between a pass and phase of a compiler? 4M

**OR**

2. a) What is Bootstrapping? Explain with suitable example? 7M
- b) What is meant by Input buffering? Explain the use of sentinels in recognizing tokens with example? 7M

**UNIT-II**

3. Construct SLR parsing table for the given grammar and check whether "id or id and id" is a valid string or not. 14M
- $E \rightarrow E \text{ or } T \quad E \rightarrow T \quad T \rightarrow T \text{ and } F \quad T \rightarrow F \quad F \rightarrow id$

**OR**

4. a) Explain the role of parser. Discuss different kinds of errors and error recovery strategies? 7M
- b) Write a short notes on YACC? 7M

**UNIT-III**

5. a) Construct an annotated parse tree for  $2*3+5n$  7M
- b) Explain the details about the specification of a simple type checker 7M

**OR**

6. a) Compare Inherited attributes and synthesized attributes with an example? 7M
- b) Write a short note on L-attributed definitions? 7M

**UNIT-IV**

7. a) What is activation record? Explain the various fields of the activation record? 5M
- b) Discuss about the stack allocation strategy with an example? 9M

**OR**

8. a) List out various forms of Intermediated code? 5M
- b) Generate the three-address code for the following 'C' Program fragment?  
**for ( i=1;i<=20;i++)**  
**if(a<b)**  
**x=y+z;** 9M

**UNIT-V**

9. a) List and explain about object code forms? 7M
- b) What are the applications of DAG? Explain how the given expression can be converted into a DAG.  $(a+b)*(a+b)+(c+d)$  7M

**OR**

10. a) What is flow graph? Explain how given program can be converted into flow graph? 7M
- b) Write briefly about various Loop optimization techniques? 7M

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**Code: 5G356**

III B.Tech. I Semester Supplementary Examinations February 2022

**Microprocessors and Interfacing**

( Computer Science and Engineering )

Max. Marks: 70

Time: 3 Hours

Answer any five full questions by choosing one question from each unit (5x14 = 70 Marks )

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**UNIT-I**

1. Draw the architecture of 8086 microprocessor and explain the function of each unit in detail.

14M

**OR**

2. a) Discuss the features of 8086.  
b) Describe the flag register of 8086.

7M

7M

**UNIT-II**

3. a) Differentiate SRAM and DRAM  
b) Compare I/O mapped I/O with Memory mapped I/O.

7M

7M

**OR**

4. a) Describe the interfacing of D/A convertor with a neat sketch.  
b) Explain the interfacing of seven segment display with a neat sketch.

7M

7M

**UNIT-III**

5. With neat sketch explain the architecture of 8259A PIC

14M

**OR**

6. a) How the DMA is faster than others.  
b) What are the key differences between NMI and other external hardware interrupts?

5M

9M

**UNIT-IV**

7. With functional block diagram, explain the operation and programming of 8253 in detail.

14M

**OR**

8. a) Describe the Synchronous transmission and reception schemes of 8251 in detail  
b) Differentiate between Asynchronous and Synchronous data transfer schemes.

7M

7M

**UNIT-V**

9. a) Explain the salient features of 80386  
b) Discuss Salient features of Pentium processors

7M

7M

**OR**

10. Draw the architecture of a Pentium processor, and list out some salient features of Pentium and Pentium pro processors.

14M

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