III B.Tech. I Semester Supplementary Examinations May 2017
Compiler Design
(Computer Science and Engineering)

Max. Marks: 70   Time: 3 Hours

Answer any *five* questions
All Questions carry equal marks (**14 Marks** each)
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1. Explain various phases of a compiler. Explain each phase in detail write down the output of each phase for expression a:=b+c*4   14M

2. What is top down parsing? Construct LL (1) parsing table for the following grammar.
    E   E+T | T
    T   T*F | F
    F   (E) | id   14M

3. Construct Canonical LR parsing table for the following grammar
    S   CC
    C   cC / d   14M

4. a) Write the quadruple, triple, indirect triple for the statement
    a := b* − c + b* − c.   7M
   b) Draw syntax tree for the arithmetic expressions   7M

5. Explain symbol table organization using hash tables? With an example show the symbol table organization for block structured language.   14M

6. Explain different principal sources of optimization technique with suitable examples   14M

7. a) Explain the natural loops and inner loops of a flow graph with an examples   7M
   b) Explain the equation for computing live variables in a flow graph.   7M

8. Explain in detail about machine dependent code optimization in detail.   14M
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III B.Tech. I Semester Supplementary Examinations May 2017
Computer Networks
(Common to CSE & IT)

Max. Marks: 70   Time: 3 Hours

Answer any **five** questions
All Questions carry equal marks (**14 Marks** each)
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1. a) List and explain the four levels of addressing employed in TCP/IP protocols.   7M

   b) What networks are used at your college? Describe the network types, topologies, and switching methods used there.   7M

2. a) Distinguish between guided and unguided media. Explain various guided media being in use today.   7M

   b) With the help of neat diagram, explain the Structure of the Telephone System.   7M

3. a) A bit string, 0111101111101111110, needs to be transmitted at the data link layer. What is the string actually transmitted after bit stuffing? Explain.   5M

   b) Discuss the simplex stop-and-wait protocol.   9M

4. a) With a neat flowchart, explain the working of CSMA/CD protocol.   8M

   b) Describe the Dynamic Channel Allocation in LANs and MANs.   6M

5. a) Make a comparison between distance vector routing and link state routing protocols.   8M

   b) With the help of example, explain a situation where we use hop-by-hop choke packet.   6M

6. a) Give a note on Mobile IP.   7M

   b) Write in detail about Border Gateway Protocol and what are the various types of messages in BGP?   7M

7. a) List the services offered by the Transport layer.   4M

   b) Draw and explain the format of UDP Packet. The following is a dump of a UDP header in hexadecimal format.

   CB84000D001C001C

   i) What is the source port number?

   ii) What is the destination port number?

   iii) What is the total length of the user datagram?

   iv) What is the length of the data?

   v) Is the packet directed from a client to a server or vice versa?   10M

8. a) With the help of common scenario explain the architecture and services of e-mail.   7M

   b) What do you mean by DNS? Distinguish between Iterative and Recursive name resolution with illustrative examples.   7M

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III B.Tech. I Semester Supplementary Examinations May 2017
Microprocessors and Interfacing
(Common to CSE & IT)

Max. Marks: 70   Time: 3 Hours

Answer any *five* questions
All Questions carry equal marks (**14 Marks** each)
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1. a) Explain the functions of the following registers
    - i)   Segment Register
    - ii) Pointer Register
    - iii) Index Register   8M

    b) Explain the physical memory organization in an 8086 system   6M

2. a) What are different addressing modes supported by 8086 and explain each with
        suitable example.   8M

    b) Write an assembly language program to find the factorial of a given number.   6M

3. a) Explain A/D converter interface to 8086 microprocessor   6M

    b) Sketch and explain the interface of PPI 8255 to 8086 microprocessor in
        minimum mode   8M

4. a) Explain the Static RAM and EPROM interfacing to 8086 microprocessor   6M

    b) Explain the need of DMA. Discuss about DMA data transfer and interfacing of 8257   8M

5. a) Explain the importance of 8259 interrupt controller and explain how it handles
        the interrupt.   8M

    b) Explain various hardware and software interrupts of 8086 microprocessor   6M

6. a) Explain the architecture of 8251 USART with the help of neat diagram.   8M

    b) Explain TTL to RS232C and RS232C to TTL Conversions   6M

7. a) Explain registers of 80386 and also explain real and protection modes of 80386   7M

    b) Compare architecture of Pentium with 80286 and 80386   7M

8. a) Explain the architecture of 8051 microcontroller with neat diagram and write
        brief notes on each.   8M

    b) List out the differences between microprocessors and microcontrollers   6M

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