Roll No. 1140114000 Total Printed Pages : 3

07BCS101

B.TECH (COMPUTER SCIENCE ENGG.)

VII SEM Examination, Dec.-2017

SUB : COMPLILER CONSTRUCTION

Time : 3 Hours] [Total Marks 60

Use of following supporting material is permitted during examination.

1. Nil . Nil

Note: 1. Attempt any five questions

2. Each question carry equal marks.

1. a. What is compiler construction? Explain different phases of the compiler.

   b. What are the functional difference between parse tree and abstract syntax tree.

2. Let G be a formal grammar with non terminal symbol S,T,E, E', terminal symbol 'x' +' and $, start symbol S, and the

following production rule.

$S \rightarrow E\$$

$E \rightarrow TE^1$

$E^1 \rightarrow +TE^1$

$T \rightarrow X$

Construct an LL(0) parse table for the grammar calculate first and follow set as needed.

3. a. Explain the syntax directed translation scheme in details.

   b. What is the process and important of inter mediate code generation.

4. Explain the various strategies of symbol table creation and organization.

5. What are the activation tree and activation records. Explain the data access process with out nested procedure.

6. Write short notes on:

   a. Nesting depth and access links.

   b. Data structures used in symbol table.

c. Static verses dynamic storage allocation.

7. Consider the expression (Left to right scanning)

(a/b*c) + (a/b) - (b+c(a*b)) (a*b)

a. Draw the abstract tree of the above expansion.

b. Draw the DAG of the above expensive.

c. Generate three address code from the DAG.

8. What are the various issue in design of code generator, loop optimization?

9. Explain the basic block and control flow graph.

10. What is peephole optimization? Explain if.

VII-031

Roll No. 1140140004 Total Printed Pages : 2

07BCS102

B.TECH (COMPUTER SCIENCE ENGG.)

VII SEM Examination, Dec.-2017

SUB : DATA MINING AND WARE HOUSING

Time : 3 Hours] [Total Marks 60

Use of following supporting material is permitted during examination.

1. Nil . Nil

Note: 1. Attempt any five questions

2. Each question carry equal marks.

1. a. What is data mining? Briefly explain the knowledge discovery process.

   b. Explain in three tier data ware house Architecture.

2. Briefly describe data generalization, summarization and analytical characterization.

3. What is constraint-based mining? Describe in detail about the possible constraints in high level declarative DMQL and user interface.

4. What is back propagation? Describe back propagation algorithm.

5. What is conceptual clustering? Describe about basic measures for text retrieval.

6. What is association and correlation? With an example describe classification and prediction.

7. What is data warehousing? Differentiate between operational data base system and data warehouses.

8. What is spatial data mining? What is spatial data cube, and what are the three dimension in a spatial data cube?

9. What is data normalization? Explain any two normalization methods.

10. What is grid based clustering? Describe any one grid based clustering algorithm.

VII-032

Roll No. 1140140000 1 Total Printed Pages : 2

07BCS103

B.TECH (COMPUTER SCIENCE ENGG.)

VII SEM Examination, Dec.-2017

SUB : LIGIC SYNTHESIS

Time : 3 Hours] [Total Marks 60

Use of following supporting material is permitted during examination.

1. Nil . Nil

Note: 1. Attempt any five questions

2. Each question carry equal marks.

1. Write short note on:
   a. Scheduling constraints and resources.
   b. Multiprocessor scheduling

2. Explain the sequential circuit optimization using state based models.

3. Explain the sequential circuit optimization using network models.

4. Explain the four phases in creating macro electronics circuit and compute added synthesis and optimization.

5. Explain one algorithm review of graph definitions and notations.

6. Write short note on.

   a. Vertex cover

   b. Graph coloring

   c. Moore's Law

7. Explain one compilation and behavioral techniques.

8. What is temporal domain scheduling and also explain moral care modeling language.

9. Explain one scheduling algorithm and explain scheduling constraints and resources.

10. Explain the circuits specifications for architectural synthesis resources and constraints.

VII-033

Roll No._____ Total Printed Pages : 2

07BCS104

B.TECH (COMPUTER SCIENCE ENGG.)

VII SEM Examination, Dec.-2017

SUB : ARTIFICIAL INTELLEGENCE

Time : 3 Hours] [Total Marks 60

Use of following supporting material is permitted during examination.

1._____Nil _____ . _____ Nil_____

Note: 1. Attempt any five questions

2. Each question carry equal marks.

1. Define the meaning & definition of artificial intelligence. Also explain its application.

2. What is production system? Explain its characteristics & type.

3. Discuss BFS and DFS with example.

4. Explain various types of control strategies.

5. Define knowledge representations also explain which type of problem occurs in representing knowledge.

6. Discuss monatomic and non-monotonic reasoning with suitable example.

7. Explain Baye's Theorem.

8. What are game playing techniques? Explain minimax procedure with appropriate example.

9. Define neural network. Also explain its application.

10. Explain expert system with suitable example.

Roll No. [illegible] Total Printed Pages : 2

07BCS105

B.TECH (COMPUTER SCIENCE ENGG.)

VII SEM Examination, Dec.-2017

SUB : MULTIMEDIA SYSTEM

Time : 3 Hours] [Total Marks 60

Use of following supporting material is permitted during examination.

1. Nil Nil

Note: 1. Attempt any five questions

2. Each question carry equal marks.

1. What is Multimedia? Explain Multimedia in business work.

2. Explain communication and entertainment product and stages of multimedia project.

3. What is multimedia building black text? Explain sound MIDI and digital audio and audio file format.

4. Explain the following terms (any two)

   a. Huffman coding

   b. Shannon fano algorithms

   c. Adaptive coding

5. What is data compression? Explain different data compression technique.

6. Explain speech compression & synthen's digital audio concepts.

7. Differenciate between loss less compnession of sound and loss compression silence compression.

8. Write short note on:

   a. JPEG Compression

   b. Video representation

   c. Indexing and retrival of video data base.

9. What is video compression? Explain MPEG standards.

10. What is colour video compression? Explain multi media of broadcast services.

VII-035

Roll No. 1140149001 Total Printed Pages : 2

07BCS106

B.TECH (COMPUTER SCIENCE ENGG.)

VII SEM Examination, Dec.-2017

SUB : REAL TIME SYSTEM

Time : 3 Hours] [Total Marks 60

Use of following supporting material is permitted during examination.

1. Nil . Nil

Note: 1. Attempt any five questions

2. Each question carry equal marks.

1. What do you understand by the term real time system? Explain its application.

2. Explain the reference model for real time system in detail.

3. Explain common approaches to real time scheduling.

4. Explain EDF and LST algorithms.

5. Briefly explain the effect of resource contention and resource access control (RAC).

6. Explain the scheduling algorithms for end to end periodic tasks.

7. Explain the predictability and validation of dynamic multiprocessor systems.

8. Explain the model of real time communication.

9. Write short notes on :

   a. Real time protocols.

   b. Priority based service

   c. Stack based priority ceiling protocol

10. Explain the use of priority ceiling protocol in dynamic priority systems.

III-085

Roll No._____ Total Printed Pages : 3

03BCS101

B.TECH (COMPUTER SCIENCE ENGG.)

III-SEM Examination, Dec.-2017

SUB: DIGITAL ELECTRONICS

Time : 3 Hours] [Total Marks 60

Use of following supporting material is permitted during examination.

1._____Nil_____ 2._____ Nil_____

Note: 1. Attempt any five questions selecting one question from each unit.

2. Each question carry equal marks.

1. a. Convert the 2B 1 H to decimal number, octal and binary.

b. Convert binary (1000101.1101) to decimal, Hexadecimal and Octal form.

c. Express (-56) and (107) in sign magnitude 1's and 2's complement.

2. What are Universal gates? Make all the gates using NOR gate only.

3. a. Convert the following expressions into their standard SOP or POS forms:

   Y=AB+AC+BC

   b. Discuss De-Morgan's theorem.

4. What is Karnaugh Map? Simplify the following expression using k-map:

   $F(A,B,C,D,E,) = \Sigma m(0,1,7,9,11,,13,15,16,23,25,27)$

5. Construct full adder using Half Adder. Express Half Adder using basic gates.

6. Make a 4 line to 16 line decoder using 3:8 decoder with its truth table.

7. What is JK flip-flop? Discuss its function and application. What is the difference between flip-flop and a latch?

8. Discuss the difference between Moore Mealy models with their examples.

9. What are the different logic families? Write their characteristics.

10. Compare the performance of RTL, DTL, TTL CMOS and ECL logic.

III-086

Roll No. 116D104005 Total Printed Pages : 3

03BCS102

B.TECH (COMPUTER SCIENCE ENGG.)

III-SEM Examination, Dec.-2017

SUB: ELECTRONIC DEVICES AND CIRCUITS

Time : 3 Hours] [Total Marks 60

Use of following supporting material is permitted during examination.

1. Nil 2. Nil

Note: 1. Attempt any five questions.

2. Each question carry equal marks.

1. What do you understand by clamping circuit with neat diagram explain the action of

   a. Positive clamper

   b. Negative clamper

2. Find out the expression of s, s' & s" for potential divider biasing circuit (for CE configuration)

3. Draw and explain Ebers molls representation of BJT? Also define the voltage and current used in Ebers molls Equation for PNP transistor.

4. Draw the circuit of transistor in common emitter configuration of BJT and sketch the output characteristics, indicate the active, saturation and cutoff region, derive the relationship between α and β for BJT.

5. H-parameter for CE amplifier har hie= 1100 Ω, Hfe=50, hfe=25 $\times 10^{-6}$ Mho, hre=2.5x10^{-4} if R_L=1K Ω determine the following parameters

   a. Current Crain

   b. Voltage Crain

   c. Power Crain

   d. Input impedance

6. Draw the R-c coupled amplifier circuit? Calculate the current gain for low, middle and high frequency region?

7. Explain the working of n-channel MOSFET. What is the difference between enhancement and deplation model of operation.

8. a. Explain the Bark hausen criterion for sustained oscillations.

b. Draw the circuit of the wein bridge oscillator. Derive the expression for frequency of oscillation for such as oscillator.

9. With the help of circuit diagram explain the working of "Astable Multivibrator" give its wave form what are the basic difference among the three type of multivibrator circuits.

10. Draw the circuit of Schmitt trigger using BJT and explain its working with input voltage versus the output voltage curve.

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III-087

Roll No. 11601040005 Total Printed Pages : 3

03BCS103

B.TECH (COMPUTER SCIENCE ENGG.)

III-SEM Examination, Dec.-2017

SUB: DATA STRUCTURE AND ALGORITHMS

Time : 3 Hours] **[Total Marks 60**

Use of following supporting material is permitted during examination.

1. Nil 2. Nil

Note: 1. Attempt any five questions.

2. Each question carry equal marks.

1. Create a AVL tree by inserting the following numbers in the order in which they are given:

17 25 19 23 75. Draw figure for each step.

2. Write an algorithm to insert an item in circular queue.

3. Explain time and space complexity of an algorithm and also explain big 0, omega and theta notation with graph. Define array as data structure and its operation.

4. a. What do you understand by descending order priority queue? Explain the importance of heap in java language program execution.

   b. Define stack as important data structure. Explain its basic operation and implement a stack using linked list.

5. a. Write an algorithm for deleting a node from a binary search tree. Take all possible case.

   b. Insert the following list of characters in the binary search tree. Also traverse the tree in order D B L F H A N.

6. a. What do you mean by graph data structure? Explain the sequential and linked list implementation of graph data structure.

   b. Write short notes on the following:

      i. Selection sort

ii. Quick sort

iii. Bubble sort.

7. Explain the merging operation in details? Explain with the help of example?

8. Evaluate the following postfix notation using stack [5, 6, 2, +, *, 12, 4, /, -] and also write the algorithm for evaluation of a postfix expression?

9. What is binary tree? Draw the binary tree from given PRE order- GBQACKFPDERH and In order – QBKCFAGPEDHR order traversal.

10. Discuss DFS and BFS with suitable example.