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### T.E.(CSE) (Part-III) (Semester -V) (Revised)
### Examination, May - 2016
### COMPUTER ALGORITHMS
#### Sub. Code: 66296

Day and Date : Tuesday, 03 - 05 - 2016          **Total Marks :100**
Time :10.30 a.m. to 1.30 p.m.

Instructions :   1)   Questions 4 and 8 are compulsory.
2)   Attempt any four questions from remaining questions.
3)   Figures to the right indicate full marks.
4)   Assume suitable data wherever necessary.

**Q1) a)**   Explain performance analysis and performance measurement.          **[8]**

**b)**   Give recursive algorithm for binary search.Compute its complexity for successful search and unsuccessful search.          **[8]**

**Q2) a)**   Solve the following instance of knapsack 0/1.          **[8]**

   $n=3$, $(w1, w2, w3) = (2,3,4)$ and $(p1,p2,p3)=(1,2,5)$ capacity $m=6$

**b)**   Prove that the complexity of quick sort in average case is O(nlogn). **[8]**

**Q3) a)**   Explain dynamic programming solution to travelling sales person problem.          **[8]**

**b)**   Obtain a set of optimal Huffman codes for the messages(A, B, C, D, E, F,G) with relative frequencies(q1,q2,q3,q4,q5,q6,q7)=(2,3,5,8,13,15,18).          **[8]**

**Q4)** Write short note on(Solve any three) [18]

    a) Selection algorithm.

    b) Minimal spanning trees

    c) Dynamic programming

    d) Reliability design

**Q5)** a) Explain Pre-order, In-order and Post-order traversal techniques for binary tree. [8]

    b) Let $w[1:7] = \{5, 7, 10, 12, 15, 18, 20\}$, m=35.Find all possible subsets of w that sum equal to m. Draw portion of state space tree that is generated. [8]

**Q6)** a) What is P, NP, NP-complete and NP-Hard problems? Explain their relationship with neat diagram. [8]

    b) Explain non deterministic Knapsack problem and non deterministic Maximum clique problem. [8]

**Q7)** a) Describe and give example of prefix computational model with PRAM.[8]

    b) Explain Hypercube computational model. [8]

**Q8)** Write short note on: [18]

    a) AND/OR Graph

    b) Live node, E-node, dead node and bounding function in Backtracking

    c) Data concentration with mesh and Hypercube

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## T.E. (CSE) (Part - II) (Semester - VI) (Pre-revised) (Old) Examination, April - 2016
## COMPILER CONSTRUCTION
### Sub. Code : 45608

**Day and Date : Saturday, 16 - 04 - 2016**          **Total Marks : 50**
**Time : 2.30 p.m. to 4.30 p.m.**

**Instructions :**
1) All questions are compulsory.
2) Figures to right indicate full marks.

## SECTION - I

**Q1)** a) How to construct NFA from Regular Expression?          [6]

b) Define Dependency Graph. Describe methods for evaluating the semantic rules.          [4]

**Q2)** a) List and describe different Compiler Construction Tools.          [5]

b) Consider the following CFG G = (N={S, A, B, C, D}, T = {a, b, c, d}, P, S) where the set of productions P is given below:          [5]

$S \rightarrow A$

$A \rightarrow BC|DBC$

$B \rightarrow Bb|\varepsilon$

$C \rightarrow c|\varepsilon$

$D \rightarrow a|d$

I) Is this grammar suitable to be parsed using the recursive descendent parsing method? Justify and modify the grammar if needed.

II) Compute the FIRST and FOLLOW set of non-terminal symbols of the grammar resulting from your answer in (I).

*P.T.O.*

**Q3) a)** Which are different conflicts during Shift Reduce parsing? How they can be recovered? [3]

**b)** Describe Token and Lexeme. [2]

## SECTION - II

**Q4) a)** Explain different Storage Allocation Strategies. [5]

**b)** How three address statements will be implemented? [4]

**Q5) a)** What is basic block? Give an algorithm to convert Three Address Statements into basic blocks with example. [5]

**b)** What are the Principle sources of code optimization? [5]

**Q6) a)** Draw DAG for basic block: [3]

$$a = b + c$$

$$b = b - d$$

$$c = c + d$$

$$e = b + c$$

**b)** List and explain different algebraic identities used in code optimization of basic block. [3]

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T.E. (CSE) (Part - III) (Semester - VI) (Revised) (New)
Examination, April - 2016
**COMPILER CONSTRUCTION (Theory)**
Sub. Code : 66858

Day and Date :Saturday, 16 - 04 - 2016
Time : 03.00 p.m. to 06.00 p.m.
Instructions : Make and mention suitable assumption wherever necessary.

Total Marks : 50

### SECTION - I

**Q1)** A) Explain any two error recovery techniques in syntax analysis. [6]

B) a=b+c*d;

c=cat–dam * e;

Identify lexemes in the above C code. Also specify token of each of the lexeme. [4]

#### OR

A) i) sum = a===b;

ii) 1a=a+b;

Which phases of compiler (viz semantic, syntax and lexical analysis) will report error after scanning the above C statements? [4]

B) What is the use of FIRST(X) and FOLLOW(X), where X is a non-terminal, in parsing? [6]

**Q2)** A) What is an L-attributed definition? Explain with example. [4]

B) Explain Shift-Reduce conflict in bottom-up parsers with the help of an example. [6]

**Q3)** What is top-down parsing? [5]

#### OR

Explain left factoring with example. [5]

*P.T.O.*

## SECTION - II

**Q4)** A) Generate three address code for the following block : [4]

$a = b*(c+d)$

$e = ((a+b)*(a+c))$

B) Explain Syntax-Directed Definition with the help of an example. [6]

OR

A) What is an Activation Record?

B) What is the division of task between caller and callee in calling sequence?

**Q5)** A) Draw DAG for the basic block : [4]

$x = a[i]$

$a[j] = y$

$z = a[i]$

B) What is Syntax Directed Translation scheme? Explain with example. [6]

**Q6)** What is call-by-value? Explain with example. [5]

OR

Explain the common sub - expression elimination technique of code optimization with the help of an example.

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T.E. (Computer Science & Engg.) (Semester - VI) (Prerevised) (Old)
Examination, April - 2016
DATABASE ENGINEERING
Sub. Code : 45610

Day and Date : Thursday, 21-04-2016                    Total Marks : 100
Time : 3.00 p.m. to 6.00p.m.

Instructions :   1)   Question 1 & 5 are compulsory.
                 2)   Attempt any two from remaining for both sections.
                 3)   Figures at right side indicates full marks.

### SECTION - I

**Q1) a)** List & explain disadvantages of file processing system.        **[10]**

   **b)** What is significance of 'key' in relational database? Explain different
   types of keys.                                                          **[8]**

**Q2) a)** Apply following algebraic operations on given relational tables.  **[8]**

   i)    Select

   ii)   Project

   iii)  Union

   iv)   Cartesian product

| A | B | C | D |
|---|---|---|---|
| α | α | 1 | 7 |
| α | β | 5 | 7 |
| β | β | 12 | 3 |
| β | β | 23 | 10 |

| P | Q | R |
|---|---|---|
| ε | ε | 10 |
| μ | ε | 2 |
| ε | μ | 34 |
| μ | μ | 15 |

   **b)** Write a note on referential integrity.                          **[8]**

**Q3) a)** What is significance of integrity constraints in relational database? Explain different types of integrity constraints in relational database? [8]

**b)** What is data dictionary? What information should be maintained in data dictionary? [8]

**Q4) a)** For given schema explain how file system can be implemented by using fixed length record & variable length record.

Account_schema = (account_numer, branch_name, balance) [8]

**b)** State & explain different levels of database abstraction. [8]

## SECTION - II

**Q5) a)** When it is preferable to use a dense index rather than a spare index? Explain your answer. [10]

**b)** Draw & explain steps involved in query processing. [8]

**Q6) a)** What metrics are used for measuring the cost of query processing? Explain each metric. [8]

**b)** State & explain different types of failures in DBMS. [8]

**Q7) a)** Explain the purpose of the checkpoint mechanism. How often should check points be performed? [8]

**b)** Explain two phase locking in detail. [8]

**Q8) a)** Explain time stamp ordering protocol. [8]

**b)** Explain distinction between closed & open hashing. Discuss relative merits of each technique. [8]

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### T.E. (CSE) (Part - III) (Semester - VI) (Revised) Examination, April - 2016
### DATABASE ENGINEERING (Theory) (New)
#### Sub. Code : 66860

Day and Date : Thursday, 21 - 04 - 2016.

Time : 02.30 p.m. to 04.30 p.m.

Total Marks : 50

Instructions : 1) Q.1 and Q.4 are compulsory.
2) Answer any one of Q.2 & Q.3.
3) Answer any one of Q.5 & Q.6.
4) Assume suitable data wherever necessary.
5) Figures to right indicate full marks.

*Q1)* Attempt any 3 : [3 × 5 = 15]

a) Define the terms database and database schema. Explain database schema with an example.

b) What is an E-R diagram? Explain E-R diagram with an appropriate example.

c) State and explain any five relational algebra operations.

d) What are keys? Explain super key, primary key, foreign key and candidate key.

*Q2)* a) What is SQL? Explain DDL commands with suitable example. [5]

b) What is normalization? Explain 1NF, 2NF with an appropriate example. [5]

*Q3)* a) Explain DML commands with an appropriate example. [5]

b) What do you mean by functional dependency. Briefly explain insertion anomalies, update anomalies and delete anomalies in a database. [5]

*Q4)* Attempt any three :

a) What is data dictionary? Explain its storage. [5]

b) What is an index? Explain dense index and sparse index with an example. [5]

c) What is multiple key access? Explain with an appropriate example.[5]

d) What is hashing? State the properties of a good hash function and explain static hashing. [5]

*Q5)* a) What is a transaction? Explain with suitable example how we can lock and unlock a transaction. [5]

b) What is conflict serializability? Give and briefly explain an algorithm for testing conflict serializability. [5]

*Q6)* a) What is a failure? Explain failure classification. [5]

b) Explain hog-based Immediate update recovery technique. [5]

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## T.E. (Computer Science & Engineering) (Semester - VI) (Revised) Examination, April - 2016
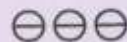## INFORMATION SECURITY (Theory)
### Sub. Code : 66862

Day and Date : Monday, 25 - 04 - 2016      **Total Marks : 50**
Time : 02.30 p.m. to 04.30 p.m.

**Instructions :**
   1)   Attempt any two questions from question no. 1, 2, and 3.
   2)   Attempt any two questions from question no. 4, 5, and 6.
   3)   Figures to the right indicate full marks.

*Q1)* a)   List and explain OSI security mechanisms.      [6]

    b)   Explain substitution techniques with example.      [6]

*Q2)* a)   Draw and explain the internal structure of single round of DES algorithms.[6]

    b)   Differentiate between:      [6]
       i)    Block cipher & stream cipher
       ii)   Diffusion & confusion

*Q3)* a)   Explain Diffie-Hellman key exchange.      [6]

    b)   What types of attacks are addressed by the message authentication? [7]

*Q4)* a) What is digital signature? Explain DSA algorithm in detail.      [6]

    b)   Give overview of Kerberos.      [6]

*Q5)* a)   What are the different principal services provided by PGP. Discuss each service in detail.      [6]

    b)   Explain Encapsulating security payload header format used in IPsec. [6]

*Q6)* a)   Discuss the features and requirements of SET (Secure Electronic Transactions).      [7]

    b)   Explain different approaches used for intrusion detection.      [6]

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## T.E. (Computer Science and Engineering) (Semester - VI) (Pre-Revised)
### Examination, April - 2016
### INFORMATION SECURITY (Old)
### Sub. Code : 45612

Day and Date : Monday, 25 - 04 - 2016          Total Marks : 100
Time : 03.00 p.m. to 06.00 p.m.

Instructions : 
1) Question no. 4 and 8 are compulsory.
2) Attempt any two questions from question no. 1, 2, and 3.
3) Attempt any two questions from question no. 5, 6, and 7.
4) Figures to the right indicate full marks.

## SECTION - I

**Q1)** a)  List and explain OSI security mechanism.                    **[8]**

b)  Explain any two substitution techniques with example.        **[8]**

**Q2)** a)  Explain how key is generated for each round of DES algorithm.  **[8]**

b)  Explain secrecy and authentication in public key cryptosystems.  **[8]**

**Q3)** a)  Draw and explain distribution of public key in key management.  **[8]**

b)  How does an Arbitrated digital signature technique overcome the disadvantage of traditional Digital signatures?  **[8]**

**Q4)** Write short note on (Any three)                        **[18]**

a)  Playfair cipher

b)  Feistel cipher

c)  Authentication requirements

d)  Hash Functions

## SECTION - II

**Q5)** a)  What is purpose of X.509 standard? Discuss X.509 certificate format.**[8]**

b)  Explain various services provided by PGP in detail.         **[8]**

*P.T.O.*

**Q6)** a) Give overview of IPsec Architecture. [8]

b) Discuss the features and requirements of SET (Secure Electronic Transaction) [8]

**Q7)** a) With the help of figure explain the profiles of behavior of intruders & authorized users. Also explain the approaches for intrusion detection.[8]

b) List types of firewalls and explain in detail. [8]

**Q8)** Write short note on (Any three) [18]

a) S/MIME

b) Virus countermeasures

c) Distributed Denial of service attack.

d) SSL Handshake protocol.
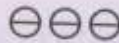
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T.E.(Computer Science & Engineering) (Part -III)
(Semester -VI) (Revised) (New) Examination, April - 2016
**OBJECT ORIENTED MODELING AND DESIGN**
Sub. Code:45611

Day and Date :Saturday, 23 -04 -2016          **Total Marks : 50**
Time :2.30 p.m. to 4.30 p.m.

Instructions :   1)   Attempt any two questions from each section.
                 2)   Figures to the right indicate full marks.
                 3)   Assume suitable data whenever necessary.

**SECTION -I**

**Q1)** a)   Compare Aggregation with Generalization.                          [5]

     b)   Explain the following terms.                                          [8]

          i)    Abstraction                ii)   Grouping Constructs

          iii)  Overriding                 iv)   Qualification

**Q2)** a)   Draw and Explain the Functional Model of flight simulator.         [6]

     b)   Explain the following terms.                                          [6]

          i)    Nested State Diagram

          ii)   Concurrency in Dynamic Model

**Q3)** a)   Explain the physical Packaging issues.                            [6]

     b)   What is Data Flow diagram and Explain its Components.                 [6]

*P.T.O.*

## SECTION -II

**Q4) a)** Explain the different diagrams in UML. [7]

**b)** Explain the five (4+1) Views of UML. [6]

**Q5) a)** Explain activity diagram with example. [6]

**b)** Write a note on w.r.t. UML. [6]

    i) Communication      ii) Synchronization

**Q6) a)** Write a note on patterns and framework. [6]

**b)** Explain component diagram with example. [6]

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T.E. (Computer Science and Engineering) (Part - III) (Semester - V)
Examination, May - 2016

## OBJECT ORIENTED MODELING AND DESIGN

(Revised) (Theory)

Sub. Code : 66295

Day and Date : Monday, 02 - 05 - 2016                Total Marks : 50
Time : 10.00 a.m. to 12.00 p.m.

Instructions :   1)   Attempt any two questions from question no.1, 2 and 3.
                 2)   Attempt any two questions from question no.4, 5 and 6,
                 3)   Figures to the right indicate full marks.

**Q1)** a)   Explain abstract classes with suitable example.                    [6]

  b)   Explain the following terms:                                           [6]

    i)   Module

    ii)   Sheet

    iii)   Metadata

**Q2)** a)   Draw and explain state diagram for phone line.                      [6]

  b)   Explain the following terms with respect to data flow diagram.          [7]

    i)   Processes

    ii)   Data stores

    iii)   Data flows

    iv)   Control flows

**Q3)** a)   Explain physical packaging issues                                   [6]

  b)   Write note on- OMT methodology                                          [6]

**Q4) a)** Explain extensibility mechanisms available in UML. [6]

**b)** Prepare a class diagram showing the relationship among the classes-Company, Department, Office, Person, Headquarters, Contact information, personal record. Include associations, aggregations, generalizations and dependency. [6]

**Q5) a)** What is forking and joining? Draw activity diagram for building construction. [7]

**b)** Explain following terms with respect to behavioral modeling: [6]

i) Processes and Threads

ii) Time and Space

**Q6) a)** What is collaboration? Explain organizing collaboration. [6]

**b)** Explain in detail component diagram with example. [6]

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### T.E. (CSE) - II (Semester - VI) (Old)
### Examination, April - 2016
### OPERATING SYSTEM - II
### Sub. Code : 45609

Day and Date : Monday, 18 -04 - 2016                    Total Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions :     1)     Solve any three (3) Questions from each section.
                   2)     Assume proper data.
                   3)     Figures to the right indicate full marks.

## SECTION - I

**Q1)** a)   Draw block diagram of unix system kernel. Explain file system a process
control subsystem.                                              [9]

b)   Write and Explain create system call?                     [9]

**Q2)** a)   Give the difference between named pipe & unnamed pipe? Write the
system call to create both pipes?                              [8]

b)   Explain why the kernel unlocks the inode at the end of each system
call?                                                          [8]

**Q3)** a)   Give the syntax of lseek ( ) system call and explain different parameters
used. How kernel implements lseek ( ) system call?            [8]

b)   How Disk block number is calculated while Accessing Inode? How byte
offset of inode is calculated in the block?                   [8]

**Q4)** a)   Explain advantages & disadvantages of buffer cache?         [8]

b)   Explain the getblk ( ) Algorithm?                        [8]

P.T.O.

## SECTION - II

**Q5)** a) Explain userlevel, register level & system level context of process? [9]

b) Explain following: [9]

i) Internal system timeouts

ii) Profiling

**Q6)** a) Explain block device switch table & character device switch table? [8]

b) Explain process tracing? [8]

**Q7)** a) Explain system call: [8]

i) Semget ( )

ii) Semop ( )

b) Explain data structure for demand paging? [8]

**Q8)** a) Describe fair share scheduler? [8]

b) Explain how other program are invoked in the unix system? [8]

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### T.E. (CSE) (Part -III) (Semester - VI) (Revised) (New)
### Examination, April - 2016
### OPERATING SYSTEM - II
### Sub. Code : 66859

Day and Date :Monday, 18 - 04 - 2016

Time : 03.00 p.m. to 06.00 p.m.

**Total Marks : 100**

Instructions :   1)   Question No. 1 & Question No. 8 are compulsory, Solve any four questions
from remaining questions.
2)   Figure to the write indicates full marks.
3)   Write your assumption if required any where.

**Q1)** A)   Draw the block diagram of Unix system kernel ? Explain file subsystem
and process control subsystem?

[9]

B)   Explain the following scenarios use by the kernel to allocate a buffer for
disk block with diagram?

[9]

i)   The kernel finds the block on its hash queue and its buffer is free.

ii)   The kernel finds the block on the hash queue, but its buffer is
currently busy.

**Q2)** A)   Explain the structure of regular file with diagram?

[8]

B)   Explain the algorithm for allocating disk block (alloc) and draw the
diagram which represent requesting and freeing disk blocks with proper
assumption.

[8]

**Q3)** A)   Draw and explain data structures after two processes (A/B) open files.[8]
Process A

fdl = open ("/etc/passwd", O_RDONLY);

fd2 = open ("local", O_RDWR);

Process B

fdl open ("/etc/passwd", O_RDONLY);

fd2 = open ("private", O_RDONL Y);

B)   Explain the algorithm for mounting a file system ? List mount table entries? [8]

*P.T.O.*

**Q4) A)** Find the block number and block offset of inode in the block for following inode number : **[8]**

    i)   4258

    ii)  6895. Write your assumption if any.

**B)** What is pipes ? Explain the reading and writing pipes? **[8]**

**Q5) A)** Explain the components of user level context, register level context and system level context? **[8]**

**B)** Explain attaching a region to a process with algorithm (attachreg)? **[8]**

**Q6) A)** Explain the process creation and write a sample program which demonstrate process creation? **[8]**

**B)** Explain the system calls for time? **[8]**

**Q7) A)** What is demand paging ? Explain data structures used for demand paging? **[8]**

**B)** Explain the functions of line discipline and clists? **[8]**

**Q8)** Write short note (Any three) : **[3 × 6 = 18]**

**A)** Context switch

**B)** Process scheduling parameters

**C)** Functions of clock interrupt handler

**D)** Streams

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T.E. (CSE) (Part -III) (Semester - VI) (Revised) (New)
Examination, April - 2016
**STORAGE NETWORKS**
Sub. Code : 66861

Day and Date : Saturday, 23 - 04 - 2016          Total Marks : 100
Time : 03.00 p.m. to 06.00 p.m.
Instructions :     1)    Attempt any three questions from each section.
                   2)    Figure to the right indicate full marks.
                   3)    Assume suitable data wherever necessary.

## SECTION-I

**Q1) a)**   Explain the following in relation with Data Center Infrastructure          [8]

  i)    Core Core Elements.

  ii)   Key Requirements for Data Center Elements.

  iii)  Managing Storage Infrastructure

  **b)**   List and describe the components of disk drive.          [8]

**Q2) a)**   Describe disk drive performance measurement factors and derive
         fundamental laws governing disk performance          [8]

  i)    Seek Time

  ii)   Rotational Latency

  iii)  Data Transfer Rate

  iv)   Little's Law

  v)    utilization law

  vi)   Average response rate

  vii)  Average response time

  viii) Average Queue size

OR

a) Consider a disk I/O system in which an I/O request arrives at the rate of 80 IOPS. The disk service time is 6 ms. [8]

   i) Compute the following :

      1) Utilization of I/O controller

      2) Total response time

      3) Average queue size

      4) Total time spent by a request in a queue.

   ii) Plot a graph showing the response time and utilization, considering 20%, 40%, 60%, 80%, and 100% utilization of the I/O controller. Describe the conclusion thatcould be derived from the graph.

b) Describe different RAID levels. [8]

**Q3)** a) Describe various components of Intelligent Storage System. How the Read and Write operations are performed with cache? [8]

b) What are the different types of DAS? Give benefits and limitations of DAS. Explain Disk drive interfaces in DAS. [8]

**Q4)** Solve ANY TWO of the following questions :

a) Describe various components of SAN. Describe Fibre Channel connectivity and fibre channel ports. [9]

b) Explain components of Network attached Storage (NAS). Explain different Network attached storage implementations. Explain Factors Affecting NAS Performance and Availability. [9]

c) Explain iSCSI Discovery, iSCSI Names and iSCSI session, iSCSI PDU. [9]

## SECTION-II

*Q5)* a) Explain Implementation considerations in storage virtualization. [8]

b) Describe Backup and Restore Granularities with all itscategories. [8]

*Q6)* a) Explain storage virtualization on block level and file level. [8]

b) Describe Failure Analysis in business continuity. [8]

*Q7)* a) Explain symmetric and Asymmetric Storage Virtualization in the Network. [8]

b) Describe various Backup Topologies used in storage networks. [8]

*Q8)* Solve ANY TWO of the following questions :

a) Explain Business Continuity (BC) terminology and BC planning life cycle. [9]

b) Explain Storage virtualization in I/O Path. [9]

c) Describe Backup Process. Describe Backup and restore Operations.[9]

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Seat
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## T.E. (Computer Science & Engg.) (Part - III) (Semester - V) (Revised) Examination, April - 2016
### SYSTEM PROGRAMMING
Sub. Code : 66294

Day and Date : Saturday, 30 - 04 - 2016          **Total Marks : 100**
Time : 10.30 a.m. to 1.30 p.m.

Instructions :   1)   Question No. 4 and 8 are compulsory.
                 2)   Answer any two questions from Question No. 1, 2 and 3.
                 3)   Answer any two questions from Question No. 5, 6 and 7.
                 4)   Figures to right indicate full marks.

**Q1)** a)   Discuss Language processing activities in detail.                    [8]

   b)   List and discuss elements of assembly language programming.         [8]

**Q2)** a)   Explain nested macro calls with an illustrative example.            [8]

   b)   Explain the fundamentals of language specification.                 [8]

**Q3)** a)   Write in detail pass structure of an assembler.                    [8]

   b)   Discuss in detail, along with sketch/block diagram, the design of a macro preprocessor.                                                        [8]

**Q4)** Write short note on:                                                  [18]

   a)   LEX and YACC LPDT's.

   b)   Advanced Assembler Directives.

   c)   Macro Expansion.

**Q5) a)** State and discuss Linking for overlays. [8]

    **b)** Discuss in detail; aspects of compilation. [8]

**Q6) a)** Explain Steps in Program Development. [8]

    **b)** Write in detail for Intermediate code for Expression. [8]

**Q7) a)** Explain memory Allocation in Block Structured Languages with suitable diagram. [8]

    **b)** Write and Explain Relocation Algorithm. [8]

**Q8)** Write short note on: (Solve any three): [18]

    **a)** User Interfaces.

    **b)** Debug Monitor.

    **c)** Compilation of Control Structures.

    **d)** Software Tools for program development.

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T.E. (Computer Science & Engineering) (Part - III) (Semester - V)
Examination, May - 2016

SYSTEM PROGRAMMING (Old)

Sub. Code : 45602

Day and Date : Monday, 02 - 05 - 2016                    Total Marks : 100
Time : 10.30 a.m. to 01.30 p.m.
Instructions :    1)    Question No. 4 & 8 are compulsory.
                  2)    Answer any two questions from each section
                  3)    Figures to right indicate full marks

## SECTION - I

**Q1)** a)  List and explain assembles directives in detail.                    [8]

b)  Explian in detail;Data structures of macro preprocesser with its content.[8]

**Q2)** a)  Explain two pass assembler in detail.                             [8]

b)  What is meant by Intermediate representation of program? Explain it in
    detail.                                                                  [8]

**Q3)** a)  Explain the fundamentals of language specification.               [8]

b)  State & explain the advanced macro facilities with example.              [8]

**Q4)** Write short note (any three)                                         [18]

a)  Statements in assembler.

b)  Macro Expansion

c)  Language Processor

d)  Nested Macro

P.T.O.

## SECTION - II

**Q5) a)** What is object module? Describe the components. [8]

   **b)** Explain relocation algorithm. [8]

**Q6) a)** State & explain the different editors in detail. [8]

   **b)** With neat diagrace. Explain the design of linker. [8]

**Q7) a)** Explain software tools used for program development. [8]

   **b)** Explain the terms

     **i)** Linking Overlays. [4]

     **ii)** Loader [4]

**Q8)** Write short note (any three) [18]

   **a)** Self relocating programs

   **b)** Memory allocation techniques

   **c)** Programming Enviranment

   **d)** Aspects of compilation

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