SUBJECT CODE NO:- P-6
FACULTY OF ENGINEERING AND TECHNOLOGY
T.E.(CSE/IT) Examination May/June 2017
Software Engineering
(Revised)

[Time: Three Hours]   [Max.Marks:80]

Please check whether you have got the right question paper.

N.B
    i) Q.No.1 from section A and Q.No.6 from section B are compulsory.
    ii) Attempt any two questions from the remaining questions in each section.
    iii) Assume suitable data in necessary.

Section A

Q.1   Solve any five   10

    a) State any two rules of UI design.
    b) What are the characteristics of software?
    c) Which process model should be used if the idea is new and complex and also there is risk involved, justify.
    d) What is CMM?
    e) Explain size oriented matrix.
    f) List out the requirement Elicitation methods.
    g) What is LOC?
    h) Explain the term 'Abstraction'.

Q.2   a) What are the characteristics to be considered for the selection of life cycle model?   08
    b) Explain the software myths with realities in detail.   07
Q.3   a) What are the characteristics of good SRS? Give IEEE format of SRS document.   08
    b) Consider the project with following parameters.   07
1) External Inputs =35   2) External output =45
3) External Enquiries = 10   4) Internal logical files =08   5) External Interface files=05.
Assume weighting factors as high and complexity adjustment factor are treated as significant. Compute the function points for the project.
Q.4   a) Explain the architectural design and design pattern in detail.   08
    b) Explain the analysis and design model.   07
Q.5   Solve any three short notes.   15
a) COCOMO b) Programming style c) Putnam model d) Information hiding e) Waterfall model

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Section B

Q.6   Solve any five.   10
        a) What is test case?
        b) List out the attributes of web based system.
        c) What is object oriented design?
        d) Draw the class diagram for any given system.
        e) Define behavior analysis in OOA.
        f) What is risk management?
        g) Define SCM.
        h) What is use case analysis?

Q.7   a) What is UML? Explain the basic building blocks of UML.   08
        b) Give the steps of analysis & design for object oriented system & explain it.   07

Q.8   a) What is web app engineering process?   08
        b) What is web based application? Explain by giving suitable example.   07

Q.9   a) What is software project management? Explain different management activities.   08
        b) What are the software testing strategies for object oriented system.   07

Q.10   Solve any three short notes.   15
        a) Version management
        b) OOAD
        c) Web Engineering
        d) Agile planning
        e) CRC cards.

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SUBJECT CODE NO:- P-31
FACULTY OF ENGINEERING AND TECHNOLOGY
T.E.(CSE/IT) Examination May/June 2017
Database Management System
(Revised)

[Time: Three Hours]   **[Max.Marks:80]**

Please check whether you have got the right question paper.
N.B   i) Q.No.1 from section A and Q.No.6 from section B are compulsory.
                 ii) solve any two from remaining from sections A and B each.

Section A

Q.1   Attempt any five questions.   10
         1) Define data abstraction and levels of data abstraction.
         2) Define distributed DBMS & client server DBMS.
         3) What is foreign key? List the properties of foreign key.
         4) What is mapping cardinality? What are the different types of mapping cardinality?
         5) Distinguish EER model from ER Model.
         6) Define relational data model concept.
         7) Define the terms integrity constraint.
         8) Define Null Values? How do you retrieve null values?

Q.2   a) Define the two principle integrity rules for the relational model. Discuss why it is desirable to   08
            enforce these rules.
         b) What is a key? Explain in details the type of keys.   07

Q.3   a) What is file processing system? Explain disadvantages of file processing system.   08
         b) What do you mean by data models? Explain the types of data model with an example for each.   07

Q.4   a) Define concept of Aggregation? Give two example of where this concept is useful.   08
         a) Discuss the role of data administrator in detail.   07

Q.5   a) Discuss the characteristics of relations that make them different from ordinary files and table.   08
         b) What is type inheritance? How does a super class relationship represent type inheritance?   07

Section B

Q.6   Attempt any five   10
         1) List the fundamentals of relational algebra
         2) Define DDL and DML and list their commands
         3) What is lossless decomposition?
         4) List different types of join operation.
         5) Define serial schedule and non-serial schedule.
         6) What is Normalization? Explain why it is needed.
         7) Need for concurrency control
         8) What is dirty read Anomaly.

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| Q.7 | a) | What is backup recovery? Explain techniques of backup recovery. | 08 |
| | b) | Explain insertion, deletion and modification anomalies with example. | 07 |

| Q.8 | a) | Define Boyce-Codd normal form and third normal form. How does BCNF differ from 3NF? | 08 |
| | b) | What is transaction? Explain ACID Properties of a transaction. | 07 |

| Q.9 | a) | Difference between left outer join, right outer join and full outer join with suitable example. | 08 |
| | b) | What is deadlock? Explain deadlock prevention techniques | 07 |

Q.10   a)   Consider the following schema and answer the following SQL queries.   08
Employee (<u>person_name</u> , street, city)
Works (person_name, <u>company_name</u>, salary)
Company (<u>company_name</u>, city)
Manages (<u>person_name</u> , manager_name)
i) Find name and cities of residence of all employees who work for Wipro.
ii) Find the name of all employees in this database who live in the same city as the company for which they work.
iii) Find the name of all employees in this database who do not work for Wipro.
iv) Find the name street address and cities of all employees who work for Wipro and earn more than Rs. 10000

b)   Explain Two-phase locking protocol with the help of example.   07

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SUBJECT CODE NO:- P-64
FACULTY OF ENGINEERING AND TECHNOLOGY
T.E.(IT) Examination May/June 2017
Multimedia Computing
(Revised)

[Time: Three Hours]   [Max.Marks:80]

Please check whether you have got the right question paper.

N.B
    i)figure to the right indicates full marks
    ii) Assume suitable data if necessary & state it clearly
    iii) Q.No.1 and Q.No.6 are compulsory& then attempt any two questions from each section
.

Section A

Q.1		Attempt any five	10
	1)	State Nyquists sampling theorem	
	2)	What do you mean by resolution & aspect ratio of a monitor?	
	3)	What is hypertext?	
	4)	Define key frames & tweening	
	5)	What is difference between raster & vector graphics?	
	6)	What do you mean by frequency of a sound wave?	
	7)	What is virtual reality?	
Q.2	a)	what are various steps for creating multimedia presentation ?explain any 3 steps in detail	08
	b)	what is a color model ?explain RGB color model	07
Q.3	a)	What are various types of amplifier? Explain in detail.	08
	b)	Explain working of color CRT monitor	07
Q.4	a)	Explains construction & working of color video camera	08
	b)	Explain construction & working of a scanner	07
Q.5	a)	Explains " Sampling " step in a along to digital conversion	05
	b)	Explain the terms 'motion paths' in creating animation	05
	c)	Explain NTSC television broadcasting standard	05

Section -B

Q.6		Solve any five questions	10
	a)	Compress below string using run length encoding	
		" A A A A A A B B C C C D D D D D E E "	
	b)	What is inter frame & intra frame coding?	
	c)	What is land and pit?	
	d)	Why we cannot rewrite a CD of type CD-R?	
	e)	What are different components of multimedia communication network?	
	f)	Enlist various network & network services	
	g)	What is basic idea behind differential pulse code modulation technique?	
Q.7	a)	Explain shanon –fano coding technique with example	08
	b)	Explain working principle of CD-RW	07
Q.8	a)	Explain first two steps in JPEG compression technique	08
	b)	Explain in detail applications of multimedia communication networks	07
Q.9	a)	Compare CD and DVD	08
	b)	What is interactive TV? Explain its features	07
Q.10	a)	Explain various modes of CD-ROM	05
	b)	Write short note on H.261	05
	c)	What is set –top box ?explains its features	05

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SUBJECT CODE NO:- P-96
FACULTY OF ENGINEERING AND TECHNOLOGY
T.E.(CSE/IT) Examination May/ June 2017
Programming in Java
(Revised)

[Time: Three Hours]   [Max.Marks:80]

Please check whether you have got the right question paper.

N.B
    i) Q.No.1 from section A and Q.No.6 from section B are compulsory.
    ii) Attempt any two questions from the remaining questions in each section
    iii) assume suitable data if necessary
    iv) Figure to the right indicates full marks.

Section A

Q.1   Attempt any five of the following   10
    1) List primitive data types, their site and range
    2) What are objects and references in Java?
    3) Explain the meaning for each keyword of 'Public static void main (String args[])'
    4) Explain the use of "extends" and "implements"
    5) Justify how exceptions are used for debugging purpose
    6) What are the uses of 'super' keyword in Java?
    7) Compare and contrast between method overloading and method overriding
    8) What is bytecode?

Q.2   a) Explain any five features of Java in detail   07
    b) Write a Java program to implement wrapper classes and their methods   08

Q.3   a) What are packages? List some built -in packages in Java. write and explain the steps to create a   07
        package and access this in another program
    b) What is multiple inheritance? write a program to demonstrate multiple inheritance in Java   08

Q.4   a) Explain five keywords of exception handing mechanism in detail   07
    b) Draw and explain in detail life cycle of a thread .   08

Q.5   a) Write a Java program to create threads using 'Runnable ' interface   07
    b) What are command line arguments? Write a program for finding smaller between two numbers   08
        using command line arguments.

Section -B

Q.6   Attempt any five of the following   10
    1) List any four methods of mouse Listener interface
    2) What are 'APPLET' tag and 'PARAM' tag?
    3) A class requires to handle events on menu and checkbox. Which listener should it implement?
    4) Define socket
    5) What is JDBC? List the JDBC drivers
    6) Write any four methods with syntax of the Graphics class
    7) Define Applet. Draw and Label the life cycle of an applet
    8) What are adapter classes?

Q.7   a) With one example , explain how to write and execute an applet program   07
    b) Write a program in Java to handle mouse event .   08

Q.8   a) With neat diagram explain the steps to create DSN [data source name]   07

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	b)	Using interactive input, write a Java program to read three number and display the smallest number	08
Q.9	a)	With suitable diagram, explain the concept of stream	07
	b)	Write a Java program to demonstrate menu & menu bars	08
Q.10	a)	Write short note on object serialization and deserialization	07
	b)	Write short note on networking classes and interfaces	08

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SUBJECT CODE NO:- P-131
FACULTY OF ENGINEERING AND TECHNOLOGY
T.E.(CSE/IT) Examination May/June 2017
Operating System
(Revised)

[Time: Three Hours]   [Max.Marks:80]

N.B
     i.   Question No 1 and Question No 6 are compulsory
     ii.   Attempt any two questions from Q no 2 to Q no 5 and from Q no 7 to Q no 10 of each section
     iii.   Figure to the right indicates full marks

Section A

Q.1   Attempt <u>any five</u> questions from following   10

a)   Define system throughput and CPV utilization? Are these two metrics related to one another? Justify your answer
b)   What is the drawback of priority scheduling?
c)   Give examples of file management system calls.
d)   What is the basic idea behind the design of microkernel ?
e)   What are the responsibilities of basic I/O supervisor
f)   State any 4 requirement from the minimal set of file system.
g)   Define critical section
h)   What are the states of thread?

Q.2   Explain features of   15
     i.   Multiprogramming o. s.
     ii.   Time sharing o. s.
     iii.   Client server model

Q.3   a)   How message passing is used in IPC   7
         b)   What is dinning philosopher problem? How it is solved.   8

Q.4   a)   Define process. Explain its states.   7
         b)   Suppose that following process arrive for execution at the times indicated. Each procss has its CPV burst time. Consider time in ms (use non preemptive policy)   8

Process	Burst time	Arrival time
P1	8	0.0
P2	4	0.1
P3	1	1.0

     i)   What is average turnaround time using FCFS
     ii)   Calculate average turnaround time using SJF.

Q.5   a)   Explain linked file allocation   5
         b)   What criteria's are important in choosing file organization?   5
         c)   Which are the typical operations performed on directories?   5

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Section-B

Q.6   Attempt any five questions from following   10
- a) Define swapping
- b) Why are page size always power of 2?
- c) If preemption of resources is required to deal with deadlock? What are the three issues needed to be addressed
- d) List the functions of device independent I/O software.
- e) What are the advantages of elevator algorithm
- f) If there is cycle in the resource allocation Graph. Does it indicate deadlock. Justify your answer.
- g) Give examples of character and block I/O devices.
- h) Define thrashing.

Q.7   a) Discuss in detail Goals of I/O software consider a disk drive with 500 cylinders   7
       b) Numbers 0 to 499 starting from outermost cylinders. Suppose the read write head is currently   8
positioned on the miner most cylinder 499 the pending queue is 19, 304, 281, 480, 22, 192, 144.
Calculate total distance in cylinders that disk arm moves from current position for
- i) SSTF
- ii) SCAN

Q.8   a) Write a note on window-7 registry   7
       b) Explain paging? How address translation mechanism used?   8

Q.9   a) Explain Bankers algorithm for multiple type resources.   10
       b) Explain memory management with bit map.   5

Q.10   a) Explain optimal and LRU page replacement algorithm.   8
        b) Describe clock Hardware.   7

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SUBJECT CODE NO:- P-191
FACULTY OF ENGINEERING AND TECHNOLOGY
T.E.(CSE) Examination May/June 2017
Digital Image Processing
(Revised)

[Time: Three Hours]   [Max.Marks:80]

Please check whether you have got the right question paper.

N.B   i) Q.No.1 from section A and Q.No.6 from section B are compulsory.
             ii) Attempt any two questions from the remaining questions in each section
             iii) Assume suitable data if necessary

Section A

Q.1   Answer the following ?(any five)   10
        1)   Differentiate between continuous and digital image.
        2)   What is an images model?
        3)   Define connectivity
        4)   What is the weighted averaging filter?
        5)   Define unsharp masking
        6)   Give transformation function of a butterworth high pass filter
        7)   What is psychovisual redundancy?
        8)   Define coding efficiency

Q.2   a)   Elaborate the components of digital images processing along with its block diagram   08
        b)   Describe the process of image sensing and acquisition   07

Q.3   a)   Explain the different order statistics smoothing filters with suitable example   08
        b)   Discus images sharpening using first order derivative operators   07

Q.4   a)   Explain binary and continuous tone still images compression standard in detail   08
        b)   How does images information measurement play important role in computing coding efficiency in 07
             DIP.

Q.5   Write short notes on   15
        1)   Variable length coding
        2)   Log and power –law transformations
        3)   Smoothing frequency domain filters

Section –B

Q.6   Answer the following (any five)   10
        a)   What is meant by discontinuity ?
        b)   Define images segmentation
        c)   What is point categorization ?
        d)   How thinning is performed in morphological images processing?
        e)   What is formulation in color transformations?
        f)   How is the diameter of a boundary computed?
        g)   How is the Euler number for polygonal networks calculated?
        h)   What is region description process?

Q.7   a)   Design compass gradient operators of the size 3X3 to measure gradients of edges, oriented in   08
             eight directions :E, NE, N , NW, W, SW, S and SE give the form of these eight operators using

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coefficients value 1, 0, or -1 specify the gradient direction of each mask .

    b)   Explain the three types of discontinuities in digital images   07

Q.8   a)   Elaborate the use of structuring element for morphological dilation and erosion purpose along   08
           with suitable example of each

    b)   Describe the following   07
        I)   color slicing
        ii)   Tone and color corrections

Q.9   a)   Explain how region based segmentation is performed using skeletonization algorithms   08

    b)   Explain the different types of region descriptors required in images description step.   07

Q.10   Write short notes on   15
    a)   Region splitting using quad tree
    b)   Application of DIP
    c)   Types of chain codes

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SUBJECT CODE NO:- P-213
FACULTY OF ENGINEERING AND TECHNOLOGY
T.E. (CSE/ IT) Examination May/June 2017
Advanced JAVA
(Revised)

[Time: Three Hours]   **[Max.Marks:80]**

Please check whether you have got the right question paper.
N.B   1) Q. No.1 and Q. No.6 are compulsory.
               2) Solve any 2 questions from the remaining in each section.

Section A

Q.1   Solve any five.   10
         i) What is container? Enlist the type of container
         ii) What is AJAX technology?
         iii) Write a servlet program to forward request from one servlet to another servlet.
         iv) Enlist the methods for reading form data and headers.
         v) Explain any two JSP scripting elements with example.
         vi) What are implicit objects in JSP? Explain any two
         vii) What are cookies?

Q.2   a) Explain RMI architecture in detail   07
         b) What is servlet collaboration? Explain servlet collaboration through shared object   08.

Q.3   a) Explain J2EE application architecture in detail   07
         b) What are JSP directives? Write a program to demonstrate JSP page and include directive   08

Q.4   a) What is session handling in servlets? Write a program to demonstrate session handling in servlets   08
         b) Explain in detail JSP life cycle   07

Q.5   a) What is a custom tag? Explain in detail steps to create custom tags.   08
         b) Explain the following with example   07
                 -Servlet Request dispatching
                 -Response redirection

Section B

Q.6   Solve any five   10
         i) What is HQL?
         ii) What is MVC?
         iii) Explain following Java Mail protocols:
              -   NNTP
              -   IMAP
         iv) Enlist types of JSP Beam?
         v) What is WSDL & UDDI
         vi)Enlist JSP elements.

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Q.7 a) Explain components of struts based application in detail   05
     b) Create customer table. Write steps to create hibernate application and servlet to insert record in   10
     customer table.

Q.8 a) Explain in detail software application model based on SOA   07
     b) Explain in detail life cycle of stateful and stateless session beans   08

Q.9 a) Write a program to send mail using Java mail API   07
     b) Explain Hibernate architecture in detail   08

Q.10 Write short note on any three   15
      i) Request processing life cycle of JSF
      ii) Struts Action interface
      iii) Java Mail API: Authenticator class
                          Message class.
      iv) Java Mail application architecture
      v) Message driven Beans.

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SUBJECT CODE NO:- P-236

FACULTY OF ENGINEERING AND TECHNOLOGY
T.E.(CSE/IT) Examination May/June 2017
Design & Analysis of Algorithms
(Revised)

**[Time: Three Hours]**   **[Max.Marks:80]**

Please check whether you have got the right question paper.

N.B   i) Q.No.1 from section A and Q.No.6 from section B are compulsory.
             ii) Solve any two questions from the remaining questions of each section.   .
                                                    Section A

Q.1   Attempt any five questions   2*5=10
         a) What are algorithm design techniques?
         b) What are performance measurement parameters of an algorithm?
         c) Write iterative algorithm to find factorial of a numbers
         d) Define feasible and optimal solution
         e) Define minimum cost spanning tree
         f) Write any two characteristics of greedy algorithm
         g) Define asymptotic notation
         h) Explain job sequencing with deadline problem

Q.2   a) Write an algorithm to find maximum and minimum number in a list using divide and conquer   08
         b) Explain linear search method and compute its best, worst and average space time complexity   07

Q.3   a) Explain time complexity of binary search method in best, worst and average case for successful and   07
             unsuccessful search
         b) Explain quick sort using the given data and comment on its time complexity   08
             { 50,50, 60, 60, 40, 40, 30, 30, 20, 20 }

Q.4   a) What is optimal merge pattern? Find optimal merge pattern for 10 files whose length are (28, 32,   10
             12, 05, 84, 53, 91, 35, 3, 11) Draw binary merge tree.
         b) Explain single source shortest path problem   05

Q.5   a) Compute minimum cost spanning tree for the following graph   09
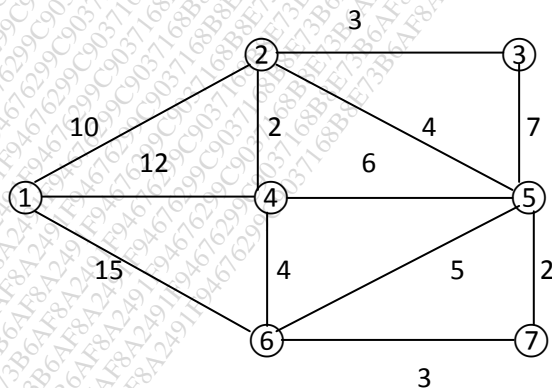
   b) Explain knapsack problem and define objective function, constraints, feasible and optimal solution. 06

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Section B

Q.6   Attempt any five question   2*5=10
        a) Differentiate greedy method with dynamic programming
        b) Define all pairs shortest path problem
        c) What are explicit & implicit constraints
        d) What is least cost search
        e) State 8-queens problem
        f) Write branch and bound algorithmic method
        g) State any two difference between dynamic & back tracking
        h) Explain dead-node and live-node

Q.7   a) Construct an optimal binary search tree for the identifies set (do, if, int, while) with given   10
            probabilities
                P (1:4) = { 3,3,1,1 }
                q (0:4) = { 2,3,1,1,1 }
        b) Write tree traversal algorithm   05

Q.8   a) What is criterion function and solution space of back tracking? Explain and solve four queens   10
            problem using back tracking
        b) Explain sum of subsets problem and define its implicit constraints   05

Q.9   a) Explain graph coloring problem and solve it for the following graph considering three colors   07
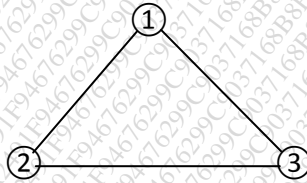
        b) Explain multistage graph problem and write steps to solve it using dynamic programming   08

Q.10   a) Solve the following TSP using branch and bound for the given cost matrix   10

$$\begin{bmatrix} \infty & 10 & 15 & 20 \\ 5 & \infty & 9 & 10 \\ 6 & 13 & \infty & 12 \\ 8 & 8 & 9 & \infty \end{bmatrix}$$

        b) Define 15-puzzle problem
                                                                                                                    05

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SUBJECT CODE NO:- P-267
FACULTY OF ENGINEERING AND TECHNOLOGY
T.E.(CSE/IT) Examination May/June 2017
Computer Networks - II
(Revised)

[Time: Three Hours]   **[Max.Marks:80]**

Please check whether you have got the right question paper.
N.B   i) Q.No.1 and Q.No.6 are compulsory.
                   ii) Attempt any two questions from Q. No.2 to Q. No.5 and any two questions from Q. No. 7 to Q. No.
                   10 in each section

Section A

Q.1   Attempt any five   10
       a. How many IP addresses are available to a company with class B address?
       b. What is split horizon?
       c. Name the mechanism that can alleviate congestion.
       d. What is choke packet?
       e. What is the definition of bursty data?
       f. List RIP shortcoming and their corresponding fixes.
       g. What is cell switching?
Q.2   a. What is the need of routing algorithm? Explain Distance vector Routing in detail.   08
       b. What is traffic shaping? Explain how token bucket algorithm is better than leaky Bucket algorithm?   07
Q.3   a. Explain any one inter domain routing protocol.   08
       b. How you can measure the performance of the network.   07
Q.4   a. With neat diagram explain ATM layers in detail.   08
       b. Explain different forwarding techniques.   07
Q.5   Write short note on (Any three)   15
       a. IGRP
       b. Internetworking
       c. Integrated services
       d. Traffic profiles
       e. LAN emulation

Section-B

Q.6   Attempt any five   10
       a. Define process to process delivery.
       b. List out transport layer protocols.
       c. What is IANA?
       d. What is the difference between primary server and a secondary server?
       e. What is the prime responsibility of application layer?
       f. Why there is a need of DNS?
       g. SNMP is which layer protocol?
Q.7   a. Compare TCP and SCTP in detail.   08
       b. What is resolution? Explain address resolution mechanism in the internet.   07
Q.8   a. Draw neat labelled diagram of UDP header and explain in detail.   08
       b. Explain DNS in detail.   07
Q.9   a. Explain half close connection in TCP protocol by drawing neat labelled diagram.   08

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    b. What are the function of network management system?   07

Q.10 Write short note on (Any three)   15
    a. Socket programming
    b. RTO
    c. Socket address
    d. E-mail
    e. H.323

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SUBJECT CODE NO:- P-299
FACULTY OF ENGINEERING AND TECHNOLOGY
T.E.(CSE/IT) Examination May/June 2017
Theory of Computation
(Revised)

[Time: Three Hours]   **[Max.Marks:80]**

Please check whether you have got the right question paper.

N.B
        i) Q.No.1 and Q.No.6 are compulsory.
        ii) Attempt any two questions from Q.No.2 to Q.No.5 and from Q. No.7 to Q. No. 10 of each section.
        iii) Figures to the right indicate full marks.

Section A

Q.1   Attempt any five from the following :-   10
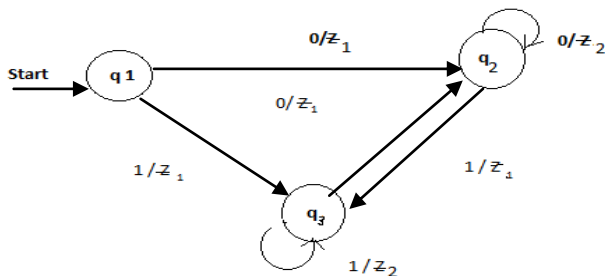   1. Define Mealy and Moore machine model with an example.
        2. What is acceptability of a string by FA?
        3. Define deterministic Finite Automata with suitable example.
        4. What is ambiguity in grammar, give an example?
        5. Explain types of derivation tree in CFG.
        6. Construct transition diagram of following regular expression a*b + b*a
        7. What is CFG? Give an example.
        8. Define type 2 -production.

Q.2   a) Consider M=($\{q_1, q_2, q_3\} \{0,1\} \delta, q_1, \{q_3\}$) a nondeterministic finite automation where δ is given by.   08
$\delta(q_1,0) = \{q_2, q_3\} \; \delta(q_1,1) = \{q_1\}$
$\delta(q_2,0) = \{q_1, q_2\} \; \delta(q_2,1) = \phi$
$\delta(q_3,0) = \{q_2\} \; \delta(q_3,1) = \{q_1, q_2\}$
Construct an equivalent DFA

b) Construct a Moore machine which is equivalent to the mealy machine described by the following   07
transition diagram.

Q.3   a) Construct a DFA with reduced states equivalent to the regular expression.   08
        (0+1)* (00+11) (0+1)*

b) What is pumping lemma for regular languages? Show that the set L={a' | p is prime} is not regular.   07

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Q.4   a) Construct the minimum state equivalent DFA for the DFA given by The following transition table.   08

States	Inputs	
	0	1
$\rightarrow q_1$	q_2	q_3
q_2	q_3	q_5
q_3	q_4	q_3
q_4	q_3	q_5
q_5	q_2	q_5

07

b) The grammar is

G=({s}, {a, b, +, *} P, S) where P consists of $S \rightarrow S + S|S * S|a|b$ show that the grammar is ambiguous.

Q.5   Write short notes on following:-   15
1. Applications of FA
2. Ambiguity in grammars.
3. Chomsky class faction of languages.

Section B

Q.6   Attempt any five from the following   10
1) What are possibilities of a TM when processing an input string?
2) Define CNF and GNF.
3) Define null production in CFG with an example.
4) Define instantaneous description of PDA
5) What is halting problem of TM?
6) What is universal Turing machine?
7) What is a linear bounded automata?
8) Explain the language of a PDA.

Q.7   a) Consider the grammar G $S \rightarrow AB, A \rightarrow a, B \rightarrow C|b, C \rightarrow D, D \rightarrow E$ nad $E \rightarrow a$. Eliminate UNIT   08
productions and get an equivalent grammar.
b) Explain the two normal forms for the grammar.   07

Q.8   a) Explain in detail PDA and acceptance by PDA.   08
b) Construct a POA A equivalent to the following context free grammar S→ $OBB, B \rightarrow OS|IS|O$. Test   07
whether $O|O^4$ is in N (A).
Q.9   a) Explain the Turing machine model in brief. Explain its representation by ID and transition Table.   08
b) Design a Turing m/c to recognize all strings consisting of an even number of 1's.   07

Q.10   Write a short note on following.   15
1. Programming techniques for TM.
2. Deterministic pushdown automata
3. Pumping lemma for CFL.

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SUBJECT CODE NO:- P-364
FACULTY OF ENGINEERING AND TECHNOLOGY
T.E.(CSE/IT) Examination May/June 2017
Software Testing and Quality Assurance
(Revised)

[Time: Three Hours]   [Max.Marks:80]

Please check whether you have got the right question paper.
N.B
1. Q. No. 1 from section A is compulsory. Solve any two from remaining question.
2. Q. No. 6 from section B is compulsory. Solve any two from remaining question.

Section A

Q.1   Answer the following (any five)   10
    1) What is the role of team leader in SQA activity?
    2) What coding stds. Should follow by developer for avoiding the errors in testing?
    3) Differentiae bet$^n.$ Regression & retesting.
    4) Differentiate bet$^n.$ QA & QC.
    5) What is verification & validation?
    6) How do you estimate white box texting?
    7) What are the objectives of software testing?
    8) What is path testing?

Q.2   a)   Demonstrate the planning of SQA.   07
       b)   How do you perform functional testing on dynamic application?   08

Q.3   a)   Describe any techniques to perform usability testing.   07
       b)   Illustrate data flow testing & control structure testing.   08

Q.4   a)   Elaborate top down & bottom up approach for software testing.   07
       b)   Describe statistical Quality assurance for software Engineer.   08

Q.5   Write short notes on (any three)   15
       a)   Peer review & walk through.
       b)   Point out any SDLC model
       c)   Profits of automation testing
       d)   Distinguish black box & white box testing.

Section B

Q.6   Answer the following (any five)   10
    1) What are features of testing tool?
    2) What are objectives of development plan?
    3) Differentiate bet^n test reporting & defect reporting.
    4) What is test case? How do you define good test case?
    5) What are diff. tasks handled by project manager during testing?
    6) What are classifications of defect?
    7) What is authorization & authentication?
    8) How do you differentiate tester for developer.

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Q.7	a)	Describe operational test management.	07
	b)	Point out user required feature of testing tool & state its advantages.	08
Q.8	a)	Point out context sensitive & analog mode of win runner.	07
	b)	Demonstrate bug tracking, bug fixing & bug verification.	08
Q.9	a)	Point out the responsibilities of project manager for developing quality plan of project.	07
	b)	Prepare defect report template with an example.	08

Q.10   Write short notes on (any three)   15
      a)   Test data
      b)   Role of tester for automation testing
      c)   Strategic test management.
      d)   Verify, update & Debug mode of win runner.

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