

ASSIGNMENT - 1, DEC - 2016.

M.C.A. SECOND YEAR DEGREE

PAPER- I : SOFTWARE ENGINEERING

Maximum : 30 MARKS

Answer ALL questions.

- 1) Explain the following:
 - a) Process patterns
 - b) RAD model
 - 2) Explain the planning and construction practices of software engineering.
 - 3) Discuss about design process and design quality of design engineering.
 - 4) Discuss about various characteristics of software process.
 - 5) Describe the spiral process model.
 - 6) Explain about system modeling with UML.
 - 7) Write about collaborative requirement gathering for requirement engineering.
 - 8) What is software myth?
 - 9) What are analysis rules of thumb?
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PAPER- I : SOFTWARE ENGINEERING

Maximum : 30 MARKS

Answer ALL questions.

- 1) Explain in detail basis path testing in white box testing technique.
 - 2) Establish a framework for product metrics of software.
 - 3) Explain the flow-oriented modeling of analysis model.
 - 4) Discuss about the art of debugging.
 - 5) Describe the integration testing.
 - 6) Explain class-oriented metrics – The CK metrics suite.
 - 7) What is the need of use case?
 - 8) What is performance testing?
 - 9) What is refactoring?
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PAPER- II : PROGRAMMING WITH JAVA

Maximum : 30 MARKS

Answer ALL questions.

- 1) Explain the structure of a java program in detail with neat illustration.
 - 2) Explain about looping statements in java with an example program.
 - 3) Write a binary search and linear search program in java using arrays.
 - 4) Discuss about the Java Virtual Machine in detail.
 - 5) Write a java program to find factorial of given number using recursion.
 - 6) Write a short notes on classes & objects.
 - 7) Discuss about java string handling functions.
 - 8) Define interface.
 - 9) What is Applet?
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PAPER- II : PROGRAMMING WITH JAVA

Maximum : 30 MARKS

Answer ALL questions.

- 1) What is inheritance? Explain different types of inheritance with example.

 - 2) Write an applet program to draw the following shapes:
 - a) Line
 - b) Circle
 - c) Square

 - 3) What is a package? Explain.

 - 4) Discuss about exception handling in java.

 - 5) Write a short notes on files and screens.

 - 6) Explain the life cycle of an applet.

 - 7) What is an Array?

 - 8) Define Abstract Datatype.

 - 9) What is type casting?
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PAPER- III : COMPUTER NETWORKING

Maximum : 30 MARKS

Answer ALL questions.

- 1) Explain about TCP/IP model in detail with neat diagram.
 - 2) What is Switching? Explain different types of switching with neat diagram.
 - 3) Explain multicast routing protocols in detail.
 - 4) Write a short notes on Data Communication.
 - 5) What is topology? Explain its types.
 - 6) Write about LAN, MAN & WAN.
 - 7) Discuss about addressing in switching.
 - 8) Define Network.
 - 9) What is routing?
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PAPER- III : COMPUTER NETWORKING

Maximum : 30 MARKS

Answer ALL questions.

- 1) Explain Network technologies in detail.
 - 2) Discuss about RSA Algorithm in detail.
 - 3) What are the applications of routing? Explain.
 - 4) Write a short notes on asymmetric key cryptography.
 - 5) Discuss about UDP in detail.
 - 6) Write a short notes on binary arithmetic.
 - 7) Define protocol.
 - 8) What is datagram?
 - 9) Define cryptography.
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PAPER- IV : COMPUTER ALGORITHMS

Maximum : 30 MARKS

Answer ALL questions.

- 1) Explain how the removing condition is done from the conditional Asymptotic notation with an example.
 - 2) With a suitable algorithm, explain the problem of finding the maximum and minimum items in a set of n elements.
 - 3) Write down and explain the algorithm to solve all pairs shortest paths problem.
 - 4) Reorder the following complexity from smallest to largest $2n$, $n!$, n^{10} , $24 n \log_2(n)$, justify your answer.
Calculate the big – O notation of $5n^2 + n^{3/2}$ and $3n^4 + n \log_2 n$.
 - 5) Show that the maximum number of nodes in a binary tree of depth k is $2^k - 1$, $k \geq 1$.
 - 6) Explain stable sorting with an example.
 - 7) Construct the heap tree for the following keys.
15, 25, 13, 12, 26, 9, 16, 30
 - 8) Define Time and Space complexity.
 - 9) Define Quick Hull algorithm?
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PAPER- IV : COMPUTER ALGORITHMS

Maximum : 30 MARKS

Answer ALL questions.

- 1) Describe the backtracking problem to solve 8-Queens problem.
 - 2) Suppose we build the Huffman code tree for the set of letters and frequencies given below:
Character : A B C D E F
Frequencies: 1 5 20 30 40 50
What will be the length of the code for the character B?
 - 3) Prove that Hamiltonian path problem is NP-Class problem.
 - 4) Solve the job sequencing problem and find maximum profit by processing jobs (j1, j2, j3, j4) with deadlines (2, 1, 2, 1) and profit (100, 15, 10, 27).
 - 5) Define optimal and feasible solution with example.
 - 6) What is Hamiltonian problem? Explain with an example using backtracking.
 - 7) Define optimal binary Search tree?
 - 8) Define Spanning tree with example.
 - 9) What is Least Cost search?
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M.C.A. SECOND YEAR DEGREE

PAPER- V : DISTRIBUTED OPERATING SYSTEMS

Maximum : 30 MARKS

Answer ALL questions.

- 1) Explain:
 - a) Models in distributed system.
 - b) Components & functions of distributed system.

 - 2) Explain about critical regions with example to handle them. Explain about I/O structure.

 - 3) Explain:
 - a) Real time scheduling with an example.
 - b) Deadlock detection algorithm.

 - 4) Give the goals of distributed system.

 - 5) What is asynchronous transfer mode networks? Explain.

 - 6) Discuss about atomic transaction.

 - 7) Explain the classification of agreement problem.

 - 8) Define Kernel.& its role.

 - 9) What is Semaphore?
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M.C.A. SECOND YEAR DEGREE

PAPER- V : DISTRIBUTED OPERATING SYSTEMS

Maximum : 30 MARKS

Answer ALL questions.

- 1) Explain the algorithm for implementing distributed shared memory.
 - 2) Discuss:
 - a) Issues in load distributing.
 - b) Implementation of distributed file system
 - 3) Explain deadlock occurrence and how to prevent deadlock.
 - 4) What is mutual Exclusion? Give solutions to the problem.
 - 5) Explain about protocols & types of protocols.
 - 6) What is shared Memory?
 - 7) Give the difference between long & short term scheduler.
 - 8) Define interrupt.
 - 9) What is topology?
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PAPER- VI : COMPUTER GRAPHICS

Maximum : 30 MARKS

Answer ALL questions.

- 1) Describe the Bresenham's circle algorithm.
 - 2) Explain the Liang-Barsky line clipping algorithm.
 - 3) Find the transformation for
 - a) Cavalier with $\theta = 45^\circ$ and
 - b) Cabinet projections with $\theta=30^\circ$.Also draw the projection of the unit cube for each transformation.
 - 4) Write about the visualization of the Mandelbrot set.
 - 5) Explain the scan-line algorithm for polygonal region filling.
 - 6) Magnify the triangle with vertices A(0, 0), B(1, 1) and C(5, 2) to twice its size while keeping C(5, 2) fixed.
 - 7) Explain the Cohen-Sutherland line clipping algorithm.
 - 8) What is an image's aspect ratio?
 - 9) What is double buffering?
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PAPER- VI : COMPUTER GRAPHICS

Maximum : 30 MARKS

Answer ALL questions.

- 1) Discuss about Bezier-Bernstein and Bezier-B-Spline approximation.
 - 2) Explain the subdivision algorithm.
 - 3) Find the transformation for mirror reflection with respect to a given plane.
 - 4) Explain about viewing coordinate system.
 - 5) Explain different ways to generate triangle mesh.
 - 6) Describe the wright algorithm for rendering Mathematical surfaces.
 - 7) What is canonical clipping?
 - 8) What is wire frame model?
 - 9) Why are hidden-surface algorithms needed?
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M.C.A. SECOND YEAR DEGREE

PAPER- VII : e – COMMERCE

Maximum : 30 MARKS

Answer ALL questions.

- 1) State the history e-commerce.
 - 2) Elucidate the available e-security technologies.
 - 3) What are the features of e-CRM?
 - 4) e-strategy.
 - 5) e-payment .
 - 6) B To C
 - 7) Concept of e-advertisement.
 - 8) Concept of e-commerce.
 - 9) e-marketing.
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PAPER- VII : e – COMMERCE

Maximum : 30 MARKS

Answer ALL questions.

- 1) Discuss the different schemes of e-transfers.
 - 2) Describe significance of M-commerce.
 - 3) Enabling technologies of www.
 - 4) EP.
 - 5) Online e-cash
 - 6) Encryption.
 - 7) e-commerce opportunities.
 - 8) Anti virus.
 - 9) Fire walls.
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PAPER- VIII : PROBABILITY & STATISTICS

Maximum : 30 MARKS

Answer ALL questions.

- 1) Define each of the following with example.
 - a) Conditional probability.
 - b) List any three properties of Binomial distribution.
 - c) Probability density function.

 - 2)
 - a) State and prove the addition theorem of probabilities for 'n' events.

 - b) A and B throw alternatively with a pair of ordinary dice. A wins if he throws 6 before B throws 7 and B wins if he throws 7 before A throws 6. If A begins the game, find his chance of winning the game.

 - 3) Discuss about t-test. Write the properties of t-test.

 - 4) The mean and variance of Binomial Distribution are 4 and $\frac{4}{3}$ respectively. Find $P(X \geq 1)$.

 - 5) Explain about Regression.

 - 6) Derive the relation for the variance of Normal distribution.

 - 7) Why 2×2 Latin – Square is not possible? Explain.

 - 8) Define Exhaustive events.

 - 9) Define Poisson distribution.
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PAPER- VIII : PROBABILITY & STATISTICS

Maximum : 30 MARKS

Answer ALL questions.

- 1) Find the correlation coefficient for the following data:
- | | | | | | | | | | | |
|----|----|----|----|----|----|----|----|----|----|----|
| X: | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Y: | 10 | 12 | 16 | 28 | 25 | 36 | 41 | 49 | 40 | 50 |
- 2) The reliability plays an Important role in Quality Improvement program.
- 3) What are the two lines of Regression? Give their uses.
- 4) Discuss about F-test and its uses.
- 5) Explain Discrete probability.
- 6) Explain sign test.
- 7) Define Replication.
- 8) Define F-test.
- 9) Define Randomisation.
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