(DMCA201)

M.C.A.DEGREE EXAMINATION, DEC- 2016

(Second Year)

SOFTWARE ENGINEERING

Time : 3 Hours   **Maximum Marks : 70**

SECTION– A   (3x 15 = 45)

Answer any3 questions

Q1) Explain RAD and Waterfall process models.

Q2) Write a short note on : Coupling, Cohesion, Verification, Validation.

Q3) Discuss design concepts of software engineering.

Q4) Explain Black-box testing techniques in detail.

Q5) Discuss the architectural design metrics and the MOOD metrics suite for design model.

SECTION–B   (5 x4 = 20)

Answer any 5 questions

Q6) "Debugging is an art", discuss.

Q7) Explain the software quality concepts.

Q8) "Software does not wear out", discuss this myth.

Q9) Write about DFD.

Q10) Explain prototyping process model.

Q11) Describe the software testing fundamentals.

Q12) Write about top-down integration testing.

Q13) Explain the architectural design process.

SECTION–C   (5 x 1 = 5)
Answer all questions

Q14) What is Architectural pattern?

Q15) What is a stub?

Q16) Write about ISO 9000.

Q17) Define stress testing.

Q18) What is data dictionary?

(DMCA202)

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M.C.A. DEGREE EXAMINATION, DEC - 2016

(Second Year)

PROGRAMMING WITH JAVA

Time : 3 Hours   Maximum Marks : 70

SECTION– A   (3 x 15 = 45)

Answer any 3 questions

Q1) Explain the features of java language. What is JVM?

Q2) What is an Interface? Describe various forms of implementing an interface.

Q3) Explain types of inheritance with suitable examples for each.

Q4) What is an Exception? Illustrate the usage of *try* and *catch* blocks with a sample program.

SECTION–B   (5 x 4 = 20)

Answer any 5 questions

Q5) Explain switch ….case statement with an example.

Q6) Write java code to check whether a given string is palindrome or not.

Q7) What is vector? Explain how it differs from an array?

Q8) What is an applet? How does it differ from an application program?

Q9) Explain command line arguments.

Q10) What is synchronization? How is it achieved by java?

Q11) Explain different types of exceptions.

Q12) What is a package? State its purpose.

Q13) How are priorities set for threads?

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SECTION–C   **(5 x 1 = 5)**

Answer all questions

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Q14) State the access specifiers used in a class.

Q15) Byte code.

Q16) Define the key word *static*.

Q17) Define Applet.

Q18) Package.

(DMCA203)

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M.C.A. DEGREE EXAMINATION, DEC - 2016

(Second Year)

(Paper - III) : COMPUTER NETWORKING

Time : 3 Hours   Maximum Marks : 70

SECTION– A   (3 x 15 = 45)

Answer any three of the following

Q1) Explain in detail the OSI Reference Model with neat diagram.

Q2) Explain and differentiate between Symmetric and Asymmetric key cryptography.

Q3) Explain in detail the Unicast routing protocols in network layer.

Q4) Explain the different transmission media in detail.

Q5) Explain in detail different routing techniques.

SECTION–B   (5 x 4 = 20)

Answer any five of the following

Q6) Write about LAN and MAN.

Q7) Write about the components of data communication.

Q8) Write about the services of routing.

Q9) Define topology and explain it's types.

Q10) Write a short note on IP.

Q11) Write a short note on HTTP.

Q12) Write about 'Message Confidentiality'.

Q13) Write a short note on Hubs and bridges.

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SECTION–C (5 x 1 = 5)
Answer all questions

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Q14) What is flooding?

Q15) Define ARP.

Q16) What is message switching?

Q17) Define router.

Q18) What is FTP?

Total No. of Questions : 18] [Total No. of Pages : 02

M.C.A. DEGREE EXAMINATION, DEC - 2016

(Second Year)

COMPUTER ALGORITHMS

Time : 3 Hours **Maximum Marks : 70**

SECTION– A *(3 x 15 = 45)*

Answer any 3 questions

Q1) Explain different measures of algorithm efficiency. Find the efficiency of matrix multiplication.

Q2) Explain any 2 algorithms to compute shortest paths.

Q3) Compare the iterative versions of merge and quick sort algorithms for the following input data 18, 13, 12, 19, 17, 15, 14, 11.

Q4) Explain Hamiltonian circuit problem using back tracking.

Q5) Explain any 2 minimum cost spanning tree algorithms.

SECTION–B *(5 x4 = 20)*

Answer any 5 questions

Q6) Explain the significance of O, Ω and Θ in performance of analysis of algorithms.

Q7) Explain Binary search algorithm and its time complexity.

Q8) Explain FIFO branch-and-bound algorithm for job sequencing.

Q9) Explain graph colouring problem.

Q10) Explain Cook's theorem.

Q11) What is CNDP? Explain.

Q12) Explain Kanpsack problem using dynamic programming.

Q13) Write a short note on recursive algorithms.

SECTION–C   *(5 x 1 = 5)*
Answer all questions

Q14) What is Time complexity?

Q15) What is a Digraph?

Q16) Define Back Tracking.

Q17) What is greedy method?

Q18) What is dictionary?

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M.C.A. DEGREE EXAMINATION, DEC- 2016

(Second Year)

DISTRIBUTED OPERATING SYSTEMS

Time : 3 Hours   **Maximum Marks : 70**

SECTION– A   (3 x 15 = 45)

Answer any 3 questions

Q1) What is a Thread? What are the items associated with thread? List out the types of threads.

Q2) Explain 2PL protocol and Time Triggered Protocols.

Q3) Explain in detail process scheduling algorithm.

Q4) What is DSM? Explain NUMA multiprocessors in detail.

Q5) Explain distributed file system and caching for building distributed file system.

SECTION–B   (5 x 4 = 20)

Answer any 5 questions

Q6) What are real-time systems? State their classifications.

Q7) What is NORMA? State the difference between NUMA and NORMA.

Q8) Differentiate between multiprocessor and multi-computer environment.

Q9) Differentiate between nested and distributed transaction.

Q10) Explain the necessary conditions of a deadlock to occur in distributed operating system.

Q11) Explain Banker's algorithm.

Q12) Explain Reader and writers problem in detail.

Q13) Explain NFS security architecture.

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SECTION–C   **(5 x 1 = 5)**

<u>Answer all questions</u>

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Q14) What is fault tolerance?

Q15) What is Cache memory?

Q16) Define a process.

Q17) Define monitor.

Q18) Define fragmentation.

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M.C.A. DEGREE EXAMINATION, DEC - 2016

(Second Year)

COMPUTER GRAPHICS

Time : 3 Hours   **Maximum Marks : 70**

SECTION– A   (3 x 15 = 45)

Answer any 3 questions

Q1) Explain about CRT & LCD with neat diagrams.

Q2) Explain Bresenham's circle drawing algorithm.

Q3) Explain Cohen-Hodgeman polygon clipping algorithm.

Q4) Explain different types of projections and derive the transformation matrix for each of them.

Q5) Describe various methods for generating curves and surfaces.

SECTION–B   (5 x 4 = 20)

Answer any 5 questions

Q6) Explain windowing and viewing.

Q7) Define Transformation. Explain composite transformation in detail.

Q8) What are Z-Buffers? Explain.

Q9) Differentiate between aliasing and antialiasing.

Q10) Explain Backface detection in detail.

Q11) Discuss in detail the functions of display file interpreter.

Q12) Explain how a hidden line is eliminated in wire frame modelling?

Q13) Explain mid point subdivision algorithm for 3D clipping.

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SECTION–C   (5 x 1 = 5)

Answer all questions

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Q14) What is shearing?

Q15) Write about Frame Buffer.

Q16) What is Morphing?

Q17) Define Animation.

Q18) What is Raster-Scan display?

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M.C.A. DEGREE EXAMINATION, DEC - 2016

(Second Year)

E-COMMERCE

Time : 3 Hours							Maximum Marks : 70

<u>**SECTION– A**</u>						**(3 x 15 = 45)**

<u>Answer any three of the following</u>

Q1) What is e-Commerce? Explain its advantages and disadvantages.

Q2) Discuss the history of e-Commerce.

Q3) Explain the business models for e-Commerce.

Q4) Explain the process of e-Payment. What are the steps involved in this system.

Q5) Write a short note on e-Customer Relationship Management.

<u>**SECTION–B**</u>						**(5 x 4 = 20)**

<u>Answer any five of the following</u>

Q6) Digital signature.

Q7) LAN.

Q8) Gateway.

Q9) Web browser.

Q10) SMTP.

Q11) Electronic checks.

Q12) Remote login.

Q13) Router.

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SECTION–C   **(5 x 1 = 5)**

Answer all of the following

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Q14) Home shopping.

Q15) Data mining.

Q16) e-Cash.

Q17) IP address.

Q18) Cyber crimes.

Total No. of Questions : 18]   [Total No. of Pages : 02

M.C.A. DEGREE EXAMINATION, DEC - 2016

(Second Year)

PROBABILITY & STATISTICS

Time : 3 Hours   Maximum Marks : 70

<u>**SECTION– A**</u>   **(3 x 15 = 45)**

<u>***Answer any THREE of the following***</u>

Q1)   a)   State and prove inverse theorem of probability.

      b)   Explain random variables.

Q2)   The frequency function of a continuous r.v. is given by $P(x) = ke^{-|x|}$, $-\infty < x < \infty$. Prove that $k = \frac{1}{2}$. Find the mean and variance of the distribution.

Q3)   Fit a binomial distribution for the following data and compare the theoretical frequencies with

X :	0	1	2	3	4	5
F :	2	14	20	34	22	8

Q4)   A population consists of 5 members 2,3,6,8 and 11. Consider all possible samples of size two which can be drawn with replacement from this population. Find

      a)   The mean of the population,
      b)   The S.D. of the population,
      c)   The mean of the sampling distribution of mean.

Q5)   The following are data on the drying time of a certain varnish and the amount of an additive the drying time.

Amount of varnish
Additive (grams):   x :

x :	0	1	2	3	4	5	6	7	8
Drying time (hours) y :	12.0	10.5	10.0	8.0	7.0	8.0	7.5	8.5	9.0

      a)   Fit a second degree polynomial by the method of least squares.
      b)   Use the result of part (a) to predict the drying time of the varnish when 6.5 grams of the additive is being used.

Answer any FIVE of the following

Q6) An urn contains 5 red and 10 black balls. Eight of them are placed in another urn. What is the chance that the later then contains 2 red and 6 black balls.

Q7) A variate X has the probability distribution

X : 　　　　-3　　6　　　9
P(X = x): 　　1/6　　1/2　　1/3

Find $E(2x + 1)^2$. Write the five properties.

Q8) Write the five properties of Normal distribution.

Q9) The two regression lines are having their means and standard deviations 31.6, 38 and 3.72, 6.31 and $\rho = -0.36$. Find the two regression lines.

Q10) In a normal distribution, 7% of the items are under 35 and 89% are under 63. Determine the Mean and variance of the distribution.

Q11) Explain confidence limits for unknown mean.

Q12) Explain number of degrees of freedom.

Q13) Define Chi-square test and write its five properties.

SECTION–C　　　　　　　　　　　　　　(5 x 1 = 5)
Answer ALL of the following

Q14) State addition theorem of probability.

Q15) Define distribution function of random variables.

Q16) Explain Type – I error in sampling.

Q17) Explain statistical hypothesis.

Q18) Explain level of significance.

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