8E5002

Roll No. _____ Total No of Pages: 3

8E5002

B. Tech. VIII Sem. (Back) Exam., April – May 2018
Computer Science & Engineering
8CS2 (O) Information System Security
CS, IT

Time: 3 Hours **Maximum Marks: 80**
Min. Passing Marks: 26

Instructions to Candidates:

*Attempt any **five questions,** selecting **one question** from **each unit.** All questions carry **equal** marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly.*

Units of quantities used/calculated must be stated clearly.

1. NIL 2. NIL

UNIT-I

Q.1 (a) Explain Euler's theorem in detail. [8]

(b) Write short note on-

(i) Groups and field [4]

(ii) Entropy and Unicity distance [4]

OR

Q.1 (a) Discuss the Chinese remainder theorem. [8]

(b) Explain –

(i) Galois field [4]

(ii) Division algorithm [4]

VI2

UNIT-II

Q.2 (a) Explain IDEA with all its steps and sub key generation in details. [8]

(b) Write short note on-

(i) Substitution and transposition techniques [4]

(ii) Key distribution in symmetric encryption. [4]

OR

Q.2 (a) Explain DES with triple DES with all its steps in detail. [8]

(b) Explain all block cipher modes of operation with neat diagram. [8]

UNIT-III

Q.3 (a) Describe the Diffie – Hellman key exchange algorithm in detail. [8]

(b) Describe the following scheme for distribution of public keys-

(i) Public key authority [4]

(ii) Public key certificate [4]

OR

Q.3 (a) Explain the role of RSA algorithm in public key cryptography. Explain the RSA algorithm with example. [8]

(b) Describe the distribution of secret keys using public key crypto systems. [8]

UNIT-IV

Q.4 (a) What is the difference between Hash and MAC. Discuss the methods to accomplish the confidentiality and authentication using MAC and Hash. [8]

(b) Describe the MDS algorithm in detail. Compare MDS and SHA. [8]

OR

Q.4 (a) What is the format of X.509 authentication certificate and hierarchy of X.509 certificate? [8]

(b) Write short note on-

(i) Two way public key [4]

(ii) One way public key [4]

UNIT-V

Q.5 (a) Explain Pretty Good Privacy (PGP) with general structure of private and public key rings [8]

(b) Write short note on-

(i) S / MIME [4]

(ii) IPSec [4]

OR

Q.5 (a) Write short note on-

(i) Approaches for intrusion detection [4]

(ii) Working of SSL [4]

(b) Explain the concept of dual signature in context of Secure Electronic Transaction (SET). Briefly describe the sequence of events that are required for a SET transaction. [8]

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8E8165

Roll No. _____ Total No of Pages: 3

8E8165

B. Tech. VIII Sem. (Main / Back) Exam., April – May 2018
Computer Science & Engineering
8CS4.2A Real Time Systems

Time: 3 Hours **Maximum Marks: 80**
Min. Passing Marks: 26

Instructions to Candidates:

*Attempt any **five questions,** selecting **one question** from **each unit.** All questions carry **equal** marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly.*

Units of quantities used/calculated must be stated clearly.

1. NIL 2. NIL

UNIT-I

Q.1 (a) Define Real Time System? Discuss typical real time applications. [8]

(b) Explain the following: [2×4=8]

(i) Release time

(ii) Period

(iii) Execution time

(iv) Deadline

OR

Q.1 (a) Draw and explain block diagram of RTS. [8]

(b) What are timing constraints? Explain various timing constraints in detail [8]

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UNIT-II

Q.2 (a) Explain the reference model of RTS. Differentiate between processors and resources. [8]

(b) Explain and compare Periodic and Aperiodic task models. [8]

OR

Q.2 (a) What is real time scheduling? What are the classifications of real time scheduling? Explain. [8]

(b) Explain and compare the following: [4×2=8]

(i) Dynamic versus static system

(ii) Offline versus online scheduling system

UNIT-III

Q.3 (a) Explain clock driven scheduling with example. Discuss the advantages and disadvantages of clock driven scheduling. [8]

(b) Explain the following: [4×2=8]

(i) General structure of cyclic scheduling

(ii) Cyclic executives

OR

Q.3 (a) Explain the notations and various assumptions for periodic driven scheduling. Also explain various fixed priority scheduling algorithm. [8]

(b) What is meant be schedulability test? Explain the Inexact and exact schedulability tests for RM and DM. [8]

UNIT-IV

Q.4 (a) What is aperiodic task scheduling? Explain assumption and approaches for aperiodic task scheduling. [8]

(b) Explain and compare server based and non-server based fixed priority scheduling algorithms. [8]

OR

Q.4 (a) Explain the scheduling of flexible computation in detail. [8]

(b) Explain the following: [4×2=8]

(i) Imprecise computation model

(ii) Firm deadline model

UNIT-V

Q.5 Explain the following: [4×4=16]

(a) Resource contention

(b) Resource Access Control

(c) Priority inversion problem

(d) Concurrent access of data objects

OR

Q.5 (a) Explain basic priority-Inheritance and priority-Ceiling protocols. [8]

(b) Explain stack based priority ceiling protocol for multiple unit resources. [8]

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8E8163

Roll No. _____ Total No of Pages: 3

8E8163

B. Tech. VIII Sem. (Main / Back) Exam., April – May 2018
Computer Science & Engineering
8CS3A Distributed Systems

Time: 3 Hours **Maximum Marks: 80**
Min. Passing Marks: 26

Instructions to Candidates:

*Attempt any **five questions,** selecting **one question** from **each unit.** All questions carry **equal** marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly.*

Units of quantities used/calculated must be stated clearly.

1. NIL 2. NIL

UNIT-I

Q.1 Explain Architectural Models for distributed system along with the challenges of distributed systems. [16]

OR

Q.1 (a) Explain design issues in distributed operating system. [8]

(b) Write short note on Distributed Computing Environment. [8]

UNIT-II

Q.2 (a) Explain the concept of processes and threads. [8]

(b) State and explain the characteristics of concurrent programming languages. [8]

OR

Q.2 (a) Explain design and implementation issues is Remote method invocation (RMI) [10]

(b) Explain the concept of RPC in detail. [6]

UNIT-III

Q.3 Explain dynamic load sharing and balancing methods in detail along with appropriate example. [16]

OR

Q.3 (a) What is distributed file system? Explain the concept of transaction service and concurrency control in detail. [10]

(b) Write short note on data and file replication. [6]

UNIT-IV

Q.4 (a) Explain DSM systems along with their implementations and applications. [10]

(b) Describe the concept of deadlocks in distributed systems. [6]

OR

Q.4 Explain the following-

(a) Distributed mutual exclusion [8]

(b) Distributed termination detection [8]

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UNIT-V

Q.5 (a) Explain the concepts of fault, Failure and recovery in distributed systems. [8]

(b) State and explain various issues of replicated data management. [8]

OR

Q.5 Explain following in detail

(a) CORBA services. [8]

(b) Impossibility of consensus and randomized Distributed Agreement. [8]

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8E8162

Total No. of Questions: Total No. of Pages:

Roll No. _____

B.Tech VIII-Sem (Main & Back) Exam April 2018
Computer Engg.
8CS2A Digital Image Processing
8E8162
Common for CS & IT

Time: 3Hours **Maximum Marks: 80**
Min Passing Marks: 26

Attempt any **five questions,** selecting **one question** from **each unit.** All Questions carry **equal** marks. (Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used/ calculated must be stated clearly.

Use of following supporting material is permitted during examination. (Mentioned in form No.205)

1_____ 2. _____

UNIT -I

Q. 1 a) What is digital image processing? Explain its applications in detail. 8

b) What do you mean buy Image sampling? Explain with a suitable example. 8

OR

Q.1 a) What are the fundamental steps in digital image processing? 10

b) Explain image acquisition. 6

UNIT -II

Q. 2 a) What is Pseudo coloring ? 8

b) Explain histogram processing in detail. 8

OR

Q.2 a) Discuss the basic properties of fourier transform 8

b) What is histogram processing? 8

P.T.O.

UNIT -III

Q. 3 a) What is homomorphism filtering ? Discuss its advantages in detail. 8

b) What is Noise filter ? 8

OR

Q.3 a) Discuss Noise models in brief. 10

b) What is inverse filtering ? 6

UNIT -IV

Q. 4 a) Explain JPEG compression 8

b) What is arithmetics coding ? Explain with a suitable example. 8

OR

Q.4 a) What is redundancy in image compression ? Explain coding and pshychovisual redundancy in detail. 10

b) What do you mean by Image compression standards? 6

UNIT -V

Q. 5 a) What is image segmentation? Explain Point, Edge and Line detection. 10

b) What is boundary representation? 6

OR

Q.5 Write short note on (any two)

a) Hough transforms

b) Thresholding

c) Edge linking and Boundary descriptor

2 x8= 16

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8E8161

Roll No. _____ Total No of Pages: 3

8E8161

B. Tech. VIII Sem. (Main / Back) Exam., April – May 2018
Computer Science & Engineering
8CS1A Mobile Computing
CS, IT

Time: 3 Hours **Maximum Marks: 80**
Min. Passing Marks: 26

Instructions to Candidates:

*Attempt any **five questions,** selecting **one question** from **each unit.** All questions carry **equal** marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly.*

Units of quantities used/calculated must be stated clearly.

1. NIL 2. NIL

UNIT-I

Q.1 What is mobile computing? What is its significance in current scenario? How can we manage the mobility of a mobile node? [16]

OR

Q.1 (a) What are different adaptability issues? How can adaptations be incorporated in mobile environment? [8]

(b) What are the various location management techniques that are being used? [8]

UNIT-II

Q.2 (a) What is data dissemination? What are the various challenges we can face while distributing information? [8]

(b) Explain the process of allocation of bandwidth in mobile computing environment. [8]

OR

Q.2 (a) Write a short note on broadcast disk scheduling. [4]

(b) How can we manage cache in mobile environment? [4]

(c) What is the significance of mobile middleware? [4]

(d) How is bandwidth allocated to all clients? [4]

UNIT-III

Q.3 (a) What is mobile agent? What are its various applications? Discuss the pros and cons of using a mobile agent. [8]

(b) Differentiate between broadcast, Unicast and Multicast discovery. [8]

OR

Q.3 Write short notes on-

(a) Service catalogs [4]

(b) Service browsing [4]

(c) Eventing and Jini [4]

(d) Universal plug and play [4]

UNIT-IV

Q.4 (a) What is mobile TCP? Explain the challenges in maintaining a database in a mobile system. [12]

(b) Differentiate between IPV4 and IPV6 in the context of mobile computing. [4]

OR

Q.4 What is mobile IP? Explain the following terms-

(a) Home agent [4]

(b) Foreign network [4]

(c) Case of address [4]

(d) Visitor list [4]

UNIT-V

Q.5 (a) Differentiate between GSR and AODV protocols. Discuss the quality of service in an Ad hoc network. [8]

(b) What are Ad hoc networks? In what circumstances are they preferred over conventional networks? [8]

OR

Q.5 (a) Describe the working of Destination Sequenced Distance Vector routing (DSDV). [8]

(b) Explain the following-

(i) Localization [4]

(ii) MAC issues [4]

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8E8062

Roll No. _____ Total No of Pages: 3

8E8062

B. Tech. VIII Sem. (Main / Back) Exam., April – May 2018
Information Technology
8IT3A Data Compression Techniques

Time: 3 Hours **Maximum Marks: 80**
Min. Passing Marks: 26

Instructions to Candidates:

*Attempt any **five questions,** selecting **one question** from **each unit.** All questions carry **equal** marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly.*

Units of quantities used/calculated must be stated clearly.

1. NIL 2. NIL

UNIT-I

Q.1 (a) What do you mean by compression? Describe different types of techniques and models used in data compression. [8]

(b) For an alphabet A = $\{a_1, a_2, a_3, a_4\}$ with probabilities p $(a_1) = 0.1$, p $(a_2) = 0.3$, p $(a_3) = 0.25$, p $(a_4) = 0.35$, Find a Huffman Code. [8]

OR

Q.1 (a) What do you understand by lossless techniques? Explain giving suitable example. [8]

(b) Explain Kraft McMillan inequality in detail. [8]

UNIT-II

Q.2 (a) Why we use arithmetic coding and how does it generates tag, explain with the help of example. [8]

(b) A sequence is encoded using LZW algorithm, dictionary is - [8]

INDEX	ENTRY
1	a
2	b
3	h
4	i
5	s
6	t

O/P of encoder is 6, 3, 45, 2, 31, 6, 2, 9, 11.Find the sequence inputted.

OR

Q.2 (a) Explain T.4 and T.6 recommendation for facsimile encoding. [8]

(b) Explain Burrows wheeler algorithm in detail. [8]

UNIT-III

Q.3 (a) Explain forward adaptive approach and backward adaptive approach in detail.. [8]

(b) Explain rate distortion theory and its uses in detail. [8]

OR

Q.3 (a) Give the difference between uniform quantization and non - uniform quantization. [8]

(b) Explain Lattice algorithm and give the advantages of lattice algorithm. [8]

UNIT-IV

Q.4 (a) What do you understand by speech coding? Explain in detail with suitable example. [8]

(b) What is sampling technique? What are the disadvantages of ideal sampling? [8]

OR

Q.4 (a) Delta Modulation is a variant of DPCM. Explain and state advantage & disadvantage over PCM. [8]

(b) Design the CVSD decoder block diagram. [8]

UNIT-V

Q.5 (a) Explain basic principles and filters in sub-band coding. [8]

(b) Write the application of G.722. [8]

OR

Q.5 (a) Explain in detail :– [4×2=8]

(i) Z – Transform

(ii) DCT

(b) Write short note on :– [4×2=8]

(i) WAVEKET based compression

(ii) MPEG

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8E8061

Roll No. _____ Total No of Pages: 3

8E8061

B. Tech. VIII Sem. (Main / Back) Exam., April – May 2018
Information Technology
8IT1A Software Testing & Validation

Time: 3 Hours **Maximum Marks: 80**
Min. Passing Marks: 26

Instructions to Candidates:

*Attempt any **five questions,** selecting **one question** from **each unit.** All questions carry **equal** marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly.*

Units of quantities used/calculated must be stated clearly.

1. NIL 2. NIL

UNIT-I

Q.1 (a) Explain in detail software development verification and validation activities. [8]

(b) Explain domain testing in detail. [8]

OR

Q.1 (a) Explain verification in detail. Also discuss methods of verification. [8]

(b) Explain cyclomatic complexity with example. [8]

UNIT-II

Q.2 (a) Explain scenario testing in detail. Also explain Use case scenario. [8]

(b) What are collection requirement for Performance Testing? How Test Cases for performance testing are written? [8]

OR

Q.2 (a) Write short note on: [2×3=6]

(i) Scalability Testing

(ii) Reliability Testing

(iii) Functional Testing

(b) With reference to Performance Testing explain concept of performance bench marking, tuning and capacity planning. [10]

UNIT-III

Q.3 (a) Explain need for resetting the test case for Regression Testing. Explain difference between rerun and reset states in test cases. [8]

(b) Explain test phases for Internationalization Testing & also present your view on Enable Testing and Language Testing. [8]

OR

Q.3 (a) Explain drawback of Ad hoc Testing and its possible resolutions. [8]

(b) Explain the following: [4×2=8]

(i) Pair Testing

(ii) Buddy Testing

UNIT-IV

Q.4 (a) Explain system testing for OO systems. [8]

(b) Explain the difference between algorithm-centric and object-oriented approaches. [8]

OR

Q.4 (a) Explain approach to usability. Also explain how usability is achieved. [8]

(b) Explain the following: [4×2=8]

(i) Usability Testing

(ii) Aesthetics Testing

UNIT-V

Q.5 (a) Explain the following terms with reference to Test planning: [2×5=10]

(i) Preparing a Test

(ii) Deciding Test Approach

(iii) Setting up Test Criteria

(iv) Resource requirement

(v) Identifying Test deliverables

(b) Explain concept of Test Management. [6]

OR

Q.5 Explain design and architecture for automation of software testing (in detail) [16]
