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B. E. (Seventh Semester) Examination, Nov.-Dec. 2021

(New Scheme)

(CSE Engg. Branch)

MOBILE COMPUTING & APPLICATION

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

*Note : Attempt any **two** parts from (b), (c) & (d) from each unit. All questions carry equal marks and part (a) from each unit is compulsory having 2 marks. Draw the labeled diagram to support your answer.*

Unit-I

1. (a) In hexagonal geometry i and j are the two non-negative integers used to find the nearest co-channel neighbors of a particular cell. If i = 2 and j = 2 then

what is the value of Cluster Size (N) and Co-channel Reuse Ratio (Q).   2

(b) Explain Direct Sequence Spread Spectrum (DSSS) systems using suitable example.   7

(c) Explain the Elements of Cellular System Design.   7

(d) Compare SDMA, TDMA, FDMA and CDMA mechanisms.   7

Unit-II

2. (a) Write the services offered by GMS.   2

(b) Explain the functional architecture of a GSM System.   7

(c) Explain PACS system architecture.   7

(d) Explain DECT System architecture reference model.   7

Unit-III

3. (a) What do you understand by hidden node problems in Wireless Networks?   2

(b) Explain the components required to design a wireless LAN for 50 users base on IEEE 802.11 standard.   7

(c) Explain Bluetooth and its type also compare it with wireless LAN.   7

(d) Explain the phases of Elimination-yield non-preemptive priority multiple access (EY-NPMA) access scheme used in HYPERLAN 1.   7

Unit-IV

4. (a) Define Mobile Ad-hoc Networks (MANET).   2

(b) Explain how the communication between correspondent host and mobile host takes place in Mobile IP with the help of diagram.   7

(c) Compare the various classical TCP improvement approaches for mobility with advantages and disadvantages.   7

(d) Explain how IP address assignment in an organization can be done automatically using the Dynamic Host Configuration Protocol (DHCP).   7

Unit-V

5. (a) Define WAP gatway.   2

(b) Explain Wireless Application Protocol (WAP). 7

(c) Explain various 3G Wireless Operating System for 3G handset. 7

(d) Compare W-CDMA and CDMA 2000. 7

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B. E. (Seventh Semester) Examination, Nov.-Dec. 2021

(New Scheme)

(CSE Branch)

PARALLEL PROCESSOR & COMPUTING

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : *Part (a) of each question is compulsory carrying 2 marks. Solve any two parts from (b), (c) and (d) carrying 7 marks.*

Unit-I

1. (a) What is SIMD?   2

(b) Derive Amdalh's Law. 7

(c) Explain Flynn's classification with suitable diagram? 7

(d) What is Cache Coherence problem? Write about any Cache Coherence problem. 7

Unit-II

2. (a) Write Bernstien's condition of parallelism. 2

(b) Write least five differences between control flow and data flow computers. 7

(c) Explain pipeline hazards in brief. 7

(d) Explain architecture of Cray-1. 7

Unit-III

3. (a) What is PRAM? 2

(b) Write Wormhole Routing algorithm. 7

(c) Explain Hyper Cube Network with suitable diagram. 7

(d) Draw and explain shuffle and shuffle exchange network. 7

Unit-IV

4. (a) What is Scheduling? 2

(b) Write short notes on : 7
   (i) Defect Level Methods
   (ii) Fault Level methods

(c) What is emulation? Describe emulation among architectures. 7

(d) Explain concept of distributed shared memory. 7

Unit-V

5. (a) Explain memory hierarchy. 2

(b) Explain CC-NUMA standford DASH system. 7

(c) Explain message-passing MIMD Machine. 7

(d) Draw and explain MIN-based BBN Butterfly. 7

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B. E. (Seventh Semester) Examination, Nov.-Dec. 2021

(New Scheme)

(CSE Branch)

NETWORK PROGRAMMING

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

*Note : Attempt all **five** questions. Each question has 4 parts (a), (b), (c) and (d.)Part (a) is compulsory carrying 2 marks and attempt any **two** part from (b), (c) and (d) carrying 7 marks each.*

Unit-I

1. (a) What is IP Address?   2

   (b) Describe Network Layered Architecture and their functionality with suitable diagram.   7

(c) Draw TCP and IP headers. Compare TCP and UDP.   7

(d) Describe the working principle of Web Server.   7

Unit-II

2. (a) Definie socket structure.   2

(b) Describe simple TCP Clinet Server Architecture with diagram.   7

(c) Describe I/O Multiplexing using select() and poll() function.   7

(d) Describe fork() and EXCE() system call with example.   7

Unit-III

3. (a) What is WSA?   2

(b) Describe I/O models and blocking time out techniques in windows socket application.   7

(c) Describe WINSOCK Model. What are the new API DLL issues?   7

(d) Write down basic steps for developing clinet server application using WINSOCK API.   7

Unit-IV

4. (a) What is Firewall?   2

(b) Describe WAP architecture and its services.   7

(c) What is CGI? Develop any simple CGI program. How can we insert a CGI progamin HTML file.   7

(d) Explain RMI layer architecture and its basic components.   7

Unit-V

5. (a) What is protocol?   2

(b) Describe String Tokenizer class in Java. Write a program to find all tokens from a sentence.   7

(c) How can you use URL class in java to retrieve web information from URL.   7

(d) Develop a simple TCP client and TCP server program using java.   7

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B. E. (Seventh Semester) Examination, Nov.-Dec. 2021

(New Scheme)

(CSE, IT Engg. Branch)

CRYPTOGRAPHY and NETWORK SECURITY

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : *Attempt all questions. Part (a) of each question is compulsory and containing 2 marks. Attempt* ***two*** *parts from (b), (c) and (d) and each part carries 7 marks each.*

1. (a) Define cryptography, cryptology and cryptoanalysis.

    (b) List the security attacks. Explain all types of security

attacks with example.

(c) Explain the principle of DES with its strength in cryptography standardization.

(d) Differentiate between symmetric and asymetric key cryptography.

2. (a) Define block and stream Cipher.

(b) Explain the working of AES in brief.

(c) Write and explain encryption algorithm for RC4.

(d) Write the properties of group, ring and field.

3. (a) Define Euler's Totient function.

(b) Explain RSA public key cryptography.

(c) Differentiate between conventional and public key encryption.

(d) Explain the key exchange problem in Public key and Private key cryptography.

4. (a) Define Hash function and its usage.

(b) What is digital signature? Explain the working mechanism of digital signature with suitable diagram.

(c) What are the requirement of message authentication? Explain it with functions.

(d) Explain H-MAC algorithm briefly.

5. (a) Define computer virus.

(b) Explain secure electronic transaction (SET) in detail.

(c) Explain the working of firewall architecture with its different types.

(d) What is web security? Explain in detail Secure Socket Layer. (SSL).

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B. E. (Seventh Semester) Examination, Nov.-Dec. 2021

(New Scheme)

(CSE, IT Engg. Branch)

DIGITAL IMAGE PROCESSING

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : Attempt all the questions. Each question has four part (a), (b), (c) and (d). Part (a) is compulsory from each question. Attempt any two parts from (b), (c) and (d) each question.

Unit-I

1. (a) What is Image?   2

(b) What is Image Processing? Explain and highlight the salient function of various building block in digital image processing. 7

(c) Explore the use of sampling and quantization to form digital images and also demonstrate the basic relationship between pixel. 7

(d) What is Histogram? Explain with their types and technique for image enhancement. 7

Unit-II

2. (a) What is Thresholding Method? 2

(b) What is Fourier Transform? What is its role in image processing? 7

(c) How the Edge and boundary of object is identified in image? 7

(d) What is Segmentation? Explain with their type and features. 7

Unit-III

3. (a) What is Morphological Technique? 2

(b) What are the various logical operation involved in image processing? 7

(c) How the region is filled in image processing technique? 7

(d) Write short notes on : 7
   (i) Dialation & Erosion
   (ii) Opening & Closing

Unit-IV

4. (a) What is Image Compression? 2

(b) Explain the salient feature of Huffman coding approach. 7

(c) Explain JPEG compression technique. 7

(d) Write short notes on : 2×3·5
   (i) LZW coding
   (ii) Runlength coding

Unit-V

5. (a) What is Texture?   2

(b) How the boundary descriptor helps to represent the image?   7

(c) Explain the correlation based and feature based stereo correspondence method.   7

(d) Write short notes on :   2×3·5

     (i) Shape number

     (ii) Projective geometry

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B. E. (Seventh Semester) Examination, Nov.-Dec. 2021

(New Scheme)

(CSE & IT Engg.)

ADVANCED COMPUTER ARCHITECTURE

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : *Attempt all the questions. Part (a) from each question is compulsory. Attempt any **two** parts from parts (b), (c) and (d) of each question. Part (a) carry 2 marks & rest of carries 7 marks.*

Unit-I

1. (a) What is non-linear pipeline?

(b) Explain instruction pipeline in detail.

(c) Describe functions and properties of super scalar processors.

(d) Explain VLIW architecture and its advantages.

Unit-II

2. (a) What are the basic types of buses?

(b) What is cache coherence problems? Explain cache coherence protocols in detail.

(c) Describe high band width memories in detail.

(d) What is I/O performance? What causes high disk I/O? How it can be improved?

Unit-III

3. (a) What do you mean by resource dependency?

(b) Explain various types of parallel computer models.

(c) What is gain size and latency? Explain program partitioning and scheduling in detail.

(d) Describe control flow and data flow computers. Give an example to compare them.

Unit-IV

4. (a) Define vector instructions.

(b) What are the different kinds of instructions in vector processor? Explain in detail.

(c) Describe parallel algorithms in context of SIMD computers.

(d) Discuss about SIMD computers and their performance enhancements.

Unit-V

5. (a) What are the five components of a network?

(b) Describe dynamic interconnection network in detail.

(c) What are multicomputers? Explain its drawback and how this can be solved? Discuss.

(d) Write a detail note on multiprocessor system interconnection.

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B.E. (Seventh Semester) Examination Nov.-Dec. 2021

(New Scheme)

(CSE Branch)

E-COMMERCE & STRATEGIC IT

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : *Attempt all questions. Part (a) of each question is compulsory, which is of 2 marks. Attempt any **two** parts from (b), (c) and (d) each is of 7 marks.*

Unit-I

1. (a) Define is E-Commerce.   2

(b) Explain generic framework for electronic commerce with suitable diagram. 7

(c) Describe the Inter and Intra organizational E-Commerce. 7

(d) Briefly explain Consumer to Business e-commerce. 7

Unit-II

2. (a) Define LAN. 2

(b) Briefly explain IEEE standard 802.3 and its frame format. 7

(c) Explain the working concept of Domain Name Servers. 7

(d) Desribe various protocols related with TCP/IP reference model. 7

Unit-III

3. (a) Define Digital token. 2

(b) Briefly explain Electronic payment system and its types. 7

(c) Write about electronic fund transfer and working procedure of banking system in e-commerce. 7

(d) What are the security and risks of e-payment system? 7

Unit-IV

4. (a) Define FTP. 2

(b) Explain the working concepts of WWW server. 7

(c) Write short notes on Email and HTTP. 7

(d) Briefly explain Web Browsers with common Gateway interfacing. 7

Unit-V

5. (a) Define Mobile Computing? 2

(b) Briefly explain Mobile Computing Framework. 7

(c) Explain Wirelesss delivery technology & switching methods. 7

(d) Explain different cellular data communication protocols with examples. 7

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B. E. (Seventh Semester) Examination, Nov.-Dec. 2021

(New Scheme)

(CSE, IT Branch)

OBJECT ORIENTED DBMS (OODBMS)

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

*Note : Attempt all the questions. Part (a) from each question is compulsory. Attempt any **two** parts from (b), (c) and (d) from each question. State assumptions. Clearly (if any).*

Unit-I

1. (a) Explain totol participation with example.   2

   (b) Explain the types of attributes used in ER modeling with examples.   7

(c) Draw an ER diagram for keeping track of the exploits of your favorite sports team. You should store the matched played, the scores in each match, the players in each match and individual player a statistics with each match. Summery statistics should be modeled as derived attributes. 7

(d) Explain the constraints on specialization and generalization with examples. 7

Unit-II

2. (a) Explain object identity with example. 2

(b) Explain entity type hierarchies and inheritance type concept in object oriented database with example. 7

(c) Explain persistent programming language. How it can be distinguished from languages with embedded SQL? 7

(d) Explain OODBMS architecture with example. 7

Unit-III

3. (a) Explain abstract data type in SQL3 with example. 2

(b) Explain the concept of query optimization for relational databases. 7

(c) Explain nested relation with example. 7

(d) State the differences between RDBMS, OODBMS and ORDBMS. 7

Unit-IV

4. (a) Explain replication with example. 2

(b) Explain the architecture of parallel databases. 7

(c) Explain data fragmentation with example. 7

(d) Explain how recovery can be done in distributed database. 7

Unit-V

5. (a) Explain the difference between XML and HTML. 2

(b) Explain the structure of XML data with example. 7

(c) Explain the need of XML in web design. 7

(d) Write short notes on :   7

    (i) Temporal databases

    (ii) Spatial databases.

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B. E. (Seventh Semester) Examination, Nov.-Dec. 2021

(New Scheme)

(CSE, IT Branch)

CLOUD COMPUTING

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

*Note : Attempt all questions carrying equal marks. Part (a) is compulsory from each question & carries 2 marks. Attempt any **two** parts from part (b), (c) and (d) of each question which carries 7 marks.*

Unit-I

1. (a) What does the 'Cloud' refer to in Cloud Computing. 2

   (b) Define cloud computing and identify its core features. 7

(c) Explain the most common scenarios where : 7

(i) aprivate cloud is preferred over a public cloud

(ii) a public cloud is preferred over private cloud

(d) Cloud computing has evolved from various computing model like mainframe computing, client-server computing, cluster computing and grid computing. Discuss the feature of all these computing models and explain how the cloud model emerged from these computing models. 7

Unit-II

2. (a) Define security governance. 2

(b) What are the layers in security architecture design? Explain. 7

(c) Explain in detail about software as a service security. 7

(d) Explain third party authentication using the Oauth protocol. What is open ID. 7

Unit-III

3. (a) Define anything-as-a-service. 2

(b) Compare SaaS, IaaS, PaaS. 7

(c) What are the functionalities provided by MAAS service providers and CAAS service providers? 7

(d) Explain SAAS with example. 7

Unit-IV

4. (a) Mention the full form of the following abbreviations : 2

(i) SOAP

(ii) REST.

(b) Enlist the difference between MSP and cloud service provider. 7

(c) Explain SOA alongwith its advantages. 7

(d) Write a short note on open source software. 7

Unit-V

5. (a) Define virtual machine manager. 2

(b) What is Virtualization? What are the advantage of virtualization? 7

(c) Write short notes on : 7

    (i)   Storage virtualization ;

    (ii) Network virtualization

(d) What are Smart Phones? List the features of mobile operating system for smart phones.   7

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B. E. (Seventh Semester) Examination, Nov.-Dec. 2021

(New Scheme)

(CSE Engg. Branch)

CRYPTOGRAPHY & NETWORK SECURITY

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : Attempt all questions. Part (a) is compulsory and carries 2 marks. Attempt any two parts from (b), (c) and (d) and carries 7 marks each.

Unit-I

1. (a) Define cryptanalaysis.

   (b) Explain briefly DES.

(c) Write a brief note on model for Network Security.

(d) Encrypt the message "She is listening" with the key "PASCAL" using vigenere Cipher.

Unit-II

2. (a) Define symmetric ciphers.

(b) Explain briefly one round of AES.

(c) Explain key distribution scheme in symmetric key encryption.

(d) Write a brief note on RC4.

Unit-III

3. (a) Define asymmetric Cipher.

(b) Write a brief note on HMAC.

(c) Write a brief note on MD5.

(d) Explain the working of digital signature.

Unit-IV

4. (a) Define Euler's theorem.

(b) Write a brief note on working of Diffie-Hellman key exchange algorithm.

(c) Explain RSA algorithm with an example.

(d) Explain ANSI×9.17 pseudorandom number generator.

Unit-V

5. (a) Define virus.

(b) Write a brief note on Kerberos authentication system.

(c) Write a brief note on :

(i) SSL/TLS

(ii) Firewalls

(d) Write a brief note on Secure Electronic Transaction.