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M.Sc. DEGREE EXAMINATION, DEC. – 2016

(Second Year)

COMPUTER SCIENCE

User Interface Design

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

Section - A   *(3 x 15 = 45)*

Answer any Three of the following

Q1) Discuss the characteristics of Graphics interface in detail.

Q2) Discuss with suitable examples the human characteristics in design.

Q3) Discuss in detail about presentation controls.

Q4) Discuss in detail about information search technique.

Q5) Discuss the role of multimedia in user interface design.

Section - B   *(5 x 4 = 20)*

Answer any Five of the following

Q6) What are the kinds of graphical menus? Explain any five in detail.

Q7) Discuss in detail about characteristics and principles of web interface design.

Q8) Explain any five guidance and assistance mechanisms.

Q9) What are the kinds of usability testing? Explain any four in detail.

Q10) Discuss the need and importance of prototypes.

Q11) Elaborate on the Icons their types and characteristics.

Q12) Discuss about screen based presentation controls used in user interface design.

Q13) Explain the components of windows.

Section - C *(5 x 1 = 5)*
Answer all of the following

Q14) What do you mean by visualization?

Q15) List the various device based controls.

Q16) What is direct manipulation?

Q17) What are the components of web navigation system?

Q18) Write the merits of cascade menus.

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(DMCS22)

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M.Sc. DEGREE EXAMINATION, DEC. – 2016
(Second Year)
COMPUTER SCIENCE
Computer Graphics

Time : 3 Hours   Maximum Marks : 70

Section - A   *(3 x 15 = 45)*
Answer any Three questions

Q1) Explain circle and ellipse generation algorithms.

Q2) Elaborate the polygon clipping algorithm of Sutherland-Hodgeman.

Q3) Describe the mid-point ellipse algorithm.

Q4) Explain 3D transformations in detail.

Q5) What are the various cubic spline interpolation methods? Explain.

Section - B   *(5 x 4 = 20)*
Answer any Five questions

Q6) Write about Area sub-division method.

Q7) Explain Raster Scan Display.

Q8) Discuss about flood fill algorithm.

Q9) Explain depth sorting visible surface detection method.

Q10) Explain visible line identification.

Q11) What are input devices used for graphical input? Explain.

Q12) What is perspective projection? Explain.

Q13) Explain 3D transformations clearly.

Section - C   *(5 x 1 = 5)*
Answer all questions

Q14) What is Aspect Ration? Explain.

Q15) What is anti-aliasing?

Q16) What is Frame buffer.

Q17) Explain Interlacing.

Q18) What is Shear?

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(DMCS23)

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M.Sc. DEGREE EXAMINATION, DEC. – 2016
(Second Year)
COMPUTER SCIENCE
Object Oriented Analysis & Design

Time : 3 Hours   Maximum Marks : 70

Section - A   *(3 x 15 = 45)*
Answer any Three questions

Q1) Explain software development process in detail.

Q2) Explain about Jackobson methodology of development.

Q3) Describe the concept of functional modeling.

Q4) Explain the procedure to identify classes and use cases.

Q5) Describe about system analysis and design.

Section - B   *(5 x 4 = 20)*
Answer any Five questions

Q6) Briefly describe about usability test.

Q7) Discuss about prototyping model.

Q8) Write the different steps to use in design pattern.

Q9) What is UML? State its importance.

Q10) Write a short note on preview of a methodology.

Q11) Write about use-case driven approach.

Q12) What is micro development process in Booch methodology?

Q13) Write a note on OMT dynamic model.

Section - C   *(5 x 1 = 5)*

Answer all questions

Q14) Define object.

Q15) What is activity?

Q16) Write about state chart diagram.

Q17) Polymorphism.

Q18) Association.

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(DMCS24A)

M.Sc. DEGREE EXAMINATION, DEC. – 2016
Second Year
COMPUTER SCIENCE
Advanced Computer Architecture

Time : 3 Hours

Maximum Marks : 70

Section - A

(3 x 15 = 45)

Answer any Three questions

Q1) Explain parallelism in uniprocessor systems in detail.

Q2) Explain the architecture of CYBER – 205.

Q3) Explain the process synchronization mechanisms.

Q4) Explain the systolic array architecture in detail.

Q5) Explain mesh connected IILIAC network with N=16

Section - B

(5 x 4 = 20)

Answer any Five questions

Q6) Discuss parallel processing applications.

Q7) Discuss the characteristics of cache memory.

Q8) Discuss about parallel memory allocation.

Q9) Explain about associative memory organization in detail.

Q10) Discuss about cross bar switch and multiport memories.

Q11) Discuss about language features to exploit parallelism.

Q12) Discuss about system deadlock problems.

Q13) Discuss about static data flow computers.

Q14) Discuss the architecture of C.mmp multiprocessor system.

Section - C   *(5 x 1 = 5)*

Answer all questions

Q15) Define parallel processor.

Q16) Define SIMD array processor.

Q17) Define switch.

Q18) Define operating system.

Q19) Define deadlock.

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(DMCS24B)

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M.Sc. DEGREE EXAMINATION, DEC. – 2016
COMPUTER SCIENCE
Second Year
Microprocessor & Applications

Time : 3 Hours   Maximum Marks : 70

Section - A   *(3 x 15 = 45)*
Answer any Three of the following

Q1) Explain 8086 architecture.

Q2) Explain various types of addressing modes.

Q3) Draw and explain instruction format. Explain data transfer instructions.

Q4) Explain NOP & HLT instructions.

Q5) Explain various modes of data transfer.

Section - B   *(5 x 4 = 20)*
Answer any Five of the following

Q6) Explain Flag initiated instructions.

Q7) Explain virtual memory.

Q8) What is semaphore?

Q9) What is procedure sharing.

Q10) Discuss about shift and rotate instructions.

Q11) What is microprocessors and micro controllers?

Q12) What is linking?

Q13) Differentiate direct and indirect addressing mode.

Section - C   *(5 x 1 = 5)*
Answer all of the following

Q14) What is peripheral?

Q15) Define instruction.

Q16) Define Assembler.

Q17) Define interrupt.

Q18) Define stack.

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(DMCS25A)

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M.Sc. DEGREE EXAMINATION, DEC. – 2016
Second Year
COMPUTER SCIENCE
Cryptography & Network Security

Time : 3 Hours   Maximum Marks : 70

Section - A   *(3 x 15 = 45)*
Answer any Three of the following

Q1) Explain Playfair Cipher and polyalphabetic ciphers and also state an example for each.

Q2) Explain DES algorithm.

Q3) Explain different types of Key Distribution Techniques in detail.

Q4) Explain the applications of prime numbers in network security. Explain Miller Rabin algorithm.

Q5) What is a Firewall? State its design principles.

Section - B   *(5 x 4 = 20)*
Answer any Five of the following

Q6) Explain Onetime Pad. State its pros and cons.

Q7) Explain Key expansion schedule of AES algorithm.

Q8) Explain RC4 algorithm.

Q9) Explain RSA algorithm.

Q10) Explain Diffie-Hellman Key Exchange algorithm.

Q11) Explain ECB and CBC block cipher modes of operations.

Q12) Explain different types of passive attacks.

Q13) Briefly explain MD5 algorithm.

Section - C   *(5 x 1 = 5)*
Answer all questions

Q14) What is Public-key cryptography?

Q15) What is a Nonce?

Q16) What is Euler's Totient function?

Q17) What is confidentiality?

Q18) Define Honey pot.

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(DMCS25B)

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M.Sc. (Final) DEGREE EXAMINATION, DEC. – 2016
(Second Year)
COMPUTER SCIENCE
(Paper – V): TCP/IP

Time : 3 Hours   Maximum Marks : 70

Section - A   *(3 x 15 = 45)*
Answer any Three questions

Q1) Explain about TCP/IP Protocol Suit and the underlying technologies.

Q2) Explain in detail the Flow Control and Error Control.

Q3) Explain in details Unicast routing protocols.

Q4) Explain the concept of Dynamic Host Configuration Protocol.

Q5) Explain in detail the Network Virtual Terminal and its character set.

Section - B   *(5 x 4 = 20)*
Answer any Five questions

Q6) What is subnetting and supernetting.

Q7) Write about Multicast Routing Protocols.

Q8) Write a short notes on DNS.

Q9) Write about routing table and routing module.

Q10) Discuss on 'Direct versus Indirect Delivery'.

Q11) Discuss on 'static versus Dynamic Routing'.

Q12) Write about client-server model.

Q13) Write about network virtual terminal.

Section - C   *(5 x 1 = 5)*

Answer all questions

Q14) Write about MOSPF?

Q15) What is meant by BOOTP?

Q16) What is concurrency?

Q17) What is the TCP operation?

Q18) Write about IGMP messages.

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(DMCS26)

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M.Sc. DEGREE EXAMINATION, DEC. – 2016
Second Year
COMPUTER SCIENCE
Data Ware Housing & Data Mining

Time : 3 Hours   Maximum Marks : 70

Section - A   *(3 x 15 = 45)*
Answer any Three questions

Q1) Explain three tier data warehouse of the architecture in detail.

Q2) Explain star, snow flakes and fact constellations schemes for multidimensional data model.

Q3) Explain the methods for data cleaning in detail.

Q4) Explain ETL architecture in detail.

Q5) Explain the process of indexing the warehouse.

Section - B   *(5 x 4 = 20)*
Answer any Five questions

Q6) Differentiate OLTP WITH OLAP.

Q7) Discuss about meta data repository.

Q8) What is the task of DBA in OLTP system to connect ware house system.

Q9) Discuss the architecture of OLAM.

Q10) Discuss in detail about managing the data ware housing project.

Q11) Explain physical data ware house.

Q12) Explain data integration and transformation.

Q13) Discuss about characterization and discrimination.

Q14) Discuss the steps involved in data mining when viewed as process knowledge discovery

Section - C   *(5 x 1 = 5)*

Answer all questions

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Q15) Define relational data base.

Q16) Define data ware house.

Q17) Define data mining.

Q18) Define data cube.

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(DMCS27A)

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

M.Sc. DEGREE EXAMINATION, DEC. – 2016
(Second Year)
COMPUTER SCIENCE
Embedded Systems

Time : 3 Hours   Maximum Marks : 70

Section - A   *(3 x 15 = 45)*
Answer any Three of the following

Q1) Explain the design procedure of embedded systems.

Q2) Explain about RTOS in detail.

Q3) Explain about software and hardware interrupts along with their priority handling mechanism.

Q4) Are all operating systems are RTOS by their nature? Explain.

Q5) Explain about various operating system services.

Section - B   *(5 x 4 = 20)*
Answer any Five of the following

Q6) What is microprocessor and macro processor?

Q7) What is an interrupt? Explain its types.

Q8) What is Mutual exclusion?

Q9) What is an Embedded Software?

Q10) What is a deadlock?

Q11) Explain the design metrics of ES.

Q12) What is RTOS?

Q13) Explain data flow models.

Section - C

(5 x 1 = 5)

Answer all questions

Q14) What is Mail box?

Q15) What is FPGA?

Q16) What is priority interrupt?

Q17) What is semaphore?

Q18) What is port?

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(DMCS27B)

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M.Sc. DEGREE EXAMINATION, DEC. – 2016

(Second Year)

COMPUTER SCIENCE

Image Processing

Time : 3 Hours Maximum Marks : 70

Section - A (3 x 15 = 45)

Answer any Three questions

Q1) Define Sampling and Quantization and explain their types.

Q2) Explain about gray level transformations.

Q3) Explain image compression models.

Q4) Explain in detail spatial filtering.

Q5) Discuss in detail image segmentation.

Section - B (5 x 4 = 20)

Answer any Five questions

Q6) Write about linear and non-linear operations.

Q7) Describe histogram pre-processing.

Q8) Explain edge detection.

Q9) Explain region based segmentation.

Q10) Write about the basics of Spatial filtering.

Q11) Explain arithmetic operations performed on images.

Q12) State the use of motion in segmentation.

Q13) Discuss about image sensing and acquisition.

Section - C

(5 x 1 = 5)

Answer all questions

Q14) What is a filter.

Q15) What is error free compression.

Q16) Define persistence.

Q17) What is scan code?

Q18) What is thresholding?

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(DMCS28A)

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

M.Sc. DEGREE EXAMINATION, DEC. – 2016
(Second Year)
COMPUTER SCIENCE
Artificial Intelligence

Time : 3 Hours   Maximum Marks : 70

Section - A   *(3 x 15 = 45)*
Answer any Three questions

Q1) Describe the 3 programs to play tic-tac-toe.

Q2) Explain A* algorithm and list its advantages.

Q3) Explain DFS and BFS in detail.

Q4) Describe the architecture of expert systems. Also explain the characteristic features.

Q5) Explain about Semantic nets and frames.

Section - B   *(5 x 4 = 20)*
Answer any Five questions

Q6) Explain different programs to play tic-tac-toe.

Q7) Write a short note on conflict resolution.

Q8) Discuss about knowledge control.

Q9) Write the production rules for water-jug problem.

Q10) Describe the steepest hill climbing algorithm.

Q11) Write a short note on global ontology.

Q12) What are the issues of knowledge representation?

Q13) Write about semantic nets.

Section - C   *(5 x 1 = 5)*

Answer all questions

Q14) What is forward reasoning?

Q15) What is Al technique?

Q16) Define Script.

Q17) What is matching?

Q18) What are commonsense ontologies?

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(DMCS28B)

M.Sc. DEGREE EXAMINATION, DEC. – 2016
(Second Year)
COMPUTER SCIENCE
Compiler Design

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

Section - A   *(3 x 15 = 45)*
Answer any Three of the following

Q1) Write an algorithm for constructing a DFA for NFA and prove.

Q2) Construct parsing table for the given grammar? E->E+T/T, T->T*F/F, F->id

Q3) Construct LR parsing table for dangling else grammar.

Q4) Write an algorithm for construction of dependency graph for a given parse tree with an example.

Q5) Explain Heap storage allocation strategy in run time environment.

Section - B   *(5 x 4 = 20)*
Answer any Five of the following

Q6) Write an algorithm for the construction of DFA from a regular expression r with example.

Q7) Explain the concept of bottom-up evaluation of s-attributed definitions in syntax directed translation phase.

Q8) Write an algorithm for testing the structural equivalence of two type expressions.

Q9) Explain call by reference and copy-restore parameter passing mechanisms.

Q10) Explain the control flow translations of Boolean expressions in intermediate code generation phase.

Q11) Explain the role of register allocation and assignment in code generation phase.

Q12) Explain the concept of peephole optimization in code generation phase.

Q13) Write an iterative solution of data flow equations in code optimization phase.

<u>Section - C</u>   *(5 x 1 = 5)*
Answer all of the following

Q14) Define LL and LR grammars.

Q15) Define inherited attributes.

Q16) Define synthesized attributes.

Q17) Write quadruple and triple representations of three address statements.

Q18) Explain about activation trees.

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