

(DMSIT01)

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M.Sc. DEGREE EXAMINATION, MAY – 2017

(First Year)

INFORMATION TECHNOLOGY

Basics of Information Technology

Time : 3 Hours

Maximum Marks : 70

SECTION – A

(3 × 15 = 45)

Answer three questions

- Q1)** Discuss in detail about IT support at different organizational levels.
- Q2)** Explain about hierarchy of computers.
- Q3)** Discuss different categories of programming languages and their features.
- Q4)** What is data model? Explain about different logical data models and their characteristics.
- Q5)** What is internet? Discuss different services provided by internet.

SECTION – B

(5 × 4 = 20)

Answer five questions

- Q6)** Write about various components of information systems.
- Q7)** Briefly explain about hierarchical organizational structure with neat diagram.
- Q8)** Describe the components of CPU.
- Q9)** Differentiate system software and application software.
- Q10)** Write short notes on traditional file environment.
- Q11)** Describe the telecommunication services.
- Q12)** Write about different types of data transmission.
- Q13)** Describe about internet challenges.

SECTION – C (5 × 1 = 5)

Answer all questions

Q14) Differentiate RAM and ROM.

Q15) Define operating system.

Q16) What is LAN?

Q17) What is extranet?

Q18) What is data warehouse?



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M.Sc. DEGREE EXAMINATION, MAY – 2017

First Year

INFORMATION TECHNOLOGY

Computer Networks

Time : 3 Hours

Maximum Marks : 70

Section - A

(3 x 15 = 45)

Answer any three of the following

- Q1)** Discuss about different layers of TCP/IP protocol.
- Q2)** Explain about LAN architecture and LAN topologies in detail.
- Q3)** What are the different approaches in packet switching? Explain them in detail.
- Q4)** Write about Routing Mechanisms? Explain about any routing algorithm with an suitable example?
- Q5)** Explain in detail about the Data Encryption Standard.

Section - B

(5 x 4 = 20)

Answer any five questions

- Q6)** What are the three criteria necessary for an effective and efficient network?
- Q7)** What is baseband transmission? Briefly explain it.
- Q8)** Briefly explain multiple access mechanism.
- Q9)** Write note on routing in Ad Hoc Networks.

Q10) Write short notes wireless LAN.

Q11) What is role of DNS in computer networks?

Q12) What are the advantages and disadvantages of public key encryption?

Q13) Write about IP address calculation.

Section - C

(5 x 1 = 5)

Answer all questions

Q14) Define flooding.

Q15) What is meant by congestion?

Q16) Define multiplexing.

Q17) Define checksum.

Q18) Define public key.

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M.Sc. DEGREE EXAMINATION, MAY – 2017

First Year

INFORMATION TECHNOLOGY

Computer Organisation

Time : 3 Hours

Maximum Marks: 70

SECTION - A

Answer Any Three Questions (3×15=45)

- Q1)** Explain about the Functional View and Structure of the Computer.
- Q2)** Explain about Computer Components: Top-Level View.
- Q3)** Explain about magnetic diskdata write and data read operations.
- Q4)** Use the Booth algorithm to multiply 23 (multiplicand) by 29 (multiplier),
Where each number is represented using 6 bits.
- Q5)** Explain about the Register Organization of a processor.

SECTION - B

Answer Any Five Questions (5×4=20)

- Q6)** Explain about the designing for Performance based on Microprocessor Speed.
- Q7)** Explain about Little's law.
- Q8)** Explain about Multiple-Bus Hierarchies.
- Q9)** Explain about PCIe Transaction Layer.
- Q10)** Explain about Winchester Disk Format.
- Q11)** Assume numbers are represented in 8-bit twos complement representation.
Show the calculation of the following: (a)6 + 13 (b)-6 + 13
- Q12)** Explain about Pipeline Hazards.

Q13) Explain about the execution modes supported by the ARM architecture.

SECTION - C

Answer All Questions

(5×1=5)

Q14) What is a stored program computer?

Q15) List and briefly define the possible states that define an instruction execution.

Q16) What common characteristics are shared by all RAID levels?

Q17) What is positive overflow and exponent overflow?

Q18) What is a program status word?



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M.Sc. DEGREE EXAMINATION, MAY – 2017

First Year

INFORMATION TECHNOLOGY

Data Structures With C

Time : 3 Hours

Maximum Marks : 70

SECTION – A

(3 × 15 = 45)

Answer any three questions.

- Q1)** What is two dimensional array? How to create, initialize and access array elements? Consider the array int a [10] [10] and the base address 2000, then calculate the address of the array a[2][3] in the row and column major ordering.
- Q2)** What is queue? Describe different queue operations. Write a subroutine to implement queue operations using arrays.
- Q3)** How to create node in double lined list? Discuss different operations in double linked list.
- Q4)** Write a routine for insertion sort illustrate for data n = 10
10, 20, 13, 25, 17, 15, 8, 3, 5, 4
- Q5)** Show how the following integers can be inserted in an empty binary search tree in the order they are given : 75, 36, 12, 91, 110, 45, 60, 20, 114, 8. Draw the tree in each step and also mention its pseudo code.

SECTION – B

(5 × 4 = 20)

Answer any Five questions

- Q6)** What is meant structure in C? How to create structure and access structure elements?
- Q7)** Write a C program to demonstrate concatenation of two strings.
- Q8)** Convert the following infix expression into equivalent post fix expression using stack :
 $((a + b) * c - (d - e)) / (f + g)$

Q9) What is recursion? Write C program to implement factorial of given number using recursion.

Q10) Write about circular linked list.

Q11) Construct binary tree from the following information.

In – order : 50, 10, 30, 90, 60, 80, 40, 20, 70

Pre - order : 60, 10, 50, 90, 30, 40, 80, 70, 20

Q12) Write C code to implement linear search.

Q13) Write about Bubble sort with example.

SECTION – C

(5 × 1 = 5)

Answer all questions

Q14) What is pointer?

Q15) Define de – queue.

Q16) Define height and width of tree

Q17) Define complete binary tree

Q18) Define binary search.



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M.Sc. DEGREE EXAMINATION, MAY – 2017

First Year

INFORMATION TECHNOLOGY

Operating Systems

Time : 3 Hours

Maximum Marks: 70

SECTION - A

Answer Any three questions

(3 × 15 = 45)

Q1) Give the detail description of the system structure of modern operating system.

Q2) Consider the following five processes, with the length of the CPU burst time given in milliseconds.

| Process | P1 | P2 | P3 | P4 | P5 |
|------------|----|----|----|----|----|
| Burst Time | 10 | 1 | 2 | 1 | 5 |
| Priority | 3 | 1 | 5 | 4 | 2 |

Draw four Gantt charts illustrating the execution of these processes using FCFS, a non-preemptive priority (a smaller priority number implies a higher priority), and RR (quantum = 1) scheduling.

Q3) What is deadlock detection and recovery? Describe the method for recovering from deadlock.

Q4) Explain in detail about paging and segmentation.

Q5) Write about disk management and swap-space management in detail

SECTION - B

Answer Any five questions

(5 × =20)

- Q6)** Write about time sharing and batch systems.
- Q7)** What is use of system call? Describe various types of system calls.
- Q8)** What is thread? Describe different thread models.
- Q9)** Briefly explain about External and internal Fragmentation?
- Q10)** Write note on protection strategies provided for files.
- Q11)** What is demand paging and what is its use?
- Q12)** What is a file? List the various file attributes.
- Q13)** Describe various program threats in operating systems.

SECTION – C

Answer all questions

(5 × 1 =5)

- Q14)** Define spooling.
- Q15)** Define Critical section.
- Q16)** What is meant by mutual exclusion?
- Q17)** What are overlays?
- Q18)** Define worm and virus.

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M.Sc. DEGREE EXAMINATION, MAY – 2017

First Year

INFORMATION TECHNOLOGY

Database Management Systems

Time : 3 Hours

Maximum Marks: 70

SECTION - A

Answer Any Three Questions (3×15=45)

- Q1)** Discuss the components of information systems and database management systems.
- Q2)** State and explain about classification of data models.
- Q3)** What is normalization? Explain normalization of invoice and reorder reports.
- Q4)** Explain about integrated database management system (IDMS) and its commands.
- Q5)** What is meant by database recovery? Explain about forward and backward recovery mechanisms.

SECTION - B

Answer Any Five Questions (5×4=20)

- Q6)** Write about one – to – one and one – to – many associations with example.
- Q7)** Briefly explain about the indexed sequential file organization.
- Q8)** What is meant by physical, relative and logical key pointers?
- Q9)** Write a procedure to mapping from conceptual data model to relational data model.

Q10) Write short note on data volume and usage analysis.

Q11) Describe different interactive SQL DDL commands.

Q12) Explain about PC – FOCUS database description.

Q13) Describe different security mechanisms in brief.

SECTION - C

Answer All Questions

(5×1=5)

Q14) Define decision support system.

Q15) Define conceptual data model.

Q16) What is relational algebra?

Q17) Define deadlock.

Q18) Define concurrency.

