BIT/ND-15

B. Sc. IT (5th Semester)

Operating System UNIX and Shell Programming

(BIT-501)

Time Allowed: 2½ Hours **Max.Marks:80**

Min Pass Marks:32

Note: Attempt all questions from Section A& B and only two questions from Section C.

SECTION-A: (Very short answer type questions to be answered in about 20 words) **8×2=16**

1. Write about the following terms?
   i) Differentiate between Multi-programming and Multiprocessing.
   ii) System Call
   iii) Race Condition
   iv) PCB
   v) Dynamic Memory Allocation
   vi) Segmentation
   vii) Write the Syntax and usage of *pwd* command?
   viii) Write the Syntax and usage of *grep* command?

SECTION-B: (Short answer type questions to be answered in about 250 words) **4×8=32**

2. What are main advantages of a multiprogramming system?
3. How are critical regions and the principle of mutual exclusion related to each other?
4. Explain difference between internal and external fragmentation?
5. Write a shell script to check whether a number is even or odd?

SECTION-C: (Long answer type questions to be answered in about 500 words) **2×16=32**

6. Discuss the common services provided by an operating system?
7. Explain the concept of semaphore and its solution to mutual exclusion problem?
8. Discuss the demand paging scheme with a suitable example.
9. Discuss the structure of UNIX operating system?

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B. Sc. IT (5th Semester)

DATA COMMUNICATION (BIT-502)

Time Allowed: 2½ Hours **Max.Marks:80**

Min Pass Marks:32

Note: Attempt all questions from Section A& B and only two questions from Section C.

SECTION-A: (Very short answer type questions to be answered in about 20 words) **8×2=16**

1. Explain the following:
   i) Difference between bit rate and baud rate.
   ii) Nyquist's theorem concept.
   iii) Define alternation. attenuation
   iv) What is the importance of twist in UTP.
   v) Define STDM.
   vi) What is CRC.
   vii) Define quadrature.
   viii) Define bandwidth.

SECTION-B: (Short answer type questions to be answered in about 250 words) **4×8=32**

2. Since Parallel Communications transmit bits simultaneously, why not design parallel communications with an arbitrarily large no. of parallel lines to decrease transmission time?
3. Explain the three modes for optical fibre communications and compare them.
4. State and explain the theoretical concept of Shannon's law for channel capacity.
5. How does the full duplex communication prevent signals travelling in opposite directions from colliding?

SECTION-C: (Long answer type questions to be answered in about 500 words) **2×16=32**

6. If a satellite orbital height is fixed, why is it not possible to change the time required to orbit the earth by changing the speed of the satellite?
7. Explain the difference between FDM and TDM.
8. Explain Nyquist theorem for noiseless channel. What is the maximum data rate of a noiseless channel having bandwidth 3 KHz and using two signal levels? What is the maximum data rate of channel with bandwidth 3000-Hz and a signal to thermal noise ratio of 30dB?
9. Discuss synchronous and Asynchronous data transmission. What are the advantages and disadvantages of each?

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B. Sc. IT (5th Semester)

CORE JAVA PROGRAMMING (BIT-503) **Max.Marks:80**

Time Allowed: 2½ Hours **Min Pass Marks:32**

Note: Attempt all questions from Section A& B and only two questions from Section C.

SECTION-A: (Very short answer type questions to be answered in about 20 words) **8×2=16**

1. i) Give two differences between C & C++.
   ii) Define multithreading.
   iii) Define byte code.
   iv) List access specifiers in Java.
   v) Define package.
   vi) Differentiate between bug and error.
   vii) Define Object.
   viii) Define Inheritance.

SECTION-B: (Short answer type questions to be answered in about 250 words) **4×8=32**

2. Explain the working of Java Virtual Machine. Support your answer with neat and clean diagram.
3. Write a program in Java to check whether the string is palindrome or not. ***(Note: Do not use library functions)***
4. Explain the concept of vectors in Java with the help of example.
5. Explain different types of inheritance in Java. Also why Java does not support multiple inheritance.

SECTION-C: (Long answer type questions to be answered in about 500 words) **2×16=32**

6. Write a program in Java which will check the duplicates in an array and delete these duplicates.
7. Write a program in Java which will demonstrate the use of parameterized and copy constructor in Java.
8. Write a program which will demonstrate the use of interfaces to achieve multiple inheritance.
9. Write a program which will demonstrate the use of exception handling in Java.

B. Sc. IT (5th Semester)

MANAGEMENT INFORMATION SYSTEM (BIT-504)

Max.Marks:80

Time Allowed: 2½ Hours

Min Pass Marks:32

Note: Attempt all questions from Section A& B and only two questions from Section C.

SECTION-A: (Very short answer type questions to be answered in about 20 words) **8×2=16**

1. i) What do you understand by the term information?
   ii) What do you understand by BES?
   iii) What is Strategic Information?
   iv) What is Tactical Information?
   v) Name various stages of Waterfall model?
   vi) What is the role of a Data Dictionary in any system?
   vii) Name any two maintenance procedures that can be employed in a system?
   viii) What do you understand by space planning in MIS?

SECTION-B: (Short answer type questions to be answered in about 250 words) **4×8=32**

2. What are various advantages of Management Information Systems?
3. Explain with relevant examples the concepts of open and closed systems?
4. Draw a Data Flow Diagram for a Hospital Management System?
5. Explain the four stage Model for IS Planning?

SECTION-C: (Long answer type questions to be answered in about 500 words) **2×16=32**

6. What is an Information System? Explain various Information Systems in detail.
7. What do you understand by the term 'System'? Explain various types of systems with examples?
8. Explain in detail the Prototype Model for Software Development.
9. Explain various implementation and Evaluation Strategies for a successful MIS?