Code No.: 70507 | MR17

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

(Affiliated to JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD)
Gundlapochampally (H), Maisammaguda (V), Medchal (M), Medchal-Malkajgiri (Dist), Hyderabad

II B.TECH I SEMESTER SUPPLEMENTARY EXAMINATIONS, NOVEMBER-2019

Subject: **MATHEMATICAL FOUNDATION FOR COMPUTER SCIENCE**

Branch: **CSE&IT**

Time: 3 hours **Max. Marks: 60**

PART – A

Answer ALL questions of the following **5x2M=10 M**

1. Let P(x) denote the statement "x>3." What are the truth values of P(4) and P(2) ?
2. Explain free and bound variables of inference theory of predicate calculus with examples?
3. Explain about Group homomorphism and isomorphism.
4. Find the coefficient of x^9in $(2-x)^{19}$?
5. Find the generating function of the sequence {1, 2, 3, ….}

PART-B

Answer ALL questions of the following **5x10 M= 50M**

1. a) Show that P ∨ (Q ∧ R) and (P ∨ Q) ∧ (P ∨ R) are logically equivalent.

   b) Obtain the PCNF of P ∨ (⅂P ∧ ⅂Q ∧ R).

   OR

2. Without using truth tables prove that ((P ∨ Q) ¬ (¬ P (¬ Q ∨ ¬ R))) ∨ (¬ P¬ Q) ∨ (¬ Q ¬ R) is a tautology.
3. a) Give a List of rules of inferences with their logical implication.

   b) Prove or disprove the validity of the following arguments

   Some dogs are animals.

   Some cats are animals.

   Therefore, some dogs are cats.

   OR

4. a) Define Equivalence relation. Given X={1,2,….7} and R={(x, y)|x-y is divisible by 3}.Show that R is an Equivalence Relation. Write the matrix for and draw the graph for R.

   b) State Binary relation and define the following properties of binary relation with suitable examples. Reflexive, symmetric, transitive, irreflexive and anti-symmetric.
5. a) Let A = {1, 2, 3, 4} and a mapping f : A → A be given by f = {(1,2), (2,3), (3,4), (4,1)}. Find the composite functions f^2, f^3 and f^4.

   b) Explain the words (i) lattice (ii) distributive lattice (iii) Boolean algebras with examples.

   OR

6. a)Find whether the given function is one-one or onto

   A={a,b,c}B={1,2,3,4},f'={(a,1),(b,2),(c,3)}

   b) functions f, g, h, from Z to Z defined by f(X)=X-1, g(x)=3X, h(X)= { 0 if X is even and 1 if X is odd} Determine (f o(g o h))(x) and ((f o g)o h) (x) and verify the f o(g o h)=(f o g)oh

7. a) Prove that $C(n+1, r) = C(n, r-1) + C(n, r)$.

   b) From a group of 10 Professors how many ways can a committee of 5 members be formed so that at least one of Professor A and Professor B will be included?

OR

8. a) In how many ways 20 similar books be placed on 5 different shelves?

   b) How many different outcomes are possible by tossing 10 similar coins?

9. Solve $a_n + 7a_{n-1} + 10\, a_{n-2} = 0$, $n \geq 2$ with $a_0 = 10$, $a_1 = 41$.

OR

10. a) Solve the recurrence relation $a_n - 6\, a_{n-1} + 9\, a_{n-2} = 0$ for $n \geq 2$. Given that $a_0 = 5$, $a_1 = 12$.

    b) Solve the recurrence relation $a_{n+3} = 3a_{n+2} + 4\, a_{n+1} - 12a_n$, for $n \geq 0$, Given that $a_0 = 0$, $a_1 = 11$, $a_2 = -15$.

Code No.: 70519

MR17

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II B.TECH I SEMESTER SUPPLEMENTARY EXAMINATIONS, NOVEMBER-2019

Subject: **LINUX PROGRAMMING**

Branch: IT

Time: 3 hours **Max. Marks: 60**

PART – A

Answer ALL questions of the following **5x2M=10 M**

1. Discuss the significance of filters.
2. Define a shell. List different types of shells.
3. Define File and Inode.
4. What is a shared memory segment with syntax?
5. What are the types of sockets?

PART-B

Answer ALL questions of the following **5x10 M= 50M**

1. a) Explain BRE(Basic Regular expression) character subset used for constructing regular expression in Linux/unix.
   b)Write a command for the following:
   (i) Use sed to delete all blank lines from a file named CSE.txt.
   (ii) Use sed to replace all occurrences of the word UNIX with LINUX in a file named.

   OR
2. Explain the following commands with examples. a) rm b) cp c) rmdir d) tail e) nl f) paste.

3. a) Write a shell script to print the numbers in reverse order.
   b) Explain about usage of redirection operations and command substitution in shell script.

   OR
4. What is bash in shell programming? Write s shell script to delete specified a word in a file.

5. a) What are the standard I/O's in C and explain them with syntax.
   b) Explain about file descriptors with relevant examples.

   OR
6. a) What is process? Explain process states and process attributes in detail.
   b) Explain about hard link and soft link with examples.

7. Explain the below system calls with the help of syntax and examples:
   a) kill b) raise c) alarm d) pause e) abort f) sleep.

   OR
8. a) State the differences between reliable and unreliable signals and signal generation and handling.
   b) Explain the following signal API's.

9. a) Differentiate connection-based sockets and connectionless sockets.
   b) Explain the following socket API. i) socket ii) listen iii) connect iv) read v) write.

   OR
10. Explain about socket addresses and system calls with syntax.

Code No.: 70601

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II B.TECH I SEMESTER SUPPLEMENTARY EXAMINATIONS, NOVEMBER-2019

Subject: **JAVA PROGRAMMING**

Branch: IT

Time: 3 hours **Max. Marks: 60**

PART – A

Answer ALL questions of the following **5x2M=10 M**

1. Explain Garbage Collection.
2. Enumerate the difference between a class and interface.
3. How keyword 'finally' used under Exception Handling?
4. Define panel container.
5. Explain Japplet container.

PART-B

Answer ALL questions of the following **5x10 M= 50M**

1. a) Explain about Java applications.
   b) Define method overloading? Explain about method overloading with an example.

   OR
2. a) Write a short note on Jvm and Jre Jdk.
   b) With an example, discuss about the scope and life time of variables.

3. a) Explain types of Inner classes in JAVA .
   b) Explain about Method overriding with example.

   OR
4. How to implement packages and import using fully qualifier and all classes.

5. **a)** What is exception handling? Explain the benefits of exception handling.
   b) What is the use of try and catch block? Give its syntax.

   OR
6. Explain thread life cycle and thread creation in Java with diagram.

7. a) What is an applet? Discuss in detail about Applet life cycle. (6M)
   b) Explain about types of Applets. (4M)

   OR
8. a) Difference between applications and Applets.
   b) Explain about adapter classes.

9. Explain about flow layout with example.

   OR
10. Explain about border layout with example.

Code No.: **70512** | **MR17**

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II B.TECH I SEMESTER SUPPLEMENTARY EXAMINATIONS, NOVEMBER-2019

Subject: **OPERATING SYSTEM**

Branch: **IT**

Time: 3 hours **Max. Marks: 60**

PART – A

Answer ALL questions of the following **5x2M=10 M**

1. Define Operating System.
2. Define Monitor? Write the draw backs of monitor?
3. What are the conditions required to occur a dead lock?
4. Define Logical address.
5. What do you mean by file sharing?

PART-B

Answer ALL questions of the following **5x10 M= 50M**

1. a) How Communication takes place in Client-Server Systems?
   b) Explain Operating system structure.

OR

2. What are the components of process control block? Explain.
3. Define the term Waiting time and Turnaround time in reference to scheduling algorithms.

OR

4. Define Dining-Philosophers problem and provide its solution using semaphore.
5. How deadlocks can be avoided in a system? Explain Banker's algorithm with an example.

OR

6. Write a short note on the following
   a) Hold and wait b) Mutual exclusion c) Non preemption d) Circular weight.
7. Consider the following page reference string:
   7,2,3, 1,2,5, 3,4,6,7,7,1,0,5,4,6,2,3,0,1.
   Assuming demand paging with three frames, how many page faults would occur for FIFO, LRU and Optimal page replacement algorithms?

OR

8. What is contiguous memory allocation? Explain how memory can be allocated to a process in a contiguous way.
9. a) Discuss about various File access methods.
   b) Define Virus. Explain in brief about types of viruses.

OR

10. a) Explain the three allocation methods in file system implementation. Illustrate with proper diagram.
    b) Explain in detail about various ways of accessing disk storage.