USN ☐☐☐☐☐☐☐☐☐☐   15CS61

Sixth Semester B.E. Degree Examination, Dec.2018/Jan.2019
Cryptography, Network Security and Cyber Law

Time: 3 hrs.   Max. Marks: 80

Note: Answer any FIVE full questions, choosing one full question from each module.

Module-1

1   a.   Define cyber security? Explain the motives of cyber attack.   (05 Marks)
    b.   Use extended Euclidean algorithm to find inverse of 12 modulo 79?   (05 Marks)
    c.   Apply Chineese reminder theorem to find square roots of 3 modulo 143 and list all square
         roots of -3 modulo 143.   (06 Marks)

OR

2   a.   Explain DES construction in detail.   (05 Marks)
    b.   Explain confusion and Diffusion with example.   (05 Marks)
         Explain three sounds SPN Network.   (06 Marks)

Module-2

3   a.   Explain RSA operation in detail.   (06 Marks)
    b.   Explain Public Key Cryptography Standards (PKCS)   (10 Marks)
    c.   Explain Deffie Helman key exchange.

OR

4   a.   If the RSA public key is (31, 3599) what is the corresponding private key.   (05 Marks)
    b.   Explain Basic properties of hash function.   (05 Marks)
    c.   Explain Birthday attack.   (06 Marks)

Module-3

5   a.   Explain identity based encryption.   (05 Marks)
    b.   Explain Needham Schroeder protocol version – 1.   (05 Marks)
    c.   Explain Kerberos with message sequence.   (06 Marks)

OR

6   a.   Explain password based one way authentication.   (05 Marks)
    b.   Explain Needham – Schroeder protocol version – 2.   (05 Marks)
    c.   Explain SSL Handshake protocol.   (06 Marks)

Module-4

7   a.   Explain authentication and master session key exchange in 802.11i?   (05 Marks)
    b.   Explain worm features.   (05 Marks)
    c.   Explain Function of Firewall.   (06 Marks)

OR

8   a.   Explain 802.11i four way handshanke with neat diagram.   (05 Marks)
    b.   List and explain practice issues of Firewall.   (05 Marks)
    c.   Explain DDOS attack prevention and detection.   (06 Marks)

Module-5

9 a. Discuss OFFENES defined as per IC Act 2000 (any Four)   (08 Marks)
   b. Explain briefly certifying authority, suspensions, and revocations of digital signature.
                                                                       (08 Marks)

OR

10 a. What is information technology act? Discuss scope and objectives.   (08 Marks)
   b. Discuss the provisions of the IT act as regards to the following :
       i) Legal Recognition of Electronic records
       ii) Authentication of electronic records.   (08 Marks)

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15CS62

Sixth Semester B.E. Degree Examination, Dec.2018/Jan.2019
Computer Graphics and Visualization

Time: 3 hrs.　　　　　　　　　　　　　　　　　　　　　　　　Max. Marks: 80

Note: Answer any FIVE full questions, choosing one full question from each module.

Module-1

1　a.　What is Computer Graphics? Explain the applications of computer graphics.　**(05 Marks)**
　　b.　Illustrate the sequence of coordinate transformations from modeling coordinates to device-coordinates.　**(05 Marks)**
　　c.　Explain DDA line drawing algorithm with procedure.　**(06 Marks)**

OR

2　a.　Explain the basic operation of CRT with its primary components with neat diagram.
　　　　(08 Marks)
　　b.　Digitize the line by using Bresenham's line drawing algorithm with end-points (20, 10) and (30, 18), having slope 0.8.　**(08 Marks)**

Module-2

3　a.　How do you classify the polygon? Explain OpenGL polygon fill primitives.　**(07 Marks)**
　　b.　Explain translation, scaling, rotation in 2D homogeneous coordinate system with matrix representations.　**(09 Marks)**

OR

4　a.　Explain general scan-line polygon-fill algorithm in detail.　**(10 Marks)**
　　b.　What are the entities required to perform a rotation? Show that two successive rotations are additive.　**(06 Marks)**

Module-3

5　a.　Define clipping. Briefly explain Co-hen Suterland line clipping without code. Discuss four cases.　**(10 Marks)**
　　b.　Describe phong lighting model.　**(06 Marks)**

OR

6 . a.　Clip the polygon given in Fig.Q.6(a), using Suterland Hodgman polygon clipping algorithm with neat sketches.　**(06 Marks)**
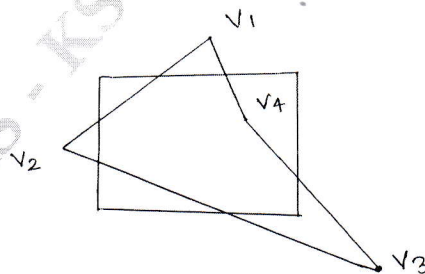

Fig.Q.6(a)

b. Explain the different types of light sources supported by OpenGL. **(06 Marks)**

c. Explain the RGB and CMY color models. **(04 Marks)**

Module-4

7 a. Explain the perspective projections with reference point and vanishing point with neat diagrams. **(10 Marks)**

b. Discuss depth-buffer method with algorithm. **(06 Marks)**

OR

8 a. Demonstrate how transformation from world coordinates to viewing coordinates with matrix representation. **(06 Marks)**

b. Explain orthogonal projections in detail. **(10 Marks)**

Module-5

9 a. Explain the major characteristics that describe the logical behaviour of an input device. Explain how OpenGL provides the functionality of each of the classed of logical input devices. **(08 Marks)**

b. Describe the logical input operation of picking in selection mode. **(04 Marks)**

c. What is DisplayList? Write OpenGL code-segment that generate a blue colored square using display list. **(04 Marks)**

OR

10 a. Explain Bezier spline curves with equations and demonstrate the appearance of Bezier curves for various selection of control points. **(08 Marks)**

b. What is double buffering? How it is implemented in OpenGL. **(04 Marks)**

c. Differentiate event mode with request mode. **(04 Marks)**

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Sixth Semester B.E. Degree Examination, Dec.2018/Jan.2019
System Software and Compiler Design

Time: 3 hrs.   Max. Marks: 80

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

1 a. Explain in detail SIC/XE machine architecture.   **(08 Marks)**
   b. Write an SIC/XE program to calculate DELTA = ALPHA + BETA * GAMMA − 10
                                                                        (08 Marks)

OR

2 a. Write an algorithm for Pass − 1 of an assembler.   **(08 Marks)**
   b. Generate the object code for the following SIC/XE source program.

```
SUM    START   0
FIRST  CLEAR   X
       LDA     #0
       +LDB    #TOTAL
       BASE    TOTAL
LOOP   ADD     TABLE, X
       TIX     COUNT
       JLT     LOOP
       STA     TOTAL
COUNT  RESW    1
TABLE  RESW    2000
TOTAL  RESW    1
       END     FIRST
```

Mnemonic	ADD	JLT	LDA	LDB	LDX	RSUB	STA	TIX	JSUB	J	LDT	CLEAR
opcode	18	38	00	68	04	4C	0C	2C	08	3C	74	B4

                                                                        (08 Marks)

Module-2

3 a. Write PASS-1 and PASS-2 algorithm for a linking loader.   **(08 Marks)**
   b. Explain dynamic linking, automatic library search, loader design options with suitable examples.   **(08 Marks)**

OR

4 a. Write the SIC/XE program for a bootstrap loader with suitable comments. Explain in brief the algorithm of a bootstrap loader.   **(08 Marks)**
   b. Explain in brief (i) MS-DOS linker and (ii) CRAY MPP linker.   **(08 Marks)**

Module-3

5 a. List and explain the various phases of a compiler and show the output of each phase for the expression a := b + c * 25   **(08 Marks)**
   b. Construct transition diagram for recognizing relational operators. Sketch the program segment to implement it, showing the first state and one in final state.   **(08 Marks)**

OR

6 a. Explain input buffering strategy used in lexical analysis phase. **(06 Marks)**
   b. Write the regular definition for unsigned number, also write the transition diagram.
      (06 Marks)
   c. Construct the transition diagrams for a set of keywords like begin, end, if then and else and identifiers and constants along with a minimum set of relational operators. **(04 Marks)**

Module-4

7 a. What is shift reduce parser? Explain the conflicts that may occur during shift reduce parsing.
      (04 Marks)
   b. Construct LALR parsing tables for the grammar shown below using LR(1) items.
      $S' \rightarrow S$
      $S \rightarrow Cc$
      $C \rightarrow cC \mid d$ **(08 Marks)**
   c. How left recursion can be eliminated from grammars? Write down the simple arithmetic expression grammar and rewrite the grammar after removing left recursion. **(04 Marks)**

OR

8 a. What is left factoring? Rewrite the following grammar after "left factored"
      $S \rightarrow iEts \mid iEtSeS \mid a$
      $E \rightarrow b$ **(04 Marks)**
   b. Write a note on the parser generator – yacc. **(04 Marks)**
   c. Construct canonical LR(1) items for the augmented grammar
      $S' \rightarrow S$;
      $S \rightarrow Cc$
      $C \rightarrow cC \mid d$ **(08 Marks)**

Module-5

9 a. Define synthesized and inherited attributes with examples. **(04 Marks)**
   b. Briefly explain the main issues in code generation. **(08 Marks)**
   c. Explain in brief dead code elimination. **(04 Marks)**

OR

10 a. Construct DAG for the expression
      $a + b * (a + b) + c + d$ **(04 Marks)**
   b. Give SDD of a simple calculator. **(04 Marks)**
   c. Write a note on common sub expression. **(04 Marks)**
   d. What are the steps involved in optimization of basic blocks. Explain any 2 steps in brief.
      (04 Marks)

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Sixth Semester B.E. Degree Examination, Dec.2018/Jan.2019
Operating Systems

Time: 3 hrs.   Max. Marks: 80

**Note: Answer any FIVE full questions, choosing
ONE full question from each module.**

Module-1

1   a. Distinguish between the following terms :
     i) Multiprogramming and multitasking
     ii) Multiprocessor systems and clustered systems.   **(04 Marks)**
  b. Analyze modular kernel approach with layered approach with a neat sketch.   **(06 Marks)**
  c. List and explain the services provided by OS for the user and efficient operation of system.
                                        (06 Marks)

OR

2   a. Illustrate with a neat sketch, the process states and process control block.   **(08 Marks)**
  b. Discuss the methods to implement message passing IPC in detail.   **(08 Marks)**

Module-2

3   a. Discuss the benefits of multithreaded programming.   **(04 Marks)**
  b. Consider the following set of processes with CPU burst time (in ms).

Process	Arrival time	Bunt time
P1	0	6
P2	1	3
P3	2	1
P4	3	4

     Compute the waiting time and average turnaround time for the above process using FCFS, SRT and RR (time quantum = 2ms) scheduling algorithm.   **(12 Marks)**

OR

4   a. Illustrate with examples the Peterson's solution for critical section problem and prove that the mutual exclusion property is preserved.   **(08 Marks)**
  b. Show how semaphore provides solution to reader writers problem.   **(08 Marks)**

Module-3

5 a. Define deadlock. Write short notes on 4 necessary conditions that arise deadlocks. **(06 Marks)**

   b. Assume that there are 5 processes PO through P4 and 4 types of resources. At time T_0 we have the following state :

Process	Allocation				Max				Available			
	A	B	C	D	A	B	C	D	A	B	C	D
P_0	0	0	1	2	0	0	1	2	1	5	2	0
P_1	1	0	0	0	1	7	5	0				
P_2	1	3	5	4	2	3	5	6				
P_3	0	6	3	2	0	6	5	2				
P_4	0	0	1	4	0	6	5	6				

   Apply Banker's algorithm to answer the following :
   i)   What is the content of need matrix?
   ii) Is the system in a safe state?
   iii) If a request from a process P1(0, 4, 2, 0) arrives, can it be granted?   **(10 Marks)**

OR

6 a. Write short notes on :
   i)   External and internal fragmentation
   ii) Dynamic loading and linking.   **(04 Marks)**

   b. Analyze the problem in simple paging technique and show how TLB is used to solve the problem.   **(08 Marks)**

   c. Given the memory partitions of 200k, 700k 500k, 300k, 100k, 400k. Apply first fit and best fit to place 315k, 427k, 250k, 550k.   **(04 Marks)**

Module-4

7 a. For the following page reference string 1, 2, 3, 4, 1, 2, 5, 1, 2, 3, 4, 5. Calculate the page faults using FIFO and LRU for memory with 3 and 4 frames.   **(08 Marks)**

   b. Explain demand paging in detail.   **(08 Marks)**

OR

8 a. What do you mean by free space list? With suitable example, explain any 3 methods of free space list implementation.   **(08 Marks)**

   b. Write short notes on linked and indexed allocation method with a neat diagram.   **(08 Marks)**

Module-5

9 a. Given the following sequences 95, 180, 34, 119, 11, 123, 62, 64 with the head initially at track 50 and ending at track 199. What is the total disk traveled by the disk arm to satisfy the request using FCFS, SSTF, LOOK and CLOOK algorithm.   **(12 Marks)**

   b. Write short notes on access matrix and its implementations.   **(04 Marks)**

OR

10 a. Explain the components of Linux system with a neat diagram.   **(08 Marks)**

    b. Describe briefly on Linux Kernel modules.   **(08 Marks)**

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Sixth Semester B.E. Degree Examination, Dec.2018/Jan.2019
Computer Graphics and Visualizations

Time: 3 hrs.　　　　　　　　　　　　　　　　　　　　　　　　　　Max. Marks:100

Note: *Answer FIVE full questions, selecting*
at least TWO questions from each part.

PART – A

1　a. Briefly explain the applications of computer graphics. **(08 Marks)**
　　b. With a neat diagram, explain the working of CRT. **(06 Marks)**
　　c. Describe the graphics geometric pipeline Architecture with a figure. **(06 Marks)**

2　a. List and explain different polygon types in OpenGL. **(06 Marks)**
　　b. Explain stroke text and Raster text with suitable figures and mention how size of the text can be changed in each form of texts. **(06 Marks)**
　　c. Explain Indexed color Model with suitable figure. **(08 Marks)**

3　a. Explain all three input modes with relevant figures. **(09 Marks)**
　　b. Describe the importance of display lists. Explain the OpenGL functions used to define and execute a display list with a suitable example. **(07 Marks)**
　　c. Discuss the functionality of Display Callback (glutDispalyFunc( )) and Idle Callback (glutpostRedisplay( )). **(04 Marks)**

4　a. List and explain different Frames in OpenGL. **(06 Marks)**
　　b. Explain how to define Vertex Arrays and color Arrays to store vertex and color values. **(07 Marks)**
　　c. Explain Affine transformations. **(07 Marks)**

PART – B

5　a. Describe Translation and scaling operations in homogeneous coordinate system with relevant Translation and scaling transformation matrices. **(08 Marks)**
　　b. Write the OpenGL program modules to define a color cube and spin it around arbitrary axes using mouse buttons. **(10 Marks)**
　　c. What are the advantages and Quaternion's? **(02 Marks)**

6　a. What is the use of set_view_ reference_ point ( ), set_view_plane_normal ( ) and glLookAt ( ) functions in setting the camera view? **(06 Marks)**
　　b. Describe two types of simple projection methods. **(12 Marks)**
　　c. Explain glortho ( ) function with syntax. **(02 Marks)**

7　a. Explain 3 types of light-material interactions with figures. **(06 Marks)**
　　b. Describe point sources and spotlight sources with figures. **(06 Marks)**
　　c. Describe Phong Lighting Model. **(08 Marks)**

8　a. Explain Cohen – Sutherland's line clipping algorithm. **(08 Marks)**
　　b. Describe Bresenham's line drawing algorithm. **(08 Marks)**
　　c. What is Hidden surface Removal? Describe scanline algorithm. **(04 Marks)**

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15CS653

Sixth Semester B.E. Degree Examination, Dec.2018/Jan.2019
Operations Research

Time: 3 hrs.

Max. Marks: 80

Note: *Answer any FIVE full questions, choosing*
ONE full question from each module.

Module-1

1 a. Define operations research. Explain the phases of operations research. **(07 Marks)**

   b. A firm manufactures two types of products A and B and sells them at a profit of Rs.2 on type A and Rs.3 on type B. Each product is processed on two machines G and H. Type A requires one minute of processing time on G and two minutes of on H. Type B requires one minute of processing time on G and one minute on H. The machine G is available for not more than 6 hours 40 minutes while H is available for 10 hours during any working day. How many items of Type A and Type B should be produced so that the total profit is maximum? Formulate this problem as LPP. **(05 Marks)**

   c. Using Graphical method solve the following :
   Maximize $Z = 5x_1 + 4x_2$
   Subject to $6x_1 + 4x_2 \leq 24$
   $x_1 + 2x_2 \leq 6$
   $-x_1 + x_2 \leq 1$
   $x_2 \leq 2$
   and $x_1, x_2 \geq 0$. **(04 Marks**

OR

2 a. Old hens can be bought at Rs.2 each and young ones at Rs. 5 each. The old hens lay 3 eggs per week and the young ones lay 5 eggs per week, each egg being worth 30 paise. A hen (young or old) costs Rs.1 per week to feed. You have only Rs.80 to spend for buying hens. How many of each kind should you buy to give a profit of more than Rs.6 per week assuming that you cannot house more than 20 hens? Formulate the problem as an LPP. **(06 Marks)**

   b. Using graphical method solve the LPP :
   Minimize $Z = 20x_1 + 10x_2$
   Subject to $x_1 + 2x_2 \leq 40$
   $3x_1 + x_2 \geq 30$
   $4x_1 + 3x_2 \leq 60$
   and $x_1, x_2 \geq 0$. **(06 Marks)**

   c. Write the meaning of following terms with respect to a LPP :
   i) Feasible solution   ii) Infeasible solution   iii) Optimal solution iv) Unsounded solution. **(04 Marks)**

Module-2

3 a. Explain the steps involved in setting up of a Simplex method. **(08 Marks)**

   b. Solve the following LPP by using Big – M method
   Maximize $Z = 4x_1 + 5x_2 - 3x_3 + 50$
   Subject to $x_1 + x_2 + x_3 = 10$
   $x_1 - x_2 \geq 1$
   $2x_1 + 3x_2 + x_3 \leq 40$
   and $x_1, x_2, x_3 \geq 0$. **(08 Marks)**

OR

4 a. Using Simplex method, solve the following LPP
       Maximize $Z = 4x_1 + 3x_2 + 6x_3$
       Subject to $2x_1 + 3x_2 + 2x_3 \leq 440$
                     $4x_1 + 3x_3 \leq 470$
                     $2x_1 + 5x_2 \leq 430$
       and $x_1, x_2, x_3 \geq 0$.   (08 Marks)

   b. Define basic solution and obtain all the basic solutions to the following system of linear
       equations :
       Maximize $z = x_1 + 3x_2 + 3x_3$
       Subject to $2x_1 + 3x_2 + 4x_3 = 10$
                    $3x_1 + 4x_2 + x_3 = 12$

       Also classify the solutions into
       i)   Basic Feasible Solution
       ii) Non–Degenerate Basic Feasible Solution
       iii) Optimal Basic Feasible Solution.   (04 Marks)

   c. Write the procedure to solve LPP of two-phase Simplex method.   (04 Marks)

Module-3

5 a. Use dual Simplex method to solve LPP,
       Minimize $Z = 2x_1 + 2x_2 + 4x_3$
       Subject to $2x_1 + 3x_2 + 5x_3 \geq 2$
                     $3x_1 + x_2 + 7x_3 \leq 3$
                     $x_1 + 4x_2 + 6x_3 \leq 5$
       and $x_1, x_2, x_3 \geq 0$.   (08 Marks)

   b. Explain the following :
       i) The essence of duality theory
       ii) Primal dual relationship.   (08 Marks)

OR

6 a. Write the procedure to solve LPP of dual Simplex method.   (08 Marks)
   b. Write the dual of the following LPP :

       i) Maximize $Z = 3x_1 - x_2 + x_3$
          subject to $4x_1 - x_2 \leq 8$
                        $8x_1 + x_2 + 3x_3 \geq 12$
                        $5x_1 - 6x_3 \leq 12$
          and $x_1, x_2, x_3 \geq 0$

       ii) Minimize $Z = 2x_2 + 8x_3$
          subject to $3x_1 + x_2 \geq 12$
                        $2x_1 + x_2 + 6x_3 \leq 6$
                        $5x_1 - x_2 + 3x_3 = 4$.
          and $x_1, x_2, x_3 \geq 0$.   (08 Marks)

Module-4

7 a. Find the initial basic feasible solution to the following transportation problem using VAM.

15	10	17	18	2
16	13	12	13	6
12	17	20	11	7
3	3	4	5	

(08 Marks)

   b. Find the optimal solution to the following assignment problem. **(08 Marks)**

		J_1	J_2	J_3	J_4	J_5
	M_1	11	17	8	16	20
	M_2	9	7	12	6	15
Machine	M_3	13	16	15	12	16
	M_4	21	24	17	28	26
	M_5	14	19	12	11	13

Jobs

OR

8 a. Write the procedure of Hungarian method. **(06 Marks)**

   b. There are 3 factories A, B and C. Supply goods to 4 dealers D_1, D_2, D_3 and D_4. The production capacities of these factories are 1000, 700, 900 respectively. The requirement from this dealers are 900, 800, 500 and 400 per month respectively. The per unit returns excluding transportation cost are Rs.8/-, 7/-, 9/- at the 3 factories. The following table gives the unit production cost from the factories to dealers. Determine the optimum solution to maximize the total returns.

	D_1	D_2	D_3	D_4	
A	2	2	2	4	1000
B	3	5	3	2	700
C	4	3	2	1	900
	900	800	500	400	

(10 Marks)

Module-5

9 a. Write short notes on : i) Simulated annealing algorithm i) Tabu search algorithm. **(08 Marks)**

   b. Using dominance concept, obtain the optimal strategies for both the players and determine the value of game. The payoff matrix for the players is given below.

Player B

Player A	2	−2	4	1
	6	1	12	3
	−3	2	0	6
	2	−3	7	7

(08 Marks)

OR

10 a. Define the following with reference to game theory : i) Mixed strategy ii) Two person – zero – sum game iii) Pure strategy iv) Saddle point. **(08 Marks)**

   b. Solve the following game graphically :

Player B

Player A	8	5	−7	9
	−6	6	4	−2

(08 Marks)

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15CS664

Sixth Semester B.E. Degree Examination, Dec.2018/Jan.2019
Python Application Programming

Time: 3 hrs.

Max. Marks: 80

Note: Answer any FIVE full questions, choosing one full question from each module.

Module-1

1   a. Explain the following :
    i)   Skills necessary for a programmer
    ii) Interactive mode
    iii) Short circuit evaluation of expression
    iv) Modulus operator **(04 Marks)**

   b. Mention three types of errors encountered in python programs. Explain the basic building block of python with an example python program to display format number ($F_n = 2^{2n} + 1$) for a 'n' value promoted by the users. **(08 Marks)**

   c. Describe python language support for arithmetic operators. Write a python programs to calculate student result based on 2 exam, 1 sport event and 3 activities conducted in a college with weightage of the activity = 20% and sports = 20% for 50 marks. **(04 Marks)**

OR

2   a. List and give syntax of all python supported conditional statements along with its usage with an example program to check whether given number is positive or negative or zero. **(08 Marks)**

   b. Differentiate between argument and parameter. Illustrate the flow of execution of a python function with an example program to convert given Celsius to Fahrenheit temperature. **(08 Marks)**

Module-2

3   a. Explain while and for loop write a program to generate Fibonacci series up to the given limit by defining FIBONACCI (n) function. **(08 Marks)**

   b. Mention the advantages of continue statement. Write a program to compute only even numbers sum within the given natural number using continue statement. **(08 Marks)**

OR

4   a. Define a string. How it can be traversed though using looping statement? Write a python program to display presence of given substring in main string. **(08 Marks)**

   b. How computational fault or computational errors are handled in python? Show it with an example python program to copy all lines beginning with vowels from FROM.text file to VOWELTEXT.text file retaining other lines. **(08 Marks)**

Module-3

5   a. Describe any two list operations and list methods. Write a python program to accept 'n' numbers from user, find sum all even numbers and product of all odd numbers in entered list. **(08 Marks)**

   b. List merits of dictionary over list. Write a python program to accept USN and marks obtained, find maximum, minimum and students USN who have scored in the range 100-85, 85-75, 75-60 and below 60 marks separately. **(08 Marks)**

OR

6 a. Compare and contrast tuples with lists. Explain the following operations in tuples
  i) Sum of two tuples
  ii) Slicing operators
  iii) Compression of two tuples
  iv) Assignments to variables. **(08 Marks)**
 b. Explain extracting data using regular expressions. Implement a python program to find for lines having '@' sign between characters in a read text file. **(08 Marks)**

Module-4

7 a. How class can be instantiated in python? Write a python program to express instances as return values to define a class RECTANGLE with members width, height, corner_x, corner_y and member function : to find centre, area and perimeter of a rectangle. **(08 Marks)**
 b. Explain init and str method with an example python program. **(08 Marks)**

OR

8 a. Define polymorphism. Demonstrate polymorphism with function to find histogram to count the numbers of times each letters appears in a word and in sentence. **(08 Marks)**
 b. What is a pure function? Write a python program to find duration of event if start and end time is given by defining class TIME. **(08 Marks)**

Module-5

9 a. Explain any 2 socket functions. Explain support for parsing HTML using regular expression with an example program. **(08 Marks)**
 b. Describe a support of security mechanism employed in Internet application with support of API usage with an example program to get four strings and put them in "hidden.PY". **(08 Marks)**

OR

10 a. Write a note on XML. Design python program to retrieve a node present in XML tree. **(08 Marks)**
 b. Brief on structured Query language, with suitable python program explain functions involved in creation of database table in python. **(08 Marks)**

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