NWFP, PUBLIC SERVICE COMMISSION, PESHAWAR.

COMPETITIVE EXAMINATION FOR PROVICIAL MANAGEMANT SERVICE, 2008.

COMPUTER SCIENCE

Time Allowed: 03 Hours **Max. Marks: 100**

Attempt total **five questions**
Attempt **atleast one question** from each section
Each question carries 20 Marks

Section A

Question No. 1 ***(20) Marks***

(A) Suppose we have the following jobs: *(10) Marks*

Job	Arrival time	Burst Time (milliseconds)
1	0	8
2	1	4
3	2	9
4	3	5

Find out the average wait time using **SJF** (Shortest Job First) and **RR** (Round Robin, with time quantum of 7 millisecond) policies.

(B) What are the necessary conditions for deadlock to occur? Explain briefly. *(10) Marks*

Question No. 2 ***(20) Marks***

(A) What is a process? How it is different from a thread? *(10)Marks*

(B) What is difference between uniprogramming and multiprogramming? *(10)Marks*

Question No. 3 ***(20) Marks***

(A) Describe OSI seven layers model and brief functions of each layer *(10) Marks*

(B) What is difference between LAN, WAN and Internet? What is function of Hub, Switch and a Router and at what layer each hardware operates? *(10) Marks*

Section B

Question No. 4 ***(20) Marks***

(A) Write program in C++ to read 10 values in an array (assume that you read all values positive). Then change each even value in the array with its half value and each odd value with its double

value. After change, count how many values are even and how many values are odd. Display this counting. *(10) Marks*

(B) Write a program to generate the following series: *(10) Marks*

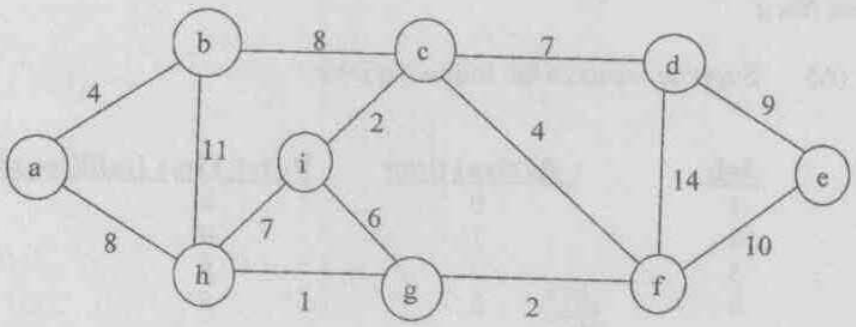
50	40	30	20	10
60	47	34	21	8
70	54	38	22	6

Question No. 5

(20) Marks

(A) Write INSERTION Sort algorithm for an array of n elements. *(10) Marks*

(B) Apply Kruskal's Algorithm to find the Minimum Spanning Tree of the following graph: *(10) Marks*



Section C

Question No. 6

(20) Marks

(A) Normalize the following data up to 3rd Normal Form (3NF). (10) Marks

Result Card

Card No.: 1 Issue date: 3/4/8

Student ID: 111 Student Name: ABC

Student Address: 45-C, XYZ.

Course ID	Course Name	Total Marks	Obtained Marks
101	W	100	70
102	X	100	50
103	Y	100	80
104	Z	100	60
Grand Total		**400**	**260**

(B) Define the following keys: 4+4+2 (10) Marks
Primary Key, Unique Key, Composite Key

Question No. 7

(20) Marks

(A) The window has (Wl, Wr, Wb, Wt) = (10, 20, 15, 40). Viewport has (Vl, Vr, Vb, Vt) = (40, 300, 80, 400). If p(12, 25) lies on window, find the corresponding point p'(x', y') on viewport. *(10) Marks*

(B) Given a point P(10, 10). Rotate this point around Q(5, 5) at 90^0. What will be the new point? *(10) Marks*