

Roll No.....

Time allowed : 3 hours

Maximum marks : 100

Total number of questions : 8 Total number of printed pages : 4

PART—A

(Answer Question No.1 which is compulsory and any two of the rest from this part.)

1. (a) Convert the following from one number system to another number system as indicated against each, and also show your workings clearly :

$$(i) (273)_8 = (\quad)_{10}$$

$$(ii) (93)_{10} = (\quad)_2$$

$$(iii) (0.0111)_2 = (\quad)_{10}$$

$$(iv) (11100110)_2 = (\quad)_8$$

$$(v) (1145)_{10} = (\quad)_{16}$$

(1 mark each)

- (b) Explain *any five* of the following in one or two line(s):

- (i) Black box concept
- (ii) Closed system
- (iii) Entropy
- (iv) Utility (time dimension) of information
- (v) Cybernetic system
- (vi) Computer virus
- (vii) Optical disk.

(1 mark each)

- (c) What factors influence information needs ?

(5 marks)

- (d) What are the components of micro-computer configuration ?

(5 marks)

2. Distinguish between *any five* of the following in the context of information technology :

- (i) 'LAN' and 'WAN'.
- (ii) 'Conventional files systems' and 'database files systems'.
- (iii) 'Batch processing' and 'real time processing'.
- (iv) 'RAM' and 'ROM'.
- (v) 'Windows operating system' and 'UNIX operating system'.
- (vi) 'Multi tasking' and 'time sharing'.
- (vii) 'Primary storage' and 'secondary storage'.

(3 marks each)

3. Write short notes on *any three* of the following :

- (i) Lower level management information needs
- (ii) Roles of information systems
- (iii) Optical character recognition
- (iv) Fifth generation languages
- (v) Computer crimes and controls.

(5 marks each)

4. (a) Discuss the disadvantages of 'file oriented approach'.

(8 marks)

- (b) Discuss the process of 'programme testing'.

(7 marks)

PART—B

(Answer Question No.5 which is compulsory and any two of the rest from this part.)

5. (a) Write short notes on *any three* of the following :
- (i) Limitations of quantitative techniques
 - (ii) Characteristics of an ideal average
 - (iii) Business applications of linear programming
 - (iv) Rank correlation
 - (v) Uses of index numbers.

(4 marks each)

- (b) 60 Students took up a test. The result of those who pass the test is given below :

Marks	4	5	6	7	8	9	10
No. of Students	10	15	10	6	5	3	1

If the average marks of all students are 5.5, then find out the average marks of those students who failed.

(8 marks)

6. (a) Distinguish between 'primary data' and 'secondary data' and discuss various methods of collecting primary data.

(8 marks)

- (b) The mean salary paid per week to 1,000 employees of an establishment was found to be Rs.900. Later on, it was discovered that the salaries of two employees were wrongly recorded as Rs.750 and Rs.365 instead of Rs.570 and Rs.635. Find the corrected mean salary.

(7 marks)

7. (a) Calculate Laspeyre's index numbers from the data given in the following table :

Item	Base Year		Current Year	
	Price (Rs.)	Qty. (Kg.)	Price (Rs.)	Qty. (Kg.)
P	10	80	16	100
Q	6	90	8	100
R	14	60	14	60
S	22	20	28	25
T	18	40	24	50

(8 marks)

- (b) Compute coefficient of correlation (Karl Pearson) from the following data :

X	6	2	10	4	8
Y	9	11	5	8	7

(7 marks)

8. (a) Solve the following linear programming problem graphically :

$$\begin{aligned} \text{Minimise } Z &= 2x + 8y \\ \text{Subject to } &x + 2y \leq 30 \\ &x \leq 20 \\ &y \geq 14 \\ &x, y \geq 0 \end{aligned}$$

(8 marks)

- (b) Discuss the major limitations of linear programming techniques.

(7 marks)

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