

Roll No.....

Time allowed : 3 hours

Maximum marks : 100

Total number of questions : 8

Total number of printed pages : 3

PART—A

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

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

$$\begin{aligned} \text{(i)} \quad (0.8125)_{10} &= (\quad)_2 \\ \text{(ii)} \quad (11001001.110101)_2 &= (\quad)_8 \\ \text{(iii)} \quad (BD8)_{16} &= (\quad)_{10} \\ \text{(iv)} \quad (41)_{10} &= (\quad)_8 \\ \text{(v)} \quad (11010011)_2 &= (\quad)_{10} \end{aligned}$$

(2 marks each)

- (b) Briefly explain **any three** of the following :

- (i) Cybernetic system
- (ii) Black box
- (iii) RAM
- (iv) Plotters.

(2 marks each)

- (c) Discuss the process of generating information.

(4 marks)

- (d) State the characteristics of executive support system.

(4 marks)

2. (a) What is 'batch processing system' ?

(5 marks)

- (b) What is a 'system' ? What are the characteristics of 'management information system' (MIS) ?

(5 marks)

- (c) Explain 'data base management system' (DBMS).

(5 marks)

3. (a) What are the sources of viruses in computers ? How can computers be protected against viruses ?
(5 marks)
- (b) Distinguish between 'information' and 'data'.
(5 marks)
- (c) What is 'object-oriented programming' ?
(5 marks)
4. (a) Write notes on **any two** of the following :
(i) Features of database systems
(ii) Data manipulation language
(iii) Flow charts.
(4 marks each)
- (b) Explain the types of CASE tools.
(3 marks)
- (c) Mention the host facilities of CASE tools.
(4 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) Significance of quantitative techniques
(ii) Laws of statistics
(iii) Merits of census investigation
(iv) Classification of frequency distribution
(v) Types of diagrams.
(4 marks each)
- (b) Find the value of median from the following data :

<i>Daily Wages (Rs.)</i> :	50-60	60-70	70-80	80-90	90-100
<i>No. of Workers</i> :	15	20	15	18	12

(4 marks)
- (c) The mean weight of 20 employees in a company is 65 kgs. The mean weight of 8 employees is 70 kgs. and another 7 employees is 55 kgs. You are required to find out the mean weight of remainder.
(4 marks)

: 3 :

6. (a) Find the harmonic mean (H) of the following :

3, 5, 6, 6, 7, 10, 12

(7 marks)

- (b) Find the standard deviation of weights of 100 male students at a university from the following data :

Weight (Kgs.)	No. of Students
60-62	05
63-65	18
66-68	42
69-71	27
72-74	08
Total	<u>100</u>

(8 marks)

7. (a) What do you mean by 'rank correlation' ? Discuss its merits.

(5 marks)

- (b) What do you understand by 'seasonal variations' ? State the objectives of measurement of seasonal variations.

(5 marks)

- (c) The quantity index for the year 2008 with the year 1999 as the base year is 105, while the quantity index for the year 2008 with the year 2003 as the base year is 140. Find the quantity index for the year 2003 with the year 1999 as the base year.

(5 marks)

8. (a) The price index in the year 2004 was 120 and it increased to 215 in the year 2008. If a worker's wages were Rs.2,400 in the year 2004, determine the dearness allowance payable to the worker in the year 2008.

(7 marks)

- (b) Solve graphically the following linear programming problem :

$$\begin{aligned} \text{Maximize } Z &= 18x + 16y \\ \text{Subject to } &24x + 11y \leq 264 \\ &15x + 25y \leq 375 \\ &x \geq 0 \\ &y \geq 0 \end{aligned}$$

(8 marks)

