

Roll No.....

Time allowed : 3 hours

Maximum marks : 100

Total number of questions : 8

Total number of printed pages : 4

### P A R T – A

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

1. (a) Explain the following in one or two line(s) :

- (i) Binary number
- (ii) Optical disk
- (iii) Third generation languages
- (iv) Control bus
- (v) Information
- (vi) Permanent and temporary systems.

*(1 mark each)*

(b) What are the various systems that support human resource management information system ?

*(6 marks)*

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

- (i)  $(4706)_8 = ( \quad )_{10}$
- (ii)  $(428)_{10} = ( \quad )_{16}$
- (iii)  $(101110)_2 = ( \quad )_8$
- (iv)  $(11010011)_2 = ( \quad )_{16}$
- (v)  $(32)_{10} = ( \quad )_2$

*(2 marks each)*

2. (a) Explain the characteristics of a system.

*(5 marks)*

(b) Discuss the structure components of data base system.

*(5 marks)*

(c) What are the different categories of fifth generation languages (5 GL) ?

*(5 marks)*

3. (a) Differentiate between 'deterministic system' and 'probabilistic system'.
- (b) Explain the four facets of 'utility dimension of information'.
- (c) Differentiate between 'analog computers' and 'digital computers'.
- (d) What are the advantages of 'database systems' ?
- (e) What is 'data dictionary' ?

(3 marks each)

4. Attempt **any three** of the following :

- (i) Explain the meaning of 'operating system'.
- (ii) What are the categories of information requirements of top executives ?
- (iii) Differentiate between 'cache memory' and 'primary memory'.
- (iv) What are the different types of 'application softwares' ?

(5 marks each)

## P A R T – B

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

5. Attempt **any four** of the following :

- (i) What are the characteristics of statistics ?
- (ii) What are the different statistical techniques ?
- (iii) Explain the important features of 'operations research'.
- (iv) Briefly discuss the main sources of secondary data.
- (v) Explain the sample investigation method.

(5 marks each)

6. (a) Explain the 'correlation' and 'co-efficient of correlation'.

(5 marks)

- (b) Find the Karl Pearson co-efficient of correlation between the height and weight of the students of a class in the college on the basis of given information :

<i>Height (in inches)</i>	57	59	62	63	64	65	55	58	57
<i>Weight (in pounds)</i>	113	117	126	126	130	129	119	116	112

(5 marks)

(c) Calculate mean and standard deviation of the following data :

<i>X</i>	10	11	12	13	14	15	16	17	18
<i>f</i>	2	7	10	12	15	11	10	6	3

(5 marks)

7. (a) Represent the following data by means of a histogram :

<i>Weekly Wages</i> (Rs.)	<i>No. of Workers</i>
110-115	7
115-120	19
120-125	27
125-130	15
130-140	12
140-160	12
160-180	8

(6 marks)

(b) A limited company wants to pay bonus to its employees. The bonus is to be paid as under :

<i>Weekly Salary (Rs.)</i>	<i>Bonus (Rs.)</i>
300 but not exceeding 400	100
400 but not exceeding 500	120
500 but not exceeding 600	140
600 but not exceeding 700	160
700 but not exceeding 800	180
800 but not exceeding 900	200
900 but not exceeding 1,000	220
1,000 but not exceeding 1,100	240

Actual salary drawn by the employees is given below :

325	378	420	455	620	660	680	725	863	832	942	952
800	1002	1028	1090	610	763	382	540	463	578	723	690
625											

How much the company would need to pay by way of bonus ? What shall be the average bonus paid per employee ?

(9 marks)

8. (a) What are 'index numbers' ? How are they constructed ?

(5 marks)

(b) Calculate the price index number from the following data using Fisher's Ideal Formula :

<i>Commodity</i>	<i>Base year 2007</i>		<i>Current year 2008</i>	
	<i>Price</i>	<i>Quantity</i>	<i>Price</i>	<i>Quantity</i>
A	10	50	12	60
B	8	30	9	32
C	5	35	7	40

(6 marks)

(c) Why do we measure seasonal variations in a time series ?

(4 marks)

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