Signature of Supdt. _____

221 MRD-XI 16(A)

# Statistics (Part - I)

Roll No _____

Fic No. _____

ہال میں موبائل فون لانا بالکل منع ہے

Fic No. _____

Total Time : 3:00 Hrs. **Statistics (Part - I)** Total Marks : 75

**NOTE : There are THREE sections in this paper i.e. Section A, B and C.**

Time : 20 Mins. **"Section - A"** Marks : 15

**Note: Use this sheet for this section. No mark will be awarded for cutting, erasing or over writing.**

Q. 1 Write the correct option i.e. A, B, C or D in the empty box provided opposite to each part.

i) Class boundaries of 2 – 5 is ..... [c]
(a) 2.45 – 5.55 (b) 2.5 – 5.5 (c) 1.5 – 5.5 (d) 2.5 – 5.5

ii) Mode = 3 Median - ..... [b]
(a) Mean (b) 2 median (c) 2 mean (d) 2 mode

iii) If the random variable has the p.d.f. $f(x) = kx,\ 0 \le x \le 2$, then the value of k is ..... [c]
(a) 0 (b) 1 (c) $\frac{1}{2}$ (d) 2

iv) If G.M = 60 and A.M = 110.2, then H.M is ..... [a]
(a) 32.7 (b) 28 (c) 38 (d) None of these

v) No. of classes are equal to the range divided by ..... [b]
(a) 100 (b) Class Interval (c) Mid point (d) 10

vi) H.M of 2 no. "A" and "B" is ..... [c]
(a) $\frac{2AB}{AB}$ (b) $\frac{2AB}{A-B}$ (c) $\frac{2AB}{A+B}$ (d) $\frac{A+B}{2AB}$

vii) The formula of coefficient of variation is ..... [b]
(a) $\frac{\bar{x}}{SD} \times 100$ (b) $\frac{SD}{\bar{X}} \times 100$
(c) $\frac{Mode}{SD} \times 100$ (d) $\frac{Mode}{\bar{x}} \times 100$

viii) If n = 16 and r = 2 then $^{n}p_{r}$ = ..... [a]
(a) 240 (b) 200 (c) 120 (d) 32

ix) Var (2x – 4) = ..... [b]
(a) 4V(x) – 4 (b) 4V(x) (c) 4V(x) + 4 (d) 2V(x)

x) If n = 8 and $P = \frac{1}{2}$, then variance of binomial distribution will be ..... [c]
(a) 6 (b) $\frac{1}{2}$ (c) 2 (d) 1

xi) .....bar diagrams are used to present such data which are to be shown in parts. [d]
(a) Simple (b) Multiple (c) Rectangle (d) Sub divided

xii) The index number for the base period is always equal to ..... [a]
(a) 100 (b) 1000 (c) 10 (d) 1

xiii) Two fair coins are tossed simultaneously, what is the probability that atleast one head will appear ..... [b]
(a) $\frac{2}{4}$ (b) $\frac{3}{4}$ (c) $\frac{4}{4}$ (d) $\frac{1}{4}$

xiv) If mean = 15.75 and median = 12.96, then what will be the skewness? [c]
(a) No skewness (b) Negative skewness
(c) Positive skewness (d) None of these

xv) Range of the data 1, 3, 12, 6, 4, 8, 10 is ..... [d]
(a) 12 (b) 1 (c) 7 (d) 11

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# Statistics (Part - I)

Time Allowed : 2:40 Hrs.

Total Marks : 60

## "Section - B"

Marks : 40

Q. 2 Answer any Ten parts. Each part carries equal marks.

(i) Differentiate between Statistic and Statistics.

(ii) Define secondary data.

(iii) Find geometric mean of the series 1, 3, 9, ..... $3^n$.

(iv) Calculate variance of the data 6, 9, 12, 15, 18.

(v) Differentiate between absolute and relative dispersion.

(vi) Calculate Bowley's coefficient of Skewness if $Q_1 = 8.88$, $Q_2 = 11.45$ and $Q_3 = 13.42$

(vii) Define weighted index number.

(viii) Find out coefficient of variation of 2, 7, 9.

(ix) How many possible permutations can be formed from the word "Statistics".

(x) Find $E(x)$ and $E(x^2)$ from the following data.

| x | -2 | 3 | 1 |
|---|---|---|---|
| f(x) | $\frac{1}{3}$ | $\frac{1}{2}$ | $\frac{1}{6}$ |

(xi) In a binomial distribution, if mean = 10 and variance = 5 than find its parameters.

(xii) Define mutually exclusive events.

(xiii) Find $E(4x + 2)$, if $E(x) = 10$.



## "Section - C"

Marks : 20

NOTE : Attempt any TWO questions. Each question carries equal marks.

Q. 3 Find $Q_1$, $D_5$ and $P_{75}$ from the following data.

| x | 24 | 27 | 29 | 31 | 37 | 39 | 40 | 43 | 47 | 49 | 50 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| f | 1 | 1 | 2 | 4 | 7 | 6 | 3 | 3 | 1 | 1 | 1 |

Q. 4 Calculate Karl Pearson's coefficient of skewness from the following data.

| Marks | 0 – 1 | 1 – 2 | 2 – 3 | 3 – 4 | 4 – 5 | 5 – 6 | 6 – 7 | 7 – 8 |
|---|---|---|---|---|---|---|---|---|
| Frequency | 10 | 40 | 20 | 10 | 10 | 20 | 40 | 10 |

Q. 5 Check whether the following function is a p.d.f. or not.

$f(x) = 0.25x$, $1 \le x \le 3$.

Also find

(i) $P(x \le 2)$ (ii) $P(2 \le x \le 3)$ (iii) $P(x = 3)$

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