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## [6008]-261

## S.E. (Artificial Intelligence \& Data Science)(Insem) STATISTICS <br> (2019 Pattern) (Semester - II) (217528)

## Time : 1 Hour]

## Instructions to the candidates:

1) Answen Q1 or Q2, Q3 or Q4.
2) Figures to the right indicate full marks.
3) Neat diagrams must be drawn wherever necessary.
4) Make suitable assumption whenever necessary.

Q1) a) What are the limitations and importance of Siatistics.
b) What are the methods of estimation? Givebrief on testing of hypothesis.
c) Explain the Scope of Statistics in engineering \& Technology.

Q2) a) What is population and sample? Explain the type of sampling in brief.
b) What are random sample? Explain lottery method and random numbers in detail.
c) What is Statisticse Explain the scope of statistics in medical and biological fields.

Q3) a) Draw a frequency polygon for the following data.

| Marks | $0-20$ | $20-40$ | $40-60$ | $60-80$ | $80-100$ |
| :--- | :---: | :---: | :---: | :---: | :---: |
| No. of students | 2 | 18 | 42 | 28 | 5 |

Also state the advantages of graphical representation of data (any four).
b) Calculate the mean for the following frequency distribution.

| Class | $0-10$ | $10-20$ | $20-30$ | $30-40$ | $40-50$ | $50-60$ |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| Frequency | 12 | 18 | 20 | 20 | 17 | 6 |

Also state merits of Mean (any four).
c) Age distributionrof hûndred life insurance policy holders is as follows :

| Age | $17-19$ | $20-22$ | $23-25$ | $26-28$ | $29-31$ | $32-34$ | $35-37$ | $38-40$ |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Nunber | 9 | 16 | 12 | 26 | 14 | 12 | 6 | 5 |

Calcuilatemode
OR

Q4) a) What is histogram? Draw the histogram for the following data.

| Age group (in years) | 0-20 | 21-40 | $\begin{array}{\|c\|c\|} \hline 41-60 & 61-800 \\ 0 & 5 \\ \hline \end{array}$ | 81-100 | 101-120 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Populatio | 500 | 2100 | $200 \times 2000$ | 1600 |  |

b) Calculate median for the followieg distribution.

| Class | $0-10$ | 1020 | $20-30$ | $30-40$ | $40-50$ |
| :--- | :---: | :---: | :---: | :---: | :---: |
| Frequency | 5 | 6.14 | 29 | 21 | 25 |

Also write merits of median (any 2).
c) What are the merits and demerits of Harmonic mean' (2 each). Also calculate Harmonic mean of the following series.

| Values | 2 | 6 | 10 | 14 | 18 |
| :--- | :---: | :---: | :---: | :---: | :---: |
| Frequency | 4 | 12 | 20 | 9 | 5 |

