**1105N243**    Candidate's Seat No :_____

IMBA-1 Sem.-2 IMBA, IMBA (BI), IMBA (IB), IMBA (APR) Examination
Foundation of Statistics-1

Time : 2-00 Hours]    May 2022    [Max. Marks : 50

Instructions: 1) This paper contains seven questions.

2) Attempt any five questions.

3) All questions carry equal marks.

Date:11/05/2022    Subject Name: Foundation of Statistics - I (FoS – I)    Marks: 50

Q:1  What are the types of sampling techniques? Explain them in detail.    10

Q:2  What are the different types of data and explain them with examples?    10

Q:3  Find out the standard deviation from the data given below:    10

| Class | Frequency |
|-------|-----------|
| 0-10  | 3         |
| 10-20 | 9         |
| 20-30 | 15        |
| 30-40 | 20        |
| 40-50 | 12        |
| 50-60 | 3         |

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**Q:4**  Establish whether there is any relationship between sales and section and interpret the degree of correlation between them.    **10**

| Sales | 24 | 33 | 38 | 45 | 52 | 68 |
|-------|----|----|----|----|----|----|
| Sections | 3 | 7 | 6 | 12 | 13 | 15 |

**Q:5**  Given $\lambda = 4.2$, for a Poisson distribution, find    **10**
- $P(x \leq 2)$
- $P(x \geq 5)$
- $P(x = 8)$

**Q:6**  Find out the mean, median, mode from the data given below:    **10**

| Class | Frequency |
|-------|-----------|
| 0-10 | 3 |
| 10-20 | 9 |
| 20-30 | 15 |
| 30-40 | 5 |
| 40-50 | 2 |

**Q:7**  For a binomial distribution with n = 7 and p = 0.2, find    **10**
- $P(x = 5)$
- $P(x > 2)$
- $P(x < 8)$
- $P(x \geq 4)$

**APPENDIX TABLE 4(a)** VALUES OF $e^{-\lambda}$ FOR COMPUTING POISSON PROBABILITIES

| $\lambda$ | $e^{-\lambda}$ | $\lambda$ | $e^{-\lambda}$ | $\lambda$ | $e^{-\lambda}$ | $\lambda$ | $e^{-\lambda}$ |
|---|---|---|---|---|---|---|---|
| 0.1 | 0.90484 | 2.6 | 0.07427 | 5.1 | 0.00610 | 7.6 | 0.00050 |
| 0.2 | 0.81873 | 2.7 | 0.06721 | 5.2 | 0.00552 | 7.7 | 0.00045 |
| 0.3 | 0.74082 | 2.8 | 0.06081 | 5.3 | 0.00499 | 7.8 | 0.00041 |
| 0.4 | 0.67032 | 2.9 | 0.05502 | 5.4 | 0.00452 | 7.9 | 0.00037 |
| 0.5 | 0.60653 | 3.0 | 0.04979 | 5.5 | 0.00409 | 8.0 | 0.00034 |
| 0.6 | 0.54881 | 3.1 | 0.04505 | 5.6 | 0.00370 | 8.1 | 0.00030 |
| 0.7 | 0.49659 | 3.2 | 0.04076 | 5.7 | 0.00335 | 8.2 | 0.00027 |
| 0.8 | 0.44933 | 3.3 | 0.03688 | 5.8 | 0.00303 | 8.3 | 0.00025 |
| 0.9 | 0.40657 | 3.4 | 0.03337 | 5.9 | 0.00274 | 8.4 | 0.00022 |
| 1.0 | 0.36788 | 3.5 | 0.03020 | 6.0 | 0.00248 | 8.5 | 0.00020 |
| 1.1 | 0.33287 | 3.6 | 0.02732 | 6.1 | 0.00224 | 8.6 | 0.00018 |
| 1.2 | 0.30119 | 3.7 | 0.02472 | 6.2 | 0.00203 | 8.7 | 0.00017 |
| 1.3 | 0.27253 | 3.8 | 0.02237 | 6.3 | 0.00184 | 8.8 | 0.00015 |
| 1.4 | 0.24660 | 3.9 | 0.02024 | 6.4 | 0.00166 | 8.9 | 0.00014 |
| 1.5 | 0.22313 | 4.0 | 0.01832 | 6.5 | 0.00150 | 9.0 | 0.00012 |
| 1.6 | 0.20190 | 4.1 | 0.01657 | 6.6 | 0.00136 | 9.1 | 0.00011 |
| 1.7 | 0.18268 | 4.2 | 0.01500 | 6.7 | 0.00123 | 9.2 | 0.00010 |
| 1.8 | 0.16530 | 4.3 | 0.01357 | 6.8 | 0.00111 | 9.3 | 0.00009 |
| 1.9 | 0.14957 | 4.4 | 0.01228 | 6.9 | 0.00101 | 9.4 | 0.00008 |
| 2.0 | 0.13534 | 4.5 | 0.01111 | 7.0 | 0.00091 | 9.5 | 0.00007 |
| 2.1 | 0.12246 | 4.6 | 0.01005 | 7.1 | 0.00083 | 9.6 | 0.00007 |
| 2.2 | 0.11080 | 4.7 | 0.00910 | 7.2 | 0.00075 | 9.7 | 0.00006 |
| 2.3 | 0.10026 | 4.8 | 0.00823 | 7.3 | 0.00068 | 9.8 | 0.00006 |
| 2.4 | 0.09072 | 4.9 | 0.00745 | 7.4 | 0.00061 | 9.9 | 0.00005 |
| 2.5 | 0.08208 | 5.0 | 0.00674 | 7.5 | 0.00055 | 10.0 | 0.00005 |

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