**SECTION A**

**Multiple Choice Questions (30\*1 = 30)**

1. **Simple interest can be calculated as:**
2. TR/100
3. **PTR/100**
4. PT/100
5. P+TR
6. **Probability can take a value:**
7. **0 to 1**
8. Any real number
9. -1 to 1.
10. None of above.
11. **Bayes’ theorem is applied to calculate:**
12. **Conditional probability**
13. Revised probability
14. Joint probability
15. Marginal probability.
16. **If event B is already occurred, what is the probability of A refers to:**
17. A.
18. **A|B.**
19. B.
20. B|A.
21. **Coefficient of quartile deviation is given by the formula:**
22. **In which probability distribution mean, mode and median are equal?:**
23. Binomial
24. **Normal**
25. Poisson
26. All
27. **With the help of ogive, we can find:**
28. Mean
29. **Median**
30. Mode.
31. All of above.
32. **In binomial distribution for n number of trial and p probability of success, which relation holds? :**
33. Mean ≤ Variance
34. **Variance˂ Mean**
35. Mean ≥ Variance
36. None of above
37. **It is necessary to find cumulative frequencies in order to draw a/an**
38. Histogram
39. Frequency polygon
40. **Ogive curve**
41. Frequency curve
42. **Median is a measure of**
43. **Positional average.**
44. Dispersion.
45. Correlation.
46. Deviation from central value.
47. **A random variable which takes integer values is called:**
48. **Discrete random variable.**
49. Continuous random variable.
50. Mixed random variable.
51. Qualitative random variable.
52. **Which one of the given measure of dispersion is considered best?**
53. Range.
54. Quartile deviation.
55. **Standard deviation.**
56. Mean deviation.
57. **Given that P(B)= 0.4 and P(A∩B)=0.2, probability P(A| B) is equal to**
58. 0.4
59. 0.7
60. **0.5**
61. 0.15
62. **Test of hypothesis H0 : = 50 vs H1 : ˂ 50 leads to**
63. **Left tailed test**
64. Two tailed test
65. Right tailed test
66. None of the above
67. **Parameter of normal probability distribution is:**
68. Mode
69. Standard deviation
70. **Mean and standard deviation**
71. variance
72. **Binomial probability distribution refers to:**
73. Continuous probability distribution
74. **Discrete probability distribution**
75. Mixed probability distribution
76. All of above.
77. **Independent events are those events which are:**
78. Related with each-other.
79. Not occur simultaneously.
80. Complimentary to each-other.
81. **Not related with each-other.**
82. **Variance of binomial distribution is equal to:**
83. np
84. **npq**
85. nq
86. p+q
87. **The plot of less than and more than ogive in graph gives:**
88. Mean
89. **Median**
90. Mode
91. None of the above
92. **The probability of the intersection of two mutually exclusive events is always:**
93. Infinity
94. Zero
95. One
96. None of above
97. **If A and B are two events, the probability of only one of them can occur is given as:**
98. P (A∩B)
99. P(AB)
100. P(A) P(B)
101. **P(A ∩ )**
102. **Which of the following relations among the location parameters does not hold?**
103. Q2=median
104. P50=median
105. D5=median
106. **D6=median**
107. **In a regression line Y = a + bX, a is called the**
108. **Constant term**  c) Slope of line
109. Dependent variable d) Regression coefficient
110. **Consistency of a person depends on**
111. mean
112. mode
113. **variance**
114. median
115. **What is the relationship between A.M, G.M, and H.M? :**
116. **A.M≥G.M≥H.M.**
117. A.M≤G.M≤H.M.
118. A.M≤G.M=H.M.
119. A.M=G.M≤H.M.
120. **Find the total numbers of arrangements of the letters of the word STATISTICS?:**
121. 204000
122. 404000
123. 304000
124. 504000
125. **The shape of the curve drawn from the frequency distribution is given by:**

a) **Skewness**

b) Kurtosis

c) Both a and b

d) None of above

1. **Student’s t-test is applicable when:**
2. **N ≤ 30,  unknown**
3. N ≥ 30,  unknown
4. N ≥ 30,  known
5. N ≤ 30,  unknown
6. **Whether a test is one tailed or two tailed depends on :**
7. Null hypothrsis.
8. Simple hypothesis.
9. **Alternative hypothesis.**
10. Complex hypothesis.
11. **If X and Y are two varieties, there can be at most:**
12. **regression line**
13. regression line

## SECTION B

**Short Answer Questions**

**Answer any five questions out of eight questions (5 \* 6=30)**

1. A problem in Statistics is given to three students A, B, and C whose chances of solving it are 1/3, 1/4 and 1/5 respectively. Find the probability that (3\*2 = 6)

i. The problem will be solved.

ii. Only one of them will solve the problem.

iii. None of them will solve the problem.

(Unit 7: Probability)

1. In a bolt factory machine A, B, C manufacture 25%, 35% and 40% respectively. These machines are known to be producing 1%, 2% and 3% defectives respectively. One bolt is selected at random and found to be defective. What is the probability that it is produced from machine A? (6)

(Unit 7: Probability)

1. If the probability of recovery from a certain disease is 0.2 and 10 people came down with the disease, what is the probability that i) Two of them will recover? ii) At least one will recover? (2\*3 = 6)

(Unit 8: Theoretical Distribution)

1. The weekly wages of 1000 workmen are normally distributed around a mean of Rs. 70 with a standard deviation of Rs. 5. Estimate the number of workers whose weekly wages will be: (3\*2 = 6)
   1. Between Rs. 70 and 72.
   2. More than Rs. 75.
   3. Less than Rs. 63.

(Unit 8: Theoretical Distribution)

1. A random sample of 80 students is drawn from a certain campus and their height showed a mean of 170 cm and a standard deviation of 12 cm. (2\*3 = 6)
2. Find standard error of sample means.
3. Construct a 95% confidence interval of mean weight of all students of the campus.

(Unit 9: Estimation)

1. A business man has received a Rs. 1500000 loan from a bank in order to expand his business. The terms are that he repays the bank in full at the end of 11 years with simple interest computed at a rate of 18% per year. Determine the interest which must be paid on the 5-year loan. (6)

(Unit 1: Nature and scope of statistics)

1. If r12 = 0.6, r13 = 0.4 and r23 = 0.35. Find the value of (3\*2 = 6)
2. Partial correlation coefficient between X1 and X2 keeping X3 constant.
3. Partial correlation coefficient between X2 and X3 keeping X1 constant.
4. Partial correlation coefficient between X1 and X3 keeping X2 constant.

(Unit 11: Correlation and regression analysis)

1. A drug manufacturer claimed that the mean potency of one of its product antibiotics was 80%. A random sample of 100 capsules was tested and produced a sample mean 79.7% with standard deviation of 0.8%. Do the data present sufficient evidence to refute the manufacturer’s claim? (6)

(Unit 11: Hypothesis testing)

### SECTION C

**Long Answer Questions**

**Attempt any two questions out of three questions (20 \* 2 = 40)**

1. From the following distribution of marks of students in a college, find
2. Mean marks of the distribution (3)
3. Median marks of the distribution (4)
4. The percentage of students getting marks more than 85. (3)
5. Construct histogram and locate mode. (3)
6. Coefficient of quartile deviation. (4)
7. The minimum pass marks if only 40% of the students had failed. (3)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Marks | 0-20 | 20-40 | 40-50 | 50-60 | 60-80 | 80-100 |
| No. of students | 50 | 100 | 150 | 90 | 60 | 50 |

1. Ten objects are chosen on random from the large population and their weights are found to be in gms 60, 61, 62, 63, 65, 65, 67, 68, 70, 72.
2. Compute sample mean share and sample standard deviation. (5)
3. Compute standard error of estimate. (5)
4. Construct 95% and 91% confidence limits for mean share. (5)
5. Test the hypothesis that mean price of share is 68 at 5% level of significance. (5)
6. A. Following are the marks in Statistics (X) and Accountancy (Y) of six students.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| X | 26 | 24 | 24 | 27 | 25 | 23 |
| Y | 13 | 12 | 14 | 16 | 15 | 11 |

1. Compute correlation coefficient between them. (5)
2. Calculate the standard error and interpret its meaning. (5)

B. The monthly bonuses in 100 Rs. Of 7 employees with different years of experience were recorded as follows:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Employees | A | B | C | D | E | F | G |
| Experience year x | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Monthly bonus y | 77 | 86 | 94 | 85 | 91 | 98 | 90 |

1. Develop the estimating equation of the form y = a + bx for the data given above. (5)
2. Estimate the monthly bonus when the experience year is 10. (5)

**THE END**