DE-2917
First Year B. Sc. (Sem. I) Examination
March/April – 2016
Statistics : Paper - 102

Time : 2 Hours] [Total Marks : 50

सूचना / Instructions :

(1) Fill up strictly the details of signs on your answer book.
Name of the Examination : F. Y. B. Sc. (Sem. I)
Name of the Subject : STATISTICS : PAPER - 102
Subject Code No. : 2 8 1 7 Section No. (1, 2, .......)

(2) There are 50 questions in the question paper and each question carries one (1) mark and all are compulsory.

(3) Kannada Pradyotakshik Abhyas Karo Sahi Vichar Pasand Karo.

(4) Read the question carefully before selecting the correct option.

(5) Statistical and logarithmic tables will be supplied on request.

(6) Pragamancha samasthik dhyana pustakasam upayog varshi shakto.

(7) Use of non-programmable scientific calculator is allowed.

O.M.R. Sheet bevada anya anya seva anye he. O.M.R. Sheet-nil pahal aapche he. Important instructions to fill up O.M.R. Sheet are given on back side of the provided O.M.R. Sheet.
1. \( X \) नी विभिन्न मात्र AM=25, HM=9 कोण दो GM =
   For the values of \( X \), AM=25, HM=9 then GM is
   (A) 5.83
   (B) 16
   (C) 17
   (D) 15

2. अवयोक्षों 0, 1, -1, -2, 6, 4, 5, 8, 12, 10, 11 मात्र बीजगत अवयोक्षों
   The second quartile of the observations 0, 1, -1, -2, 6, 4, 5, 8, 12, 10, 11
   is
   (A) 6
   (B) 8
   (C) 4
   (D) 5

3. श्रेणियों करता वर्गारेत अवयोक्षोंही टकावरी
   The percentage of values of a set which is beyond the third quartile is
   (A) 75
   (B) 25
   (C) 100
   (D) 50

4. संवत आसल वितरण मात्र बहुक्षणु सूचन कृत पहलव पर आधारित छो?
   (A) ith iteration
   (B) आधुनिक माथी एक पणला नसली
   (C) अंतर्वेशन
   (D) अविभेदन
   The formula of mode for the continuous frequency distribution is depends
   on
   (A) iteration
   (B) None of these
   (C) interpolation
   (D) extrapolation

DE-2917_C | 2 | [ Contd...]
5  The mode of the observations 3, 6, -1, -2, 2, 1, 0, -1, -4, 5 is
(A) 2
(B) -1
(C) 0
(D) 1

6  The geometric mean of the two observations 5 and -5 is
(A) 0
(B) None of these
(C) 5
(D) -5

7  The mean of seven observations is 8. A new observation 16 is added, the
mean of 8 observations is
(A) 8
(B) 24
(C) 12
(D) 9
8  The geometric mean of four numbers 2, 4, 8, 64 is
(A) 6
(B) 8
(C) 2
(D) 4

9  The mean of 30 observations of a group is 22.8 and the mean of 20 observations of another group is 18.2. Find the combined mean of two groups.
(A) 22.96
(B) 20.96
(C) 19.16
(D) 21.96

10  The weighted mean of the following information is

<table>
<thead>
<tr>
<th>X</th>
<th>56</th>
<th>42</th>
<th>55</th>
<th>45</th>
<th>49</th>
</tr>
</thead>
<tbody>
<tr>
<td>W</td>
<td>8</td>
<td>7</td>
<td>5</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

(A) 50
(B) 60
(C) 20
(D) 40
11 20 अवलोकनों ने मध्यक 38.5 छ. अद्यावधि 26 ने बढ़ते 36 बेवायु कोष तो सायाए
मध्यक
The mean of 20 observations is 38.5. If one observation is to be taken 36 instead of 26, what is correct mean?
(A) 36
(B) 26
(C) 35
(D) 39

12 श्रेणीनां बुधा अवलोकनो गो संदर्भो 410 अने तेनो मध्यक 16.4 छ. तो श्रेणीनां अवलोकनों नी संख्या
The sum of all observations is 410 and its mean is 16.4, hence the total number of observations of the series is
(A) 30
(B) 35
(C) 20
(D) 25

13 4, 3, 9, x, 6 ने मध्यक 5.4 होष तो x
The mean of 4, 3, 9, x, 6 is 5.4 then x is
(A) 3
(B) 2
(C) 5
(D) 4

14 संगीतानी संधीमां 20 संधिमां महेशने क्रमांक 5 छे तो तेने प्रतिशत क्रमांक शोधो.
In a music competition the rank of Mahesh is 5 out of 20 competitors. Find his percentile rank.
(A) 87.5
(B) 97.5
(C) 67.5
(D) 77.5
15  
(15)  एक आपूर्ति वितरण माटे  \( P_{72} = 82 \) कोण तो 82मध्ये प्रतिशत कंटेंक शोधा.

In a frequency distribution  \( P_{72} = 82 \) then find the percentile rank of 82.

(A) 40  
(B) 30  
(C) 72  
(D) 82

16  
(16)  जे \( \bar{x} - M = 5 \) असे \( Z = 26.5 \) कोण ते M

If \( \bar{x} - M = 5 \) and \( Z = 26.5 \) then M is

(A) 46.54  
(B) 56.54  
(C) 26.54  
(D) 36.54

17  
(17)  एक अवबोधनाचे गुणोत्तर म्हणून 6 छ. तेमाना एक अवबोधन 6 असे 12 छ, तो नींशा अवबोधन शोधा.

The geometric mean of three observations is 6 and two observations are 6 and 12. Find the third observation.

(A) 10  
(B) 12  
(C) 3  
(D) 6
18. Find the variance for the observations 5, 6, 7, 8, 9.

(A) 5

(B) 7

(C) 1

(D) 2

19. For the series $Q_1 = 17.4$ and $Q_3 = 25.6$ then find coefficient of quartile deviation.

(A) 0.18

(B) 0.19

(C) 0.16

(D) 0.17

20. The sum of absolute deviation from mean for 50 observations is 192, then find mean deviation.

(A) 4.84

(B) 5.84

(C) 2.84

(D) 3.84
21. The coefficient of quartile deviation of a frequency distribution is 0.3. If $Q_3 = 30$ then find $Q_1$.

(A) 18.15  
(B) 19.15  
(C) 16.15  
(D) 17.15

22. The coefficient of variation of a frequency distribution is 36.8%. If the mean of the distribution is 100, then the standard deviation of the distribution is

(A) 35.8  
(B) 36.8  
(C) 33.8  
(D) 34.8

23. Find the coefficient of variation if $\bar{x} = 28$, $n = 15$, $\sum (x_j - \bar{x})^2 = 540$.

(A) 28.27%  
(B) 29.27%  
(C) 26.27%  
(D) 27.27%
24 Find the harmonic mean for the observations \( \frac{5}{4}, 5, 4, 20 \).

(A) 2
(B) 4
(C) 3.08
(D) 2.08

25 If for a series the weighted mean = 24.7 and 
\[ \sum w_i = 18 + 3a, \sum x_iw_i = 541 + 50a \]
then find the value of \( a \).

(A) 3
(B) 4
(C) 1
(D) 2

26 Find the mean of the following distribution.

<table>
<thead>
<tr>
<th>X</th>
<th>7</th>
<th>12</th>
<th>16</th>
<th>22</th>
<th>25</th>
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<tbody>
<tr>
<td>F</td>
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<td>8</td>
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</table>

(A) 20.80
(B) Any of above
(C) 16.40
(D) 15.09
27 If \( x \) is a positive number and the median of the observations 
\( x, 5x, 3x, 2x, 6x, 8x, 8x+1 \) is 10 then find the value of \( x \).

(A) 3
(B) 4
(C) 1
(D) 2

28 A certain variable has \( 25\% \) of the observations 29 and \( 25\% \) of the observations 40. If 29 and 40 are removed, find the quartiles of the distribution.

(A) 40, 25
(B) None of these
(C) 29, 40
(D) 25, 29

29 The s.d. of 25 observations is 2. If 4 is subtracted from each observation, the new s.d. is

(A) 4
(B) 6
(C) 0
(D) 2

30 If the mode of \( 2y - 6x = 6 \) and the mode of \( y \) is 66, then the mode of \( x \) is

(A) 22
(B) 23
(C) 20
(D) 21
31 उपर्युक्त उपाध्यायों मध्यम शोधो।
Find the median of the first 10 natural numbers.
(A) 5
(B) 5.5
(C) 10
(D) 0

32 40 विद्यार्थिओं वर्गमात्र एक विद्यार्थि वर्गमात्र क्रमांक 96.25 होय तो ते वर्गमात्र तेने क्रमांक भेजवो।
The percentile rank of a students is 96.25 in a class of 40 students. Find his rank in class.
(A) 5
(B) 15
(C) 40
(D) 2

33 श्रेणी X मध्ये \( \frac{1}{n} \sum x = 3, \frac{1}{n} \sum x^2 = 25 \) तो \( \frac{1}{n} \sum (5x) = \) __________.

For a variable X if \( \frac{1}{n} \sum x = 3, \frac{1}{n} \sum x^2 = 25 \) then \( \frac{1}{n} \sum (5x) = \) __________.
(A) 14
(B) 15
(C) 10
(D) 12

34 अंकसूचना 3, 4, 6, 7, 10 मध्ये निघुं 5 सहायक शीर्षक प्रयोग
The second moment about point 5 for the observations 3, 4, 6, 7, 10 is
(A) 9
(B) 10
(C) 5
(D) 7
35. The first three moments about point 2 is 1, 16, -40 then the second raw moment is
   (A) 24
   (B) 26
   (C) 20
   (D) 22

36. If the first four central moments are 0, 14.75, 39.75 and 142.31 then \( \beta_1 = \) _______
   (A) 0.6923
   (B) 0.7923
   (C) 0.4923
   (D) 0.5923

37. The first four central moments are 0, 2.49, 0.7, 18.32 then \( \beta_2 = \) _______
   (A) 0.0417
   (B) 0.0517
   (C) 0.0217
   (D) 0.0317

38. If the mean and standard deviation of random variable X is 3 and 5 then
   \( \frac{1}{n} \sum (3x + 7) = \) _______
   (A) 14
   (B) 16
   (C) 10
   (D) 12
39 For a random variable \( X \), \( \frac{1}{n} \sum x = 3, \frac{1}{n} \sum x^2 = 25 \) then \( \frac{1}{n} \sum (x - \bar{x})^2 = \) 

(A) 14  
(B) 16  
(C) 10  
(D) 12

40 If the mean and standard deviation of random variable \( X \) is 3 and 5 respectively then the second raw moment is 

(A) 34  
(B) 36  
(C) 30  
(D) 32

41 The mean and standard deviation of variable \( X \) are 5 and 3 respectively and \( y = 9 - 3x \), then \( \frac{1}{n} \sum (y - \bar{y})^2 = \) 

(A) 81  
(B) 91  
(C) 70  
(D) 80
The arithmetic mean and geometric mean of two observations are 10 and 6 respectively. Then the observations are

(A) 18, 6
(B) 18, 2
(C) 18, 10
(D) 18, 8

If a constant 5 is subtracted from each observation of a series, the variance is

(A) unaltered
(B) increased by 25
(C) reduced by 5
(D) reduced by 25

Range of a set of values is 65 and maximum value in the series is 83. The minimum value of the series is

(A) 18
(B) 14 None of above
(C) 74
(D) 9
45  The series 12, 4, 7, 9, 5, 1, 3, 8, 10, 6, 2 are increased by 10. If each value of the series is multiplied by 10, the coefficient of variation will be increased by
(A) 15%  
(B) 0%  
(C) 5%  
(D) 10%

46  Out of all measures of dispersion, the easiest one to calculate
(A) variance  
(B) quartile deviation  
(C) standard deviation  
(D) range

47  If the mean and standard deviation of 8 observations in a sample are 9 and 4 respectively. The second sample of size 4 the mean and standard deviation are 15 and 3, then the combined variance of two samples is
(A) 31.66  
(B) 41.66  
(C) 11.66  
(D) 21.66
48 मध्यमानी विच्छेदनांची चर्मावनी प्राप्तला हिरे संख्या वृत्ती भागवाळी मजती संघाते केले आहे

(A) विस्तार
(B) विच्छेद
(C) प्रमाणित विच्छेद
(D) अतुल्य विच्छेद

Sum of squares of the deviation from the mean is divided by the total numbers is called

(A) range
(B) variance
(C) standard deviation
(D) quartile deviation

49 पाच अंकांना 5,5,5,5,5 गुण प्रमाणित विच्छेद

The standard deviation of the five observations 5,5,5,5,5 is

(A) 2
(B) 5
(C) 0
(D) 1

50 विच्छेदनांची चर्मावनी मुख्यतः थाय ७पारे विच्छेद माध्यमी विच्छेदाऱ्यांचे आहे.

(A) भारवर्क
(B) शून्य
(C) मध्यक
(D) मध्यम

The sum of square of the deviation is minimum when the deviation is taken from

(A) mode
(B) zero
(C) mean
(D) median