

JEMAS(PG)-2022

QB No: 2101200001

Subject: Diploma in Health Statistics (DHS)

Duration: 90 minutes

No of MCQ: 100

Full Marks: 100

Instructions

1. All questions are of objective type having four answer options for each, carry 1 mark each and only one option is correct. In case of incorrect answer or any combination of more than one answer, $\frac{1}{4}$ mark will be deducted.
2. Questions must be answered on OMR sheet by darkening the appropriate bubble marked A, B, C, or D. Question booklet series code (A, B, C, or D) must be properly marked on the OMR.
3. Use only **Black/Blue ball point pen** to mark the answer by complete filling up of the respective bubbles.
4. Write question booklet number and your roll number carefully in the specified locations of the **OMR**. Also fill appropriate bubbles.
5. Write your name (in block letter), name of the examination center and put your full signature in appropriate boxes in the OMR.
6. The OMR is liable to become invalid if there is any mistake in filling the correct bubbles for question booklet number/roll number or if there is any discrepancy in the name/signature of the candidate, name of the examination center. The OMR may also become invalid due to folding or putting stray marks on it or any damage to it. The consequence of such invalidation due to incorrect marking or careless handling by the candidate will be sole responsibility of candidate.
7. Candidates are not allowed to carry any written or printed material, calculator, pen, log-table, wristwatch, any communication device like mobile phones etc. inside the examination hall. Any candidate found with such items will be **reported against** and his/her candidature will be summarily cancelled.
8. Rough work must be done on the question paper itself. Additional blank pages are given in the question paper for rough work.
9. Hand over the OMR to the invigilator before leaving the Examination Hall.

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1. The ratio of sum of observations and total number of observations is called:
(A) Median.
(B) Mean.
(C) Mode.
(D) Central tendency.
2. The median of the data: 155, 160, 145, 149, 150, 147, 152, 144 and 148 is:
(A) 155.
(B) 156.
(C) 149.
(D) 150.
3. The value which appears very frequently in a data is called:
(A) Mean.
(B) Median.
(C) Mode.
(D) Average.
4. The probability of each event lies between:
(A) 0 & 1.
(B) 1 & 2.
(C) 1 & 10.
(D) None of these.
5. The diagonals of a parallelogram:
(A) Intersect at right angles.
(B) Equal.
(C) Bisect each other.
(D) Have no relation.
6. The longest chord of the circle is:
(A) Diameter.
(B) Segment.
(C) Arc.
(D) Radius.

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7. If AM of a , $a+3$, $a+6$, $a+9$ and $a+12$ is 10, then a is equal to:
- (A) 4
 - (B) 3.
 - (C) 2.
 - (D) 1.
8. The class interval of a given observation is 10 to 15, then the class mark for this interval will be:
- (A) 11.
 - (B) 11.5.
 - (C) 12.
 - (D) 12.5.
9. The probability of event equal to zero is called:
- (A) Sure Event.
 - (B) Unsure event.
 - (C) Impossible event.
 - (D) Independent event.
10. The probability of getting a bad egg in a lot of 400 is 0.035. The number of bad eggs in the lot is:
- (A) 14.
 - (B) 40.
 - (C) 35.
 - (D) 1.
11. The least number that is divisible by all the numbers from 1 to 5 is:
- (A) 50.
 - (B) 60.
 - (C) 70.
 - (D) 80.
12. The value of $\tan 60^\circ / \cot 30^\circ$ is equal to:
- (A) 1.
 - (B) 2.
 - (C) 3.
 - (D) 0.

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13. A circle has a number of tangents equal to:
- (A) 1.
 - (B) 2.
 - (C) 3.
 - (D) None of these.
14. The tangent to a circle is _____ to the radius through the point of contact.
- (A) Parallel.
 - (B) Unparallel.
 - (C) Perpendicular.
 - (D) Bisector.
15. $\sin(90^\circ - A)$ and $\cos A$ are:
- (A) Different.
 - (B) Same.
 - (C) Not related.
 - (D) Cannot be said.
16. The difference between the maximum and minimum values of the given observation is called:
- (A) Class mark.
 - (B) Range.
 - (C) Class.
 - (D) None of these.
17. The length of the longest pole that can be put in a room of dimensions $(10\text{ m} \times 10\text{ m} \times 5\text{ m})$ is:
- (A) 15.
 - (B) 12.
 - (C) 14.
 - (D) 20.
18. 30th term of the A.P: 10, 7, 4, ..., is:
- (A) 87.
 - (B) -87.
 - (C) 77.
 - (D) -77.

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19. For some integer m , every even integer is of the form:
- (A) m .
 - (B) $m+1$.
 - (C) $2m$.
 - (D) $2m+1$.
20. The degree of the constant polynomial is:
- (A) 1.
 - (B) 2.
 - (C) 3.
 - (D) 0.
21. A point has _____ dimension.
- (A) One.
 - (B) Two.
 - (C) Three.
 - (D) Zero.
22. A and B are two independent events such that $P(A \cup B') = 0.8$ and $P(A) = 0.3$. The $P(B)$ is:
- (A) $2/7$.
 - (B) $2/3$.
 - (C) $2/5$.
 - (D) $1/8$.
23. There are two coins, one unbiased with probability $1/2$ of getting heads and the other one is biased with probability $3/4$ of getting heads. A coin is selected at random and tossed. It shows heads up. Then the probability that the unbiased coin was selected is:
- (A) $2/3$.
 - (B) $3/5$.
 - (C) $5/8$.
 - (D) $2/5$.

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24. Angle between $y^2 = x$ and $x^2 = y$ at the origin is:
- (A) 30 Degree.
 - (B) 60 Degree.
 - (C) 90 Degree.
 - (D) 120 Degree.
25. If A is a square matrix, then:
- (A) $A + \text{transpose}(A)$ is symmetric.
 - (B) $A * \text{transpose}(A)$ is skew - symmetric.
 - (C) $\text{Transpose}(A) + A$ is skew-symmetric.
 - (D) $\text{Transpose}(A) * A$ is skew symmetric.
26. If $P(A \cap B) = 70\%$ and $P(B) = 85\%$, then $P(A/B)$ is equal to:
- (A) $14/17$.
 - (B) $17/20$.
 - (C) $7/8$.
 - (D) $1/8$.
27. Three balls are drawn from a bag containing 2 red and 5 black balls, if the random variable X represents the number of red balls drawn, then X can take values:
- (A) 0,1,2.
 - (B) 0,1,2,3.
 - (C) 2.
 - (D) 0.
28. Two dice are thrown once. If it is known that the sum of the numbers on the dice was less than 6 the probability of getting a sum 3 is:
- (A) $1/18$.
 - (B) $5/18$.
 - (C) $1/5$.
 - (D) $2/5$.

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29. Which of the following numbers are completely divisible by 7?
- I. 195195 III. 120120 II. 181181 IV. 891891
- (A) Only I and II.
(B) Only III and IV.
(C) Only I, II and IV.
(D) Only I, II and IV.
30. In an examination 80% candidates passed in English and 85% candidates passed in Mathematics. If 73% candidates passed in both these subjects, then what per cent of candidates failed in both the subjects?
- (A) 8.
(B) 15.
(C) 27.
(D) 35.
31. Half percent, written as a decimal, is:
- (A) 0.2.
(B) 0.02.
(C) 0.005.
(D) 0.05.
32. If x is a prime number, the LCM of x and $(x+1)$ is:
- (A) x^2 .
(B) $(x+1)^2$.
(C) $x(x+1)/2$.
(D) $x(x+1)$.
33. How many number of arrangement can be formed with the word "CHAIR" if the first place is always held by the letter "C"?
- (A) 22.
(B) 24.
(C) 26.
(D) 28.

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34. If $y=mx+c$ represents the equation of a straight line parallel to x-axis, then:
- (A) $m=0, c=0$.
 - (B) $m=0, c\neq 0$.
 - (C) $m\neq 0, c=0$.
 - (D) $m\neq 0, c\neq 0$.
35. Six friends have an average height of 167 cm. Rahul with height 162 cm leaves. What is the new average height?
- (A) 166 cm.
 - (B) 167 cm.
 - (C) 168 cm.
 - (D) 169 cm.
36. A two-digit number is such that the product of the digits is 8. When 18 is added to the number, then the digits are reversed. The number is:
- (A) 18.
 - (B) 24.
 - (C) 42.
 - (D) 81.
37. Second Saturday and Every Sunday is a holiday. How many working days will be there in a month of 30 days beginning on a Saturday?
- (A) 21.
 - (B) 22.
 - (C) 23.
 - (D) 24.
38. The equation of the straight line whose slope is 1 and intercept on x-axis is (-3), is:
- (A) $x-y+3=0$.
 - (B) $y-x+3=0$.
 - (C) $x+y+3=0$.
 - (D) $x+y=3$.

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39. The decimal expansion of $22/7$ is:
- (A) Terminating.
 - (B) Non-terminating and repeating.
 - (C) Non-terminating and Non-repeating.
 - (D) None of the above.
40. In $\triangle ABC$, right-angled at B, $AB = 24$ cm, $BC = 7$ cm. The value of $\tan C$ is::
- (A) $12/7$.
 - (B) $24/7$.
 - (C) $20/7$.
 - (D) $7/24$.
41. If a parallelogram circumscribes a circle, then it is a:
- (A) Square.
 - (B) Rectangle.
 - (C) Parallelogram.
 - (D) Rhombus.
42. If the length of the shadow of a tree is decreasing then the angle of elevation:
- (A) Remains the same.
 - (B) Decreasing.
 - (C) Increasing.
 - (D) None of the above.
43. In an Arithmetic Progression, if $a=10$ and $d=10$, then the average of first four terms will be:
- (A) 15.
 - (B) 20.
 - (C) 25.
 - (D) 30.
44. A matrix having equal number of rows and columns is called a:
- (A) Identity matrix.
 - (B) Square matrix.
 - (C) All of these.
 - (D) None of these.

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45. Two numbers are such that the ratio between them is 4:7. If each is increased by 4, the ratio becomes 3:5. The larger number is:
- (A) 36.
 - (B) 48.
 - (C) 56.
 - (D) 64.
46. The HCF of two numbers is 14. Their difference is 14. The numbers are:
- (A) 36, 46.
 - (B) 58, 72.
 - (C) 64, 78.
 - (D) 98, 112.
47. Every real number is:
- (A) Either rational or irrational number.
 - (B) Rational number only.
 - (C) Irrational number only.
 - (D) None of these.
48. If $3x^2 + 25x - 18 = 0$, then $x = ?$
- (A) $2/3$, -9.
 - (B) 9, $-2/3$.
 - (C) 3, -9.
 - (D) 2, -3.
49. Two distinct points in a plane determine:
- (A) A unique line.
 - (B) Two lines.
 - (C) An infinite number of lines.
 - (D) No possible line.
50. The pairs of equations $9x + 3y + 12 = 0$ and $18x + 6y + 26 = 0$ have:
- (A) Exactly two solutions.
 - (B) Infinitely many solutions.
 - (C) Unique solution.
 - (D) No solution.

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51. The value of $\sin 60^\circ \cos 30^\circ + \sin 30^\circ \cos 60^\circ$ is:
- (A) 1.
 - (B) 2.
 - (C) 3.
 - (D) 4.
52. If the angle between two radii of a circle is 110° , then the angle between the tangents at the ends of the radii is:
- (A) 90° .
 - (B) 40° .
 - (C) 70° .
 - (D) 50° .
53. The height of an equilateral triangle of side 5cm is:
- (A) 3.33.
 - (B) 4.33.
 - (C) 5.33.
 - (D) 6.33.
54. HCF of 8, 9, 25 is:
- (A) 8.
 - (B) 9.
 - (C) 25.
 - (D) 1.
55. The coordinate of the point P dividing the line segment joining the points A (1,3) and B (4,6) internally in the ratio 2:1 are:
- (A) (2, 4).
 - (B) (4, 6).
 - (C) (4, 2).
 - (D) (3, 5).

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56. A natural number, when increased by 12, equals 160 times its reciprocal. Find the number.
- (A) 3.
 - (B) 8.
 - (C) 4.
 - (D) 7.
57. The mid-point of $(3p, 4)$ and $(-2, 2q)$ is $(2, 6)$. Find the value of $p+q$:
- (A) 5.
 - (B) 6.
 - (C) 7.
 - (D) 8.
58. A fraction becomes $\frac{1}{3}$ when 1 is subtracted from the numerator and it becomes $\frac{1}{4}$ when 8 is added to its denominator. The fraction obtained is:
- (A) $\frac{3}{12}$.
 - (B) $\frac{4}{12}$.
 - (C) $\frac{5}{12}$.
 - (D) $\frac{7}{12}$.
59. If set $A = \{1, 2, 3, 4, 5, \dots\}$ is given, then it represents:
- (A) Whole numbers.
 - (B) Rational numbers.
 - (C) Natural numbers.
 - (D) Complex numbers.
60. A line segment drawn perpendicular from the vertex of a triangle to the opposite side is known as:
- (A) Altitude.
 - (B) Median.
 - (C) Bisector of side.
 - (D) Radius of incircle of the triangle.
61. If $\sin \theta = x$ and $\sec \theta = y$, then $\tan \theta$ is:
- (A) xy .
 - (B) x/y .
 - (C) y/x .
 - (D) $1/xy$.

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62. The HCF of two numbers is 18 and their product is 12960. Their LCM will be:
- (A) 800.
 - (B) 840.
 - (C) 720.
 - (D) 140.
63. In a throw of a pair of dice, the probability of the same number on each die is:
- (A) $1/6$.
 - (B) $2/6$.
 - (C) $4/6$.
 - (D) $5/6$.
64. The ratio of LCM and HCF of the least composite and the least prime numbers is:
- (A) 1:2.
 - (B) 2:1.
 - (C) 2:3.
 - (D) 1:1.
65. The value of k for which the lines $5x+7y=3$ and $15x + 21y = k$ coincide is:
- (A) 9.
 - (B) 5.
 - (C) 7.
 - (D) 18.
66. The product of two successive integral multiples of 5 is 300. Then the numbers are:
- (A) 25,30.
 - (B) 10,15.
 - (C) 30,35.
 - (D) 15,20.
67. The solution of the equations $x-y=2$ and $x+y=4$ is:
- (A) 3 and 1.
 - (B) 4 and 3.
 - (C) 5 and 1.
 - (D) -3 and -1.

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68. Ritu can row downstream 20 km in 2 hours, and upstream 4 km in 2 hours. Her speed of rowing in still water and the speed of the current is:
- (A) 6km/hr and 3km/hr.
 - (B) 7km/hr and 4km/hr.
 - (C) 6km/hr and 4km/hr.
 - (D) 10km/hr and 6km/hr.
69. The father's age is six times his son's age. Four years hence, the age of the father will be four times his son's age. The present ages, in years, of the son and the father, are respectively.
- (A) 4 and 24.
 - (B) 5 and 30.
 - (C) 6 and 36.
 - (D) 3 and 24.
70. Which term of the A.P. 3, 8, 13, 18, ... is 78?
- (A) 13th.
 - (B) 14th.
 - (C) 15th.
 - (D) 16th.
71. The number of multiples of 4 between 10 and 250 is:
- (A) 30.
 - (B) 50.
 - (C) 60.
 - (D) 40.
72. The list of numbers $-10, -6, -2, 2, \dots$ is:
- (A) An AP with $d = -16$.
 - (B) An AP with $d = 4$.
 - (C) An AP with $d = -4$.
 - (D) Not an AP.

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73. If triangles ABC and DEF are similar and $AB=4$ cm, $DE=6$ cm, $EF=9$ cm and $FD=12$ cm, the perimeter of triangle is:
- (A) 22 cm.
 - (B) 20 cm.
 - (C) 21 cm.
 - (D) 18 cm.
74. In $\triangle ABC$, $AB = 6\sqrt{3}$ cm, $AC = 12$ cm and $BC = 6$ cm. The angle B is:
- (A) 120° .
 - (B) 60° .
 - (C) 90° .
 - (D) 45° .
75. If the perimeter of the circle and square are equal, then the ratio of their areas will be equal to:
- (A) 14:11.
 - (B) 22:07.
 - (C) 07:22.
 - (D) 11:14.
76. If we change the shape of an object from a sphere to a cylinder, then the volume of cylinder will:
- (A) Increase.
 - (B) Decrease.
 - (C) Remain unchanged.
 - (D) Doubles.
77. If the mean of first n natural numbers is $3n/5$, then the value of n is::
- (A) 3.
 - (B) 4.
 - (C) 5.
 - (D) 6.

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78. A bag has 3 red balls and 5 green balls. If we take a ball from the bag, then what is the probability of getting red balls only?
- (A) 3.
 - (B) 8.
 - (C) $3/8$.
 - (D) $8/3$.
79. The probability that a non leap year selected at random will contain 53 Sundays is:
- (A) $1/7$.
 - (B) $2/7$.
 - (C) $3/7$.
 - (D) $6/7$.
80. All are the measures of Central Tendency except:
- (A) Mean.
 - (B) Median.
 - (C) Mode.
 - (D) Variance.
81. For a researcher, Census data is an example of:
- (A) Primary data.
 - (B) Secondary data.
 - (C) Both A & B.
 - (D) None of these.
82. Data presented in rows and columns is known as:
- (A) Table.
 - (B) Graph.
 - (C) Chart.
 - (D) Diagram.
83. The middlemost value of a dataset is known as:
- (A) Mean.
 - (B) Median.
 - (C) Mode.
 - (D) Range.

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84. Find the mode of the call received on 7 consecutive day 11, 13, 13, 17, 19, 23, 25:
- (A) 11.
 - (B) 13.
 - (C) 17.
 - (D) 23.
85. Find the median of the call received on 7 consecutive days 11, 13, 17, 13, 23, 25, 19:
- (A) 13.
 - (B) 23.
 - (C) 25.
 - (D) 17.
86. If the probability of hitting an object is 0.8, find the variance:
- (A) 0.18.
 - (B) 0.16.
 - (C) 0.14.
 - (D) 0.12.
87. What is the probability of getting a head in tossing a coin?
- (A) 0.25.
 - (B) 0.5.
 - (C) 0.75.
 - (D) 1.
88. If $P(x) = 0.8$ and $x = 3$, then find the value of $E(x)$:
- (A) 2.6.
 - (B) 2.8.
 - (C) 2.2.
 - (D) 2.4.
89. Find the arithmetic mean of the set of data: 6, 1, 5, 8, and 10.
- (A) 4.
 - (B) 5.
 - (C) 6.
 - (D) 7.

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90. Calculate the range of the given sets of data 7, 47, 8, 42, 47, 95, 42, 96, 2.
- (A) 6.
 - (B) 94.
 - (C) 71.
 - (D) 74.
91. Find the Mean of a constant k .
- (A) k .
 - (B) $k/2$.
 - (C) $2/k$.
 - (D) 20.
92. Pie diagram is:
- (A) Circular.
 - (B) Square.
 - (C) Tringle.
 - (D) Oval.
93. Parameter is a measure which is computed on:
- (A) Population.
 - (B) Sample.
 - (C) Statistics.
 - (D) None.
94. When an investigator uses the data which has already been collected by others, such data is called:
- (A) Primary data.
 - (B) Collected data.
 - (C) Processed data.
 - (D) Secondary data.
95. The largest number that divides 70 and 125, which leaves the remainders 5 and 8, is:
- (A) 65.
 - (B) 15.
 - (C) 13.
 - (D) 25.

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96. The diagram for representation of continuous data is:-

- (A) Bar Chart
- (B) Pie Diagram
- (C) Box & whisker plot
- (D) Histogram

97. The values of the remainder r , when a positive integer a is divided by 3 are:

- (A) Only 1.
- (B) Only 0 or 1.
- (C) 1,2.
- (D) 0,1,2.

98. Gender is an example of:

- (A) Qualitative data.
- (B) Quantitative data.
- (C) Continuous data.
- (D) Observed data.

99. Bar charts look like:

- (A) Circle.
- (B) Column.
- (C) V shaped.
- (D) U shaped.

100. The addition of a rational number and an irrational number is equal to:

- (A) Rational number.
- (B) Irrational number.
- (C) Both.
- (D) None.