



**JEPAS(PG)-2020**  
**Diploma in Health Statistics (DHS)-2020**

**Duration: 90 minutes**

**Full Marks: 100**

Instructions

1. All questions are of objective type having four answer options for each. Only one option is correct. Correct answer will carry full marks 1. 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.
3. Use only **Black/Blue ball point pen** to mark the answer by complete filling up of the respective bubbles.
4. Mark the answers only in the space provided. Do not make any stray mark on the OMR.
5. Write your roll number carefully in the specified locations of the **OMR**. Also fill appropriate bubbles.
6. Write your name (in block letter), name of the examination centre and put your full signature in appropriate boxes in the OMR.
7. The OMR is liable to become invalid if there is any mistake in filling the correct bubbles for roll number or if there is any discrepancy in the name/ signature of the candidate, name of the examination centre. 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.
8. Candidates are not allowed to carry any written or printed material, calculator, docu-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** & his/her candidature will be summarily cancelled.
9. Rough work must be done on the question paper itself. Additional blank pages are given in the question paper for rough work.
10. Hand over the OMR to the invigilator before leaving the Examination Hall.





- 1) In a batch of 15 students, 5 students failed in a test where the pass mark was 35. The marks of 10 students who passed were 90, 60, 70, 80, 80, 90, 60, 50, 40, 70. Find the median of the marks of all the 15 students.
- 70
  - 60
  - 80
  - 50
- 2) The percentage of 3:4 is:
- 75%
  - 50%
  - 25%
  - 00%
- 3) Find the mean of  $x + 77, x + 7, x + 5, x + 3$  and  $x - 2$
- $x + 8$
  - $x + 18$
  - $x - 8$
  - $x - 18$
- 4) If  ${}^{25}C_r = {}^{25}C_{2r+1}$  find the value of  $r$
- 7
  - 8
  - 14
  - 16
- 5) If a matrix A is both symmetric and skew symmetric then matrix A is :
- A scalar matrix
  - A diagonal matrix
  - A zero matrix of order  $n \times n$
  - A rectangular matrix
- 6) By solving the equation  $3:5x = 9:5, x \neq 0$ , the value of  $x$  will be
- $\frac{1}{2}$
  - $\frac{1}{3}$
  - $\frac{1}{4}$
  - 1
- 7) If  $A = \begin{bmatrix} 5 & x \\ y & 0 \end{bmatrix}$  and  $A = A'$  then
- $x = 0, y = 5$
  - $x = y$
  - $x + y = 5$
  - $x - y = 5$
- 8) What is the probability that a number selected from the numbers (1, 2, 3, ..... , 15) is a multiple of 4?
- $\frac{1}{5}$
  - $\frac{4}{5}$
  - $\frac{2}{15}$
  - $\frac{1}{3}$
- 9) Square of (.015)
- 0.225
  - 2.25
  - 0.00225
  - 0.000225
- 10) In a particular constituency 75% of the voter cast their votes, out of which 2% were rejected. The winning candidate received 75% of valid votes and bagged a total of 9261 votes. What was the total number of the voters in the constituency?
- 16,800
  - 16,464
  - 12,348
  - 12,000

- 11) The median of set of 9 distinct observations is 20.5. If each of the largest 4 observations of the set is increased by 2, then the median of the new set
- a) Is increased by 2
  - b) Is decreased by 2
  - c) Is two times of the original number
  - d) Remains the same as that of the original set
- 12) The middle value of an ordered array of numbers is the
- a) Mode
  - b) Mean
  - c) Median
  - d) Mid-point
- 13) Individual respondents, focus groups, and panels of respondents are categorised as :
- a) Primary Data Sources
  - b) Secondary Data Sources
  - c) Itemized Data Sources
  - d) Pointed Data Sources
- 14) The abscissa of the point of intersection of the less than type and of the more than type cumulative frequency of a grouped data gives its
- a) Mean
  - b) Median
  - c) Mode
  - d) All of these
- 15) Two natural numbers whose sum is 85 and the least common multiple is 102 are:
- a) 30 and 55
  - b) 17 and 68
  - c) 35 and 55
  - d) 51 and 34
- 16) Find the value of  $x$ , if the mode of the following data is 25.  
15, 20, 25, 18, 14, 15, 25, 15, 18, 16, 20, 25, 20,  $x$ , 18
- a) 18
  - b) 25
  - c) 20
  - d) 15
- 17) Which of the following is a measure of central tendency?
- a) Percentile
  - b) Quartile
  - c) Standard Deviation
  - d) Mode
- 18) A shuttlecock used for playing badminton has the shape of the combination of
- a) A cylinder and a sphere
  - b) A sphere and a cone
  - c) A cylinder and a hemisphere
  - d) Frustum of a cone and a hemisphere
- 19) What is the greatest possible speed at which a man can walk 52 km and 91 km in an exact number of minutes?
- a) 17 m/min
  - b) 7 m/min
  - c) 13 m/min
  - d) 26 m/min
- 20) Which of the following divides a group of data into four subgroups?
- a) Median
  - b) Quartiles
  - c) Standard Deviation
  - d) Percentiles

- 21) The median of set of 9 distinct observations is 20.5. If each of the largest 4 observations of the set is increased by 2, then the median of the new set :
- a) Is increased by 2
  - b) Is decreased by 2
  - c) Is two times of the original number
  - d) Remains the same as that of the original set
- 22) The factors of  $6xy - 4y + 6 - 9x$  are:
- a)  $(3x+2)(2y+3)$
  - b)  $(3x-2)(2y-3)$
  - c)  $(3x-2)(2y+3)$
  - d)  $(3x-2)(2y-3)$
- 23) 18% of 10 = ?
- a) 0.18
  - b) 1.8
  - c) 0.018
  - d) None
- 24) What number must be added to each of the four numbers 10, 18, 22, 38 to make them in proportion?
- a) 8
  - b) 7
  - c) 2
  - d) 1
- 25) Pictorial representation of data using symbols is known as :
- a) Bargraph
  - b) Pictograph
  - c) Piechart
  - d) None of these
- 26) Three coins are tossed simultaneously. The probability of getting all heads is
- a) 1
  - b)  $1/2$
  - c)  $1/4$
  - d)  $1/8$
- 27) What is the third proportional to:  $ab, ab^2$ ?
- a)  $a^2b$
  - b)  $ab^3$
  - c)  $a^2b^2$
  - d)  $a^3b$
- 28) The H.C.F of two numbers is 32 and their L.C.M. is 320. If one of the numbers is 64, then the other is
- a) 96
  - b) 128
  - c) 160
  - d) 192
- 29) If  $4x^2 - 22 = x^2 + 5$ , find the value of  $x$ .
- a) -3, -3
  - b) 3, -3
  - c) 3
  - d) -3
- 30) In a right-angled triangle, the base of the triangle is 12 cm and the height is 5 cm. Calculate the hypotenuse.
- a) 12
  - b) 13
  - c) 14
  - d) 15

31) Two distinct points in a plane determine:

- a) An unique line
- b) Two lines
- c) An infinite number of lines
- d) No possible line

32) Probability of an event lies between

- a) -1 to 1
- b) 0 to 1
- c) -1 to 0
- d) -0.1 to 0.1

33) The data which have already been collected by someone are called

- a) Raw data
- b) Array data
- c) Secondary data
- d) Fictitious data

34) A constant variable can take values

- a) Zero
- b) Fixed
- c) Not fixed
- d) Nothing

35) Error = \_\_\_\_ \_.

- a) True value – observed value
- b) Observed value – average value
- c) Average value – observed value
- d) Observed value – true value

36) By solving the equation  $2x - (3x - 4) = 3x - 5$ , the value of  $x$  will be

- a)  $9/4$
- b)  $1/2$
- c)  $7/3$
- d)  $1/3$

37) Five different books (A, B, C, D and E) are to be arranged on a shelf. Books C and D are to be arranged first and second starting from the right of the shelf. The number of different orders in which books A, B and E may be arranged is

- a)  $5!$
- b)  $3!$
- c)  $2!$
- d)  $3! * 2!$

38) Can 0.9 be a probability of an outcome in a sample space?

- a) Yes
- b) No
- c) Cannot be determined
- d) None of the above

39) The number of times a particular observation (score) occurs in a data is called its:

- a) Class interval
- b) Range
- c) Class Limit
- d) Frequency

40) If 20-30 is the class interval of grouped data, then lower class limit is:

- a) 50
- b) 30
- c) 20
- d) 10

- 41) The difference between the upper class limit and lower class limit of a class interval is called :
- Frequency
  - Width
  - Grouped data
  - Ungrouped data
- 42) Review of performance appraisal, labour turnover rates, planning of incentives, and training programs are examples of:
- Statistics in Production
  - Statistics in Marketing
  - Statistics in Finance
  - Statistics in Personnel Management
- 43) Rozly can row downstream 20km in 2 hours, and the upstream 4km in 2 hours. What will be the speed of rowing in still water?
- 6km/hr
  - 4km/hr
  - 3km/hr
  - 7km/hr
- 44) The probability that a prime number selected at random from the numbers (1,2,3,..... 35) is :
- 12/35
  - 11/35
  - 13/35
  - None of these
- 45)  ${}^6P_4 + {}^7P_2 + {}^{10}C_2 + {}^5C_4 = ?$
- 447
  - 497
  - 431
  - 452
- 46) How many lines can pass through a given points?
- 0
  - 1
  - 2
  - Infinite
- 47) A pharmacist needs to strengthen a 15% alcohol to one of 32% alcohol. How much pure alcohol should be added to 400 ml of the 15% solution?
- 90
  - 100
  - 200
  - 125
- 48) If matrices A and B are inverse of each other then :
- $AB = BA$
  - $AB = BA = I$
  - $AB = BA = 0$
  - $AB = 0, BA = I$
- 49) If side of a cube is t then its volume is
- 4t
  - $t^2$
  - $t^3$
  - 6t
- 50) Find out the odd one from the following :
- Mode
  - Standard deviation
  - Median
  - Mean

51) If the sum of three numbers in an A.P. is 9 and their product is 24, then numbers are

- a) 2, 4, 6
- b) 1, 5, 3
- c) 2, 8, 4
- d) 2, 3, 4

52) If the first term of an AP series is 2 and common difference is 4, then the sum of its first 40 numbers is

- a) 3200
- b) 1600
- c) 2000
- d) 2800

53) Given  $P(A) = 0.4$ ,  $P(B) = 0.7$  and  $P(B/A) = 0.6$ . Find  $P(A \cup B)$

- a) 0.50
- b) 0.68
- c) 0.86
- d) 0.05

54) Which of the following is not based on all the observations?

- a) Arithmetic mean
- b) Geometric mean
- c) Weighted mean
- d) Mode

55) Which of the following cannot be determined graphically?

- a) Mean
- b) Median
- c) Mode
- d) None of these

56) A cylinder and a cone are of same base radius and of same height. The ratio of the volume of the cylinder to that of the cone is

- a) 2:1
- b) 3:1
- c) 2:3
- d) 3:2

57) If two events are independent, then

- a) They must be mutually exclusive
- b) The sum of their probabilities must be equal to 1
- c) (a) and (b) both are correct
- d) None of the above is correct

58) Construction of cumulative frequency table is useful in determining-

- a) Mean
- b) Median
- c) Mode
- d) None of the above

59) The lengths of the diagonals of a rhombus are 16 cm and 12 cm. Then, the length of the side of the rhombus is

- a) 9 cm
- b) 8 cm
- c) 20 cm
- d) 10 cm

60) If  $a, b, c$  are in A.P., then  $(a + 2b - c)(2b + c - a)(c + a - b)$  equals :

- a)  $abc/2$
- b)  $abc$
- c)  $2abc$
- d)  $4abc$



61) Class mark is \_\_\_\_\_ of class limits/boundaries

- a) Lower value
- b) Middle value
- c) Upper value
- d) Any value

62) Every real number is

- a) Rational number only
- b) Irrational number only
- c) Either rational or irrational number
- d) None of the above

63) A fair dice is rolled. Probability of getting a number  $x$  such that  $1 \leq x \leq 6$ , is

- a) 0
- b)  $> 1$
- c) Between 0 and 1
- d) 1

64) A line through point of contact and passing through centre of circle is known as

- a) Tangent
- b) Chord
- c) Normal
- d) Segment

65) The missing term of the series 1, 4, 9, 16, ..., 36 is

- a) 20
- b) 30
- c) 25
- d) 18

66) In triangle PQR, if  $PQ = 6$  cm,  $PR = 8$  cm,  $QS = 3$  cm, and PS is the bisector of angle QPR, what is the length of SR?

- a) 2
- b) 4
- c) 6
- d) 8

67) Given 5 flags of different colours, how many different signals can be generated if each signal requires the use of 2 flags, one below the other?

- a) 25
- b) 20
- c) 10
- d) 5

68) If  $A = 2n + 13$ ,  $B = n + 7$ , where  $n$  is a natural number then HCF of A and B is:

- a) 2
- b) 1
- c) 3
- d) 4

69) Given that, the events A and B are such that  $P(A) = 1/2$ ,  $P(A \cup B) = 3/5$ , and  $P(B) = p$ . If A and B are mutually exclusive then the value of  $p$  is :

- a)  $2/3$
- b)  $1/10$
- c)  $3/10$
- d) None of the above

70) What are the total outcomes when we throw three coins?

- a) 4
- b) 5
- c) 8
- d) 7

71) An experiment whose outcomes has to be among a set of events that are completely known but whose exact outcomes is unknown is a

- a) Sample space
- b) Elementary event
- c) Random experiment
- d) None of these

72) What will be the solution of these equations  $ax+by=a-b$ ,  $bx-ay=a+b$

- a)  $x=1, y=2$
- b)  $x=2, y=-1$
- c)  $x=-2, y=-2$
- d)  $x=1, y=-1$

73) The derivative of  $x^6$  w.r.t.  $x^3$  is

- a)  $6x^6$
- b)  $3x^2$
- c)  $2x^3$
- d)  $x^2$

74) Calculate the mean of all possible factors of 10

- a) 5
- b) 6
- c) 4.5
- d) 5.5

75) A function  $f$  is said to be continuous for  $x \in R$ , if

- a) It is continuous at  $x=0$
- b) Differentiable at  $x=0$
- c) Continuous at two points
- d) Differentiable for  $x \in R$

76) The AM of 1, 3, 5, ..... , 29 is

- a) 11
- b) 13
- c) 15
- d) 17

77) What should be added to 18962 to make it exactly divisible by 13?

- a) 1
- b) 3
- c) 4
- d) 5

78) If a matrix has 6 elements, then number of possible orders of the matrix can be

- a) 2
- b) 4
- c) 3
- d) 6

79) If the arithmetic mean of  $x, x+3, x+6, x+9$  and  $x+12$  is 10, then  $x = ?$

- a) 1
- b) 2
- c) 6
- d) 4

80) Find the number which has the same ratio to 20 as that of 3:5

- a) 15
- b) 12
- c) 18
- d) 21

- 81) Mean of 100 items is 49. It was discovered that three items which should have been 60, 70, 80 were wrongly read as 40, 20, 50 respectively. The correct mean is
- a) 48
  - b) 49
  - c) 50
  - d) 60
- 82) The mean of 30 numbers is 18. What will be the new mean, if each observation is increased by 2?
- a) 18
  - b) 20
  - c) 36
  - d) 15
- 83) For the inequality  $3(3x+2)-12 \leq 11x-2$ , find the range of values for  $x$
- a)  $x \geq 1$
  - b)  $x \geq -1$
  - c)  $x \geq 2$
  - d)  $x \geq -2$
- 84) In Statistics, "Population" means
- a) Human being
  - b) Any living thing other than human
  - c) Any non-living thing
  - d) All of the above
- 85) Find the area of a trapezium when the height of the trapezium is 6 cm and parallel sides are 2 cm and 10 cm long.
- a)  $12 \text{ cm}^2$
  - b)  $5 \text{ cm}^2$
  - c)  $36 \text{ cm}^2$
  - d)  $72 \text{ cm}^2$
- 86) Let  $x$  and  $y$  be two variables and  $x > 0, xy = 1$ , then the minimum value of  $(x + y)$  is
- a) 1
  - b) 2
  - c)  $2\frac{1}{2}$
  - d) 4
- 87) The volume of a cylinder is  $87.92 \text{ m}^3$ . If the radius of the cylinder is 2 m, find the height of the cylinder, given  $\pi = 3.14$ .
- a) 3.5 m
  - b) 7 m
  - c) 21 m
  - d) 1.75 m
- 88) In how many points can two distinct lines at the most intersect?
- a) 0
  - b) 1
  - c) 2
  - d) 3
- 89) Five years ago, A was thrice as old as B and ten years later, A shall be twice as old as B. What is the present age of A.
- a) 20
  - b) 50
  - c) 60
  - d) 40
- 90) The total number of events of throwing 10 coins simultaneously is
- a) 1024
  - b) 512
  - c) 100
  - d) 10

91) The largest number which divides 70 and 125, leaving remainders 5 and 8 respectively, is

- a) 13
- b) 65
- c) 875
- d) 1750

92) If two positive integers  $p$  and  $q$  can be expressed as  $p = ab^2$  and  $q = a^3b$ ;  $a, b$  being prime numbers, then LCM ( $p, q$ ) is

- a)  $ab$
- b)  $a^2b^2$
- c)  $a^3b^2$
- d)  $a^3b^3$

93) The relationship between mean, median and mode for a moderately skewed distribution is

- a) Mode = median - 2 mean
- b) Mode = 3 median - 2 mean
- c) Mode = 2 median - 3 mean
- d) Mode = median - mean

94) Find the odd number from the following series of heights of five individuals (in cm.) :

140.9, 161.2, 153.9, 1590.9, 172.2

- a) 140.9
- b) 153.9
- c) 1590.9
- d) 172.2

95) 8 girls and 12 boys can finish work in 10 days while 6 girls and 8 boys can finish it in 14 days. Find the time taken (in hr) by the one girl alone and by one boy alone to finish the work.

- a) 120, 130
- b) 140, 280
- c) 240, 280
- d) 100, 120

96) The sum of the probability of an event and non event is :

- a) 2
- b) 1
- c) 0
- d) None of these

97) Relative frequency = \_\_\_\_\_

- a) Class frequency divided by total frequency
- b) Total frequency divided by class frequency
- c) Total frequency multiplied by class frequency
- d) Total frequency minus class frequency

98) A girl calculates that the probability of her winning the first prize in a lottery is  $\frac{8}{100}$ . If 6,000 tickets are sold, how many tickets has she bought?

- a) 400
- b) 750
- c) 480
- d) 240

99) The letters of the word SOCIETY are placed at random in a row. The probability of getting a vowel is

- a)  $\frac{1}{7}$
- b)  $\frac{2}{7}$
- c)  $\frac{3}{7}$
- d)  $\frac{4}{7}$

100) Which one of the following measurement does divide a set of observations into two equal parts?

- a) Quartiles
- b) Standard Deviations
- c) Deciles
- d) Median