QUESTION BANK- 2

1. Interviewing all members of a given population is called:

   A. a sample
   B. a Gallup poll
   C. a census
   D. a Nielsen audit.

2. Sampling means following a sequence of stages. Which ONE of the following stages should come before the others?

A. proceed with the fieldwork

B. Find suitable source for the population members

C. Define the people of interest

D. Examine the objective of the study.

3.For sampling, which ONE of the following should be up-to-date, complete and affordable?

A. Census.

B. CAPI machine

C. Sampling frame

D. Respondent.

4.A sampling frame is usually a list or directory. The statement cannot be applied to the other options.Which ONE of the following is the benefit of using simple random sampling?

   A. We can calculate the accuracy of the results.
   B. The results are always representative
   C. Interviewers can choose respondents freely.
   D. Informants can refuse to participate.

5.Which ONE of the following is the main problem with using non-probability sampling techniques?

A. The expense.

B. The results are never representative.

C. Informants can refuse to participate

D. Human judgment error

6.Which ONE of the following methods is generally used in qualitative sampling?

A. Random digit dialing

B. Quota

C. Stratified random

D. Simple random.

7. Which ONE of these sampling methods is a probability method?

A. Quota

B. Judgment

C. Convenience

D. Simple random

8.The expected value or _____ of a random variable is the center of its distribution.

a) mode

b) median

c) mean

d) bayesian inference

9.Point out the correct statement:

a) Some cumulative distribution function F is non-decreasing and right-continuous

b) Every cumulative distribution function F is decreasing and right-continuous

c) Every cumulative distribution function F is increasing and left-continuous

d) None of the Mentioned

10.Which of the following of a random variable is a measure of spread ?

a) variance

b) standard deviation

c) empirical mean

d) all of the Mentioned

11. The square root of the variance is called the _____ deviation.

a) empirical

b) mean

c) Continuous

d) standard

12. Point out the wrong statement:

a) A percentile is simply a quantile with expressed as a percent

b) There are two types of random variable

c) Python cannot approximate quantiles for you for common distributions

d) None of the Mentioned

13. Which of the following inequality is useful for interpreting variances ?

a) Chebyshev

b) Stautaory

c) Testory

d) All of the Mentioned

14.For continuous random variables, the CDF is the derivative of the PDF

a) True

b) False

15.Chebyshev's inequality states that the probability of a "Six Sigma" event is less than :

a) 10%

b) 20%

c) 30%

d) 3%

16.Which of the following random variables are the default model for random samples ?

a) iid

b) id

c) pmd

d) all of the Mentioned

17.Cumulative distribution functions are used to specify the distribution of multivariate random variables.

a) True

b) False

18. Point out the correct statement:

a) The exponent of a normally distributed random variables follows what is called the log-normal distribution

b) Sums of normally distributed random variables are again normally distributed even if the variables are dependent

c) The square of a standard normal random variable follows what is called chi-squared distribution

d) All of the Mentioned

19. Which of the following is incorrect with respect to use of Poisson distribution ?

a) Modeling event/time data

b) Modeling bounded count data

c) Modeling contingency tables

d) All of the Mentioned

20. _____ random variables are used to model rates.

a) Empirical

b) Binomial

c) Poisson

d) All of the Mentioned

21.Point out the wrong statement:

a) The normal distribution is asymmetric and peaked about its mode

b) A constant times a normally distributed random variable is also normally distributed

c) Sample means of normally distributed random variables are again normally

distributed

d) None of the Mentioned

22. Which of the following form the basis for frequency interpretation of probabilities ?

a) Asymptotics

b) Symptotics

c) Asymmetry

d) All of the Mentioned

23. Bernoulli random variables take (only) the values 1 and 0.

a) True

b) False

24. Which of the following theorem states that the distribution of averages of iid

variables, properly normalized, becomes that of a standard normal as the sample size

increases ?

a) Central Limit Theorem

b) Central Mean Theorem

c) Centroid Limit Theorem

d) All of the Mentioned

25.The binomial random variables are obtained as the sum of iid Gaussian trials.

a) True

b) False

26. Which of the following can be considered as random variable ?

a) The outcome from the roll of a die

b) The outcome of flip of a coin

c) The outcome of exam

d) All of the Mentioned

27. Which of the following random variable that take on only a countable number of possibilities?

a) Discrete

b) Non Discrete

c) Continuous

d) All of the Mentioned

28. Point out the wrong statement:

a) A random variable is a numerical outcome of an experiment

b) There are three types of random variable

c) Continuous random variable can take any value on the real line

d) None of the Mentioned

29. Which of the following condition should be satisfied by function for pmf ?

a) The sum of all of the possible values is 1

b) The sum of all of the possible values is 0

c) The sum of all of the possible values is infinite

d) All of the Mentioned

30. Which of the following function is associated with a continuous random variable ?

a) pdf

b) pmv

c) pmf

d) all of the Mentioned

31. Statistical inference is the process of drawing formal conclusions from data.

a) True

b) False

32. Which of the following approach should be used if you can't fix the variable ?

a) randomize it

b) non stratify it

c) generalize it

d) none of the Mentioned

33. If X predicts Y,it does mean X causes Y.

a) True

b) False

34. Point out the wrong statement:

a) In Sample Error is also called generalization error

b) Out of Sample Error is the error rate you get on the new dataset

c) In Sample Error is also called resubstitution error

d) All of the Mentioned

35. Which of the following is correct order of working ?

a) questions->input data ->algorithms

b) questions->evaluation ->algorithms

c) evaluation->input data ->algorithms

d) all of the Mentioned

36. Which of the following shows correct relative order of importance ?

a) question->features->data->algorithms

b) question->data->features->algorithms

c) algorithms->data->features->question

d) none of the Mentioned

37. Which of these measures are used to analyze the central tendency of data?

A) Mean and Normal Distribution

B) Mean, Median and Mode

C) Mode, Alpha & Range

D) Standard Deviation, Range and Mean

38. Five numbers are given: (5, 10, 15, 5, 15). Now, what would be the sum ofdeviations of individual data points from their mean?

A) 10

B)25

C) 50

D) 0

39. A test is administered annually. The test has a mean score of 150 and a standard deviation of 20. If Ravi's z-score is 1.50, what was his score on the test?

A) 180
B) 130
C) 150
D) None of the above

40. Which of the following measures of central tendency will always change if a single value in the data changes?

A) Mean

B) Median

C) Mode

D) All of these

41.Which of the following statements are true about Bessels Correction while calculating a sample standard deviation?
1. Bessels correction is always done when we perform any operation on a sample data.
2. Bessels correction is used when we are trying to estimate population standard deviation from the sample.
3. Bessels corrected standard deviation is less biased.
A) Only 2
B) Only 3
C) Both 2 and 3
D) Both 1 and 3

42. [True or False] Standard deviation can be negative.

A) TRUE

B) FALSE

43. [True or False] The standard normal curve is symmetric about 0 and the total area under it is 1.

A)TRUE

B) FALSE

44. If n = 10 and p= 0.8, then the standard deviation of the binomial distribution is _____.

i) 0.80

ii) 1.26

iii) 1.60

iv) 8.00

45. If the outcomes of a discrete random variable follow a Poisson distribution, then their

i) mean equals the variance

ii) mean equals the standard deviation

iii) medain equals the variance

iv) median equals the standard deviation

46. Which of the following is not true about binomial probability distribution?

i) Each outcome is independent of each other

ii) Each outcome can be classified as either success or failure.

Iii) The probability of success must be constant from trial to trial.

iv) The random variable of interest is continuous.

47. The mean of certain discrete random variable is 12, find out the mean if all of the observations are multiplied by 2 and added with 2.

i) 24

ii) 4

iii) 26

iv) 12

48. The standard deviation of certain continous random variable is 4, find out the standard deviation if all of the observations are multiplied by 2 and added with 2.

i) 8

ii) 6

iii) 10

iv) 4

Solution: i

49.Suppose a discrete random variable has following distribution

X   4 3 12 2

P(X == x)   0.3 0.2 0.2 0.3

find out the mean and standard deviation of the distribution

i) 3.6 1.2

ii) 4.8 3.68

iii) 4.8 1.2

iv) 5 3.68

50.PDF of a certain continuos random variable is defined by function where x can be anything in the interval [0,1]. Compute C(approx) using normalization condition on PDFs.

i) 12

ii) 6

iii) 2

iv) 24