Seat No.	

PD-37

Total No. of Pages : 14

M. Phil/Ph.D. Entrance Examination-2025
PHARMACY
Sub. Code: 58753

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Day and Date :Wednesday, 10-09-2025 **Total Marks : 100**

Time : 10.00 p.m. to 12.00 p.m.

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Instructions:

1. All questions are compulsory.
2. Each question carries 2 marks.
3. Answers should be marked in the given OMR answer sheet by darkening the appropriate option.
4. Use black ball point pen only for marking the circle. Do not make any stray mark on the OMR Answer Sheet.
5. Follow the instructions given on OMR Sheet.
6. Rough work shall be done on the sheet provided at the end of question paper.
7. Only non programmable calculators are allowed.

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1. What is a null hypothesis

   (a) It is Subjective in nature

   (b) When there is difference between the variables

   (c) It is same as research hypothesis

   (d) When there is no difference between the variables

2. Factorial Analysis is used for which purpose

   (a) To test the Hypothesis

   (b) To understand the corelationship between two variables

   (c) To investigate the effects of two or more independent variables on a dependent variable

   (d) To identify the difference between two variables

3. Which is the most suitable sampling method for research problem dealing with heterogeneous population
   (a) Convenience Sampling
   (b) Stratified Sampling
   (c) Cluster Sampling
   (d) Lottery Method
4. Probability sampling is based on which concept
   (a) Random selection
   (b) Non random selection
   (c) Restricted sampling
   (d) systematic bias sampling
5. Continuous variables are represented by:
   (a) Bar diagram
   (b) Pie diagram
   (c) Line diagram
   (d) Histogram
6. What is Mode
   (a) Least frequently occurring value in a given set of data
   (b) Most frequently occurring value in a given set of data
   (c) Middle most value in a given set of data
   (d) None of the above
7. The difference between expected and observed results is represented by
   (a) Chi-square
   (b) Variance ratio
   (c) Correlation
   (d) Theta value

8. What is the Correlation between two variables is called as If the variables deviate in opposite direction.
   (a) Positive correlation
   (b) Partial Correlation
   (c) Inverse correlation
   (d) curvilinear correlation
9. What do you mean by longitudinal design of research
   (a) a research study where sample of the population is studied at intervals to examine the effects of development
   (b) a research method that involves comparing multiple cases to develop explanations
   (c) A research method or study in which data is collected from a population at a specific point in time
   (d) A research study that evaluates how only variable impact a population at only one time
10. Mean deviation can be computed from
   (a) Mean
   (b) Median
   (c) Mode
   (d) Both mean and median

11. A regression line is a straight line which
    (a) A regression line is a non linear relationship that illustrates the behaviour of a set of data
    (b) Describes how a response variable y changes as an explanatory variable x changes
    (c) Is located close to the highest value of the data point set
    (d) Provides an approximate relationship between the values of two parameters
12. Non-probability sampling is also known as.....
    (a) Deliberate sampling
    (b) Purposive sampling
    (c) Judgement sampling
    (d) All of the above
13. Which of the following is a parametric test
    (a) Paired or unpaired t-test
    (b) Chi-square test
    (c) Mann-Whitney U test
    (d) Spearman's rank correlation coefficient
14. Which technique is generally used when population is finite
    (a) Purposive Sampling Technique
    (b) Consecutive sampling
    (c) Systematic Sampling Technique
    (d) Convenience sampling

15. Which of the following type of chart is useful for showing trends or changes over time
    (a) Waterfall chart
    (b) Line chart
    (c) Area chart
    (d) Pie chart
16. Which of the following is not true for hypothesis-testing research
    (a) In this research the researcher tests the hypotheses of causal relationships between variables
    (b) These are generally known as experimental studies
    (c) These studies require procedures that will reduce bias and increase reliability
    (d) Most of the social research comes under this category
17. Which of the following is true bout standard deviation
    (a) Calculates the extent to which the values differ from the average
    (b) Measure of amount of variation of the values of a variable about its mean
    (c) Positive square root of variance
    (d) All of the above
18. Which is the best method for condensing a large collection of data
    (a) Construct Frequency polygon
    (b) Construct Frequency distribution
    (c) Construct Class limits
    (d) Snappy compression

19. Which of the following is not a measure of central tendency?

    (a) Mean

    (b) Median

    (c) Mode

    (d) Variability

20. A graphical representation of a frequency distribution is called as

    (a) Histogram

    (b) Stem and leaf plot

    (c) Scatter diagram

    (d) Time-series plot

21. Which of the following is not a non-random sampling method

    (a) Judgement sampling

    (b) Convenience sampling

    (c) Cluster sampling

    (d) network sampling

22. Pearson correlation coefficient represented by r measures

    (a) Strength of data scatter for a statistical series

    (b) The strength and direction of the relationship between two variables

    (c) Strength of correlation between mean, median and mode

    (d) Approximate relationship between values of two parameters

23. If the correlation coefficient is zero, the slope of linear regression line will be

    (a) Positive

    (b) Negative

    (c) Zero

    (d) No effect on slope of line

24. In regression analysis independent variable is also known as
    (a) Predictor
    (b) Regressor
    (c) Both Predictor and regressor
    (d) None of the above
25. Conducting multiple t-tests increases the chances of which of these errors
    (a) Type I error
    (b) Type II errors
    (c) Type III errors
    (d) Homogeneity
26. Which relationship is given by Beer Lambert's law.
    (a) Scattered radiation and concentration
    (b) Energy absorption and concentration
    (c) Energy absorption and reflected radiation
    (d) Reflected radiation and concentration
27. Which of the following method is most suitable for determination of heavy metals like Lead in drinking water.
    (a) Gas Chromatography-Mass Spectrometry
    (b) High Performance Liquid Chromatography
    (c) Capillary Zone Electrophoresis
    (d) Atomic Absorption Spectroscopy
28. If the solution has to be a buffer then its pH should be
    (a) Equal to pKa
    (b) Less than pKa
    (c) More than pKa
    (d) No correlation of pH with pKa

29. The most popular pore diameters for a typical adsorbent such as silica gel are
    (a) 1 and 50 A°
    (b) 60 and 100 A°
    (c) 100 and 200 A°
    (d) 200 and 250 A°
30. A backing material for unidirectional release of a buccal formulation is
    (a) Sodium carboxy methyl celluloidse
    (b) Hydoxy propyl methyl cellulose
    (c) PEG 400
    (d) Ethyl cellulose
31. Which of the following parameter gives valuable data regarding aggregation potential and surface charge of microparticles
    (a) PH
    (b) Brownian movement
    (c) Zeta potential
    (d) Morphology
32. What is the pH of 0.1 M hydrochloric acid solution
    (a) 1
    (b) 2
    (c) 3
    (d) 4
33. What is the precursor for biosynthesis of tropane alkaloids
    (a) Leucine
    (b) Phenylalanine
    (c) Ornithine
    (d) Malonyl-CoA

34. What is the end product of glycolysis.
    (a) Ascorbic acid
    (b) Glucose
    (c) ATP
    (d) Pyruvic acid
35. Attachment of -Cl (chloro) group at para position in benzoic acid will result into which effect
    (a) Increase acidity
    (b) Decrease acidity
    (c) Not effect on acidity
    (d) Cl (chloro group) can not be attached at para position
36. Which of the following is a solvent with low toxic potential
    (a) Butanol
    (b) Methanol
    (c) Chloroform
    (d) Acetonitrile
37. Verapamil is a synthetic derivative of molecule derived from which traditional medicinal plant.
    (a) Galega officinalis
    (b) Papaver somniferum
    (c) Papaver somniferum
    (d) Physostigma venenosum

38. Which one of these is adulterant of digitalis leaves?

    (a) Digitalis thapsi

    (b) Pemula vulgaris

    (c) Verbasscum thapsus

    (d) Both Pemula vulgaris and Verbasscum thapsus

39. Column efficiency is measured in terms of number of plates which is .....

    (a) Directly related to the square of t he peak width

    (b) Inversely related to the square of the peak width

    (c) Inversely related to the square of the peak area

    (d) Directly related to the square of the peak area

40. Which of the following statements is true about monolithic devices

    (a) Have drugs with large therapeutic indices

    (b) Have rapid drug permeation

    (c) Only hydrophilic polymers are used

    (d) Release is through a polymer membrane

41. Which of the following statements is true

    (a) Amorphous form of drug dissolves faster than crystalline form

    (b) Amorphous form of drug dissolves slower than crystalline form

    (c) Amorphous and crystalline form both dissolve at the same rate

    (d) Dissolution does not depend on amorphous or crystalline form

42. Bitter taste of fennel is due to the presence of which compound

    (a) Anethole

    (b) Limonene

    (c) Fenchone

    (d) Estragole

43. Which of the following offers a direct pathway to the brain

(a) Nasal vestibule
(b) Olfactory mucosa or superior turbinate
(c) Inferior turbinate
(d) Substantia nigra compacta

44. Solids whose atoms arrange themselves in different forms are known as

(a) Crystals
(b) Amorphous
(c) Allotropes
(d) Isotopes

45. Which of the following properties of colloids does not depend on the charge on particles

(a) Coagulation
(b) Tyndall effect
(c) Electro-osmosis
(d) Electrophoresis

46. What is the mechanism of contraction of smooth muscles in response to histamine binding with H1 receptors in the ileum?

(a) Release of PGG2
(b) Release of PGE2
(c) Decrease in intracellular calcium concentration
(d) Increase in intracellular calcium concentration

47. Bismuth potassium iodide reacts with which of the compound to give an orange-red precipitate.

(a) Cocaine
(b) Lycopene
(c) Limonene
(d) Inulin

48. Ergot powder gives blue colour with which compound

(a) o-dimethyl aminobenzaldehyde under acidic condition
(b) p-dimethyl aminobenzaldehyde under acidic condition
(c) m-trimethyl aminobenzaldehyde under acidic condition
(d) ortho, para-dimethyl aminobenzaldehyde under acidic condition

49. Ribose is a pentose sugar found in

    (a) DNA

    (b) ATP

    (c) RNA

    (d) All of the above

50. Which type of substance is LEAST likely to permeate a membrane by passive diffusion?

    (a) Hydrophilic, large, charged molecule

    (b) Hydrophobic, large, charged molecules

    (c) Hydrophilic, small, charged molecule

    (d) Hydrophobic, Small, charged molecules

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- Rough Work -

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