

Seat No.

Total No. of Pages : 14

Ph.d Entrance Examination March - April, 2026**PHARMACY****Sub. Code: 58753**

Day and Date : Tuesday, 06-Oct-2026**Total Marks : 100****Time : 01.00 pm to 03.00 pm**

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. Which of the following is used to test null hypothesis.

(a) ANOVA

(b) factorial analysis

(c) t test

(d) x

2. Which of the following is true about Fundamental research.

(a) Study of existing literature on various topics

(b) Evaluation of existing material concerning research methods

(c) Expound new principles

(d) Generate new ideas

3. When population is finite, which of the following technique is generally used.
- (a) Purposive Sampling Technique
 - (b) Systematic Sampling Technique
 - (c) Area Sampling Technique
 - (d) None of the above
4. What is called as stratified sampling
- (a) It involves dividing the population into subgroups or strata based on certain characteristics or variables.
 - (b) To choose participants based on their availability and desire to participate in the study
 - (c) creating a sample based on predefined traits
 - (d) It involves asking selected participants to refer others who may qualify for the study
5. What is the major attribute of Correlation Analysis?
- (a) Finding association among variables
 - (b) Finding difference among variables
 - (c) Finding regression among variables
 - (d) Finding Variations among variables
6. Unrestricted sampling is classified under which category
- (a) Cluster sampling
 - (b) Representation basis sampling
 - (c) Judgement sampling
 - (d) Element selection technique

7. What is Mean deviation

- (a) A statistical measure that is used to calculate the average deviation from the mean value of the given data set
- (b) A statistical measure that is used to calculate the average deviation from the highest value of the given data set
- (c) A statistical measure that is used to calculate the average deviation from the lowest value of the given data set
- (d) None of the above

8. What is a cross sectional design

- (a) Used for population-based surveys
- (b) A type of research design in which researchers collect data from many individuals at a single point in time
- (c) Generate hypotheses about causal connections between factors to be explored in experimental designs
- (d) All of the above

9. t-test is most suitable for

- (a) Comparing the means of three or more independent groups to determine if there are statistically significant differences between them
- (b) Determining if there's a statistically significant difference between the means of two groups
- (c) Measuring the overall spread of data from its mean
- (d) Analyzing categorical data to determine if there's a significant association between two variables

10. Which of the following is not correct for Purposive Sampling Technique
- (a) Refers to a group of non-probability sampling techniques in which units are selected because they have characteristics that you need in your sample
 - (b) A technique used in qualitative research to select a specific group of individuals or units for analysis
 - (c) It is a non-randomized sampling technique that selects sampling units based on certain criteria.
 - (d) In this technique the population is divided into subgroups, but each subgroup has similar characteristics to the whole sample
11. If the number of values in a data set is even, and the numbers are ordered, then
- (a) The median cannot be found
 - (b) The median, mode and mean are equal
 - (c) The median is the average of the two middle numbers
 - (d) None of the above
12. What is indicated by a value of linear correlation coefficient greater than zero.
- (a) A positive relationship
 - (b) A negative relationship
 - (c) No effect on relationship
 - (d) correlation coefficient is never greater than zero

13. Which of the following conditions best represent choice of stratified sampling
- (a) If a population from which a sample is to be drawn constitute a homogeneous group
 - (b) If a population from which a sample is to be drawn does not constitute a homogeneous group
 - (c) An element of randomness is introduced into this kind of sampling
 - (d) Total population is divided into a number of relatively small subdivisions
14. Repeated measures t-test is also called as
- (a) Within-subjects t-test,
 - (b) Paired sample t-test
 - (c) Matched pair t-test
 - (d) All of the above
15. Gaussian distribution is also known as
- (a) Normal distribution
 - (b) Random distribution
 - (c) Binomial distribution
 - (d) Poisson distribution
16. What is the first step while calculating median of a data set
- (a) Data should be arranged in ascending order only
 - (b) Data should be arranged in descending order only
 - (c) Data can be arranged either in ascending or descending order
 - (d) Calculate the mean of middle of two items in data set

17. Cluster sampling, stratified sampling and systematic sampling are types of
- (a) Probability sampling methods (b) Non random sampling
 - (c) Indirect sampling (d) Direct sampling
18. Which of the following are basic principles of experimental designs
- (a) Principle of Replication (b) Principle of Randomization
 - (c) Principle of Local Control (d) All of the above
19. Which of the following is most helpful in the construction of a pie chart
- (a) Relative frequencies
 - (b) Cumulative percentages
 - (c) Frequency distribution
 - (d) Points connected by line segments
20. The most frequently occurring value in a data set is called the
- (a) Mean (b) Mode
 - (c) Skewness (d) Maximum value
21. Which of the following is not a condition of the binomial distribution?
- (a) Trials must be independent
 - (b) Have constant probability of success
 - (c) Must have atleast 3 trials
 - (d) Discrete probability distribution that gives only two possible results in an experiment

22. Which of the following statement is true
- (a) Standard error is always zero
 - (b) Standard error is always one
 - (c) Standard error is always negative
 - (d) Standard error is always positive
23. What does it mean when the dots in a scatter diagram form a tight cluster
- (a) There is a strong relationship between the variables
 - (b) There is a weak relationship between the variables
 - (c) There is no relationship between the variables
 - (d) The relationship is undefined
24. Which of the following is true for dependent variable.
- (a) Always remains constant in a particular context
 - (b) It is called as explanatory variables
 - (c) The variable that changes as a result of the independent variable manipulation
 - (d) It is a variable that stands alone and isn't changed by the other variables

25. Which of the following statement is not true about chi square test
- (a) To test the correlation between two continuous variables
 - (b) The chi-square distribution is always right-tailed
 - (c) The Chi-square test is used for categorical data
 - (d) The chi-square test can be used for both tests of independence and goodness of fit
26. Separation of molecules in gas chromatography occurs on the basis of which principle.
- (a) Polarity
 - (b) Molecular weight
 - (c) Both polarity and molecular weight
 - (d) Molecular size
27. High speed homogenization and atomization of feed into a stream of hot air is associated with
- (a) Centrifugal extrusion
 - (b) Multiorifice centrifugal technique
 - (c) Spray congealing
 - (d) Spray Drying
28. A biocompatibility test that estimates potential harmful effects of single or multiple exposure of the implant during a period of less than 24 hours is known as
- (a) chronic toxicity study
 - (b) subchronic toxicity study
 - (c) acute toxicity study
 - (d) subacute toxicity

29. The size of particles in a parenteral suspension should be
- (a) Less than 10 μm (b) 10 to 20 μm
(c) 50 to 100 μm (d) 200 to 300 μm
30. The eluent strength is a measure of
- (a) Solvent absorption energy (b) Solvent adsorption energy
(c) Solvent diffusivity (d) Solvent mixing index
31. What is the pH of 0.1 M sodium hydroxide solution
- (a) 10 (b) 11
(c) 12 (d) 13
32. Which one of these alkaloids is volatile in nature?
- (a) Nicotine (b) Atropine
(c) Papaverine (d) Morphine
33. Which part of the Dill plant contains maximum oil?
- (a) Fruits (b) Flower
(c) Stem (d) Roots
34. Paclitaxel, a potent anticancer compound was isolated from which natural source
- (a) The pacific ocean algae (b) Madagascar periwinkle plant
(c) Pacific yew tree (d) Soil

35. What is the normal pH range of nasal secretion in adults
- (a) 4.0-5.0 (b) 6.5-8.0
- (c) 7.0-7.5 (d) 5.5-6.5
36. Which of the following metabolites of methanol are responsible for causing blindness
- (a) Formic acid
- (b) Formaldehyde
- (c) Propionic acid
- (d) Methanol does not undergo metabolism in human
37. Which of following is common compound shared by TCA cycle and Urea Cycle.
- (a) α - Ketoglutarate (b) Fumarate
- (c) Oxaloacetate (d) Succinyl CoA
38. Which of the following drug is major source of indole alkaloids
- (a) Senna (b) Cinnamon
- (c) Rauwolfia (d) Belladonna
39. Absorption by transmucosal routes is
- (a) Paracellular
- (b) Transcellular
- (c) Both paracellular and transcellular
- (d) Pinocytosis

40. An isocratic elution in HPLC is one in which the composition of the solvent
- (a) Remains constant
 - (b) Changes in a series of steps
 - (c) Changes with time
 - (d) Not related to composition of solvent
41. Which of the following is a desirable characteristic of a drug for formulation of oral controlled drug delivery system?
- (a) Short half-life
 - (b) Longer Half life
 - (c) High protein binding
 - (d) Instability in the small intestine
42. Which type of filter is often used as a pre-filter to remove larger particles before finer filtration in pharmaceutical industry
- (a) Membrane filters
 - (b) Sand filters
 - (c) Depth filters
 - (d) HEPA filters
43. The high acidic strength of para nitro benzoic acid is due to;
- (a) Negative resonance effect
 - (b) Positive inductive effect
 - (c) Negative inductive effect
 - (d) Negative inductive effect and negative resonance effect

44. Which technique is best suited to predict the structure of drug target in the absence of solved protein structure.
- (a) Molecular docking
 - (b) Homology modelling
 - (c) Crystallography
 - (d) Virtual screening
45. Tyrosine kinase inhibitors are first line agents used in treatment of which conditions
- (a) Hepatocellular carcinoma
 - (b) Breast cancer
 - (c) Chronic Myeloid Leukemia
 - (d) Acute Myeloid Leukemia
46. Sodium taurocholate used as penetration enhancer is
- (a) Water-insoluble phospholipid surfactant
 - (b) Bile salt with surfactant property
 - (c) Fatty acid with surfactant property
 - (d) Bile salt but no surfactant property
47. Which of the following is a class 1 residual solvent
- (a) Benzene
 - (b) Hexane
 - (c) Methanol
 - (d) 1,4-Dioxane

48. Cardiotonic activity of *Urginea maritima* is due to the presence of which constituent
- (a) Cardenolides
 - (b) Bufadienolides
 - (c) Naphthoquinones
 - (d) Both Cardenolides and Bufadienolides
49. Which of the following is an amorphous material
- (a) Lead
 - (b) Sodium chloride
 - (c) Glass
 - (d) Quartz
50. From the list below, select which of the statements may be correctly applied to a pseudopolymorphic solvate
- (a) The solvent is strongly bound
 - (b) Desolvation does not destroy the crystal lattice
 - (c) The solvent is not easily removed
 - (d) The solvent plays a key role in holding together the crystal lattice

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ROUGH WORK