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M.Phil./Ph.D. Entrance Examination, July - 2022
PHARMACY

Day and Date : Saturday, 16 - 07 - 2022**Total Marks : 100****Time : 11.00 a.m. to 1.00 p.m.**

- 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.

- 1) The coefficient of determination in regression analysis unfolds_____
 - A) Effect of dependent variable on the independent variable
 - B) Correlation of X with the Y
 - C) Change in X axis with the change in value of Y
 - D) Percentage change in Y due to change in X

- 2) ANOVA is meant for checking if the_____
 - A) Errors of two or more groups are significantly different from each other
 - B) Means of two or more groups are significantly different from each other
 - C) Standard deviations of two or more groups are significantly different from each other
 - D) None of the option correct

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- 3) Correlation coefficient is used to measure the_____
- A) Strength of the relationship between the relative movements of two variables
 - B) Dependency of X on Y
 - C) Dependency of Y on X
 - D) Slope and intercept of the relationship between the two variables
- 4) Which of the following statement is CORRECT in connection to The Patents Act 1970?
- A) Patent is a territorial right
 - B) Patent cannot be infringed
 - C) Patent doesn't offer exclusivity to practice invention by the patentee
 - D) None of the options correct
- 5) The HPMC polymer has been used in the extended release tablet formulation. Choose which type of hypothesis it is
- A) Null
 - B) Alternate
 - C) Random
 - D) Rational
- 6) Coefficient of correlation value lies between
- A) 0 and + 1
 - B) - 1 and + 1
 - C) 0 and - 1
 - D) -2 and + 2
- 7) Name of the conceptual framework in which the research is carried out
- A) Research paradigm
 - B) Synopsis of Research
 - C) Research hypothesis
 - D) Research design

- 8) If the p-value is less than your significance level (e.g., 0.05), null hypothesis can be rejected. What does it mean?
- A) It means the difference between the two variances is statistically insignificant.
 - B) It means the difference between the two variances is statistically significant.
 - C) It means the difference between the two means is statistically significant.
 - D) It means the difference between the two means is statistically insignificant.
- 9) How many independent and dependent variables are there in a One-Way ANOVA?
- A) 1 independent variable and 3 dependent variables
 - B) 1 independent variable and 1 dependent variable
 - C) 2 independent variables and 1 dependent variable
 - D) 3 independent variables and 2 dependent variable
- 10) An essential Criterion of Scientific study is_____.
- A) Belief
 - B) Value
 - C) Objectivity
 - D) Subjectivity
- 11) What are the two types of effects you must be able to identify from an ANOVA?
- A) Main effects and interactions
 - B) Explorative and intentional
 - C) Intentional effects and accidental findings
 - D) Expected and error
- 12) Research conducted to find solution for an immediate problem is_____
- A) Fundamental Research
 - B) Analytical Research
 - C) Survey
 - D) Action Research

- 13) A meta-analysis would allow you to:
- A) Explore the variations or inconsistencies in the outcomes of lots of studies
 - B) Assess the reliability of a study
 - C) Identify the antecedents of a behaviour
 - D) Replicate many studies
- 14) Random sampling is helpful as it is_____.
- A) Reasonably accurate
 - B) Free from personal biases
 - C) An economical method of data collection
 - D) All options correct
- 15) Type-I Error occurs if_____
- A) the null hypothesis is rejected even though it is true
 - B) the null hypothesis is accepted even though it is false
 - C) both the null hypothesis as well as alternative hypothesis are rejected
 - D) None of options correct
- 16) What is a research design?
- A) A way of conducting research that is not grounded in theory
 - B) The choice between using qualitative or quantitative methods
 - C) The style in which you present your research findings, e.g. a graph
 - D) A framework for every stage of the collection and analysis of data
- 17) In an experimental design, the dependent variable is
- A) The one that is not manipulated and in which any changes are observed
 - B) The one that is manipulated in order to observe any effects on the other
 - C) A measure of the extent to which personal values affect research
 - D) An ambiguous concept whose meaning depends on how it is defined

- 18) On which of the following, scientific knowledge mostly relies?
- A) Logical understanding B) Identification of events
C) Prior knowledge D) All of the given options
- 19) Concept is of two types
- A) Abstract and Coherent B) Concrete and Coherent
C) Abstract and concrete D) None of the above
- 20) _____ is a quality of Good Hypothesis.
- A) Small size B) Conceptual Clarity
C) Durability D) Applicability
- 21) Statistical Hypothesis is derived from..
- A) Frame B) Data
C) Sample D) Facts
- 22) Ideally, for collection of data how much percentage time should be devoted?
- A) 50 B) 25
C) 75 D) 33
- 23) Research related to abstract ideas or concepts is_____
- A) Empirical research B) Conceptual research
C) Quantitative reserach D) Qualitative research
- 24) A primary data collection method that involves tracking behavior over a period of time is called:
- A) Browsing B) Observation
C) Sampling D) Testing

- 25) 'The researcher identifies meaningful patterns in data.' To which ONE of the following does this refer?
 - A) Interpretation
 - B) Analysis
 - C) CHAID
 - D) NVIVO
- 26) The issue of dose dumping of SR formulations can be resolved by formulation of_____.
 - A) Multiple unit particulate systems
 - B) CR tablets
 - C) Delayed release tablets
 - D) Modified release tablets
- 27) Which of the following type of release maintains constant level of drug in the body?
 - A) CR
 - B) SR
 - C) Delayed
 - D) Repeat action
- 28) Which of the following dosage form can be used to improve the bioavailability of hydrophilic drugs through GIT?
 - A) Phytosomes
 - B) O/W emulsions
 - C) Normal micelles
 - D) Nanoparticles prepared using HPMC
- 29) In connection with the provisions of Pharmacy Practice Regulation 2015, which is INCORRECT?
 - A) Pharmacist can't charge his professional consultation fees for specialized services to patient
 - B) Pharmacists can dispense medicines
 - C) Pharmacist can counsel the patient
 - D) Pharmacist can be a family pharmacist for patient

- 30) Phase inversion in the cold cream has been carried out to_____
- A) Improve the stability B) Reduce the stability
C) Increase the globule size D) Carry out phase separation
- 31) Drugs which bind selectively to plasma proteins have apparent volume of distribution _____than their true volume of distribution?
- A) Smaller B) Larger
C) Equal D) None of the options correct
- 32) 'Whiskering' at the tablet surface is due to which of the following?
- A) Use of flat punches B) Use of deep concave punches
C) Use of deep convex punches D) None of the options correct
- 33) Which of the following is the method for the measurement of surface or interfacial tension?
- A) Capillary rise method B) drop - weight method
C) Whilhelmy plate method D) All options correct
- 34) Dilatent materials are also called as _____ systems.
- A) Shear thinning C) Shear thickening
B) Thixotropic D) Rheopexic
- 35) We are not able to see with the naked eyes, the solid dissolving in the solvent. The reason is_____
- A) Molecular level strong solute solvent interaction
B) Solute molecules occupy the space between solvent molecules
C) The size of solute molecules is small in size than the wavelength of visible light
D) All options correct

- 36) When trans-2-butene is treated with the bromine, an addition of bromine yields meso-2,3- dibromobutane. Select the correct statement regarding the reaction.
- A) The reaction is stereoselective as well as stereospecific
 - B) The reaction is stereoselective and not stereospecific
 - C) The reaction is nonstereoselective as well as nonstereospecific
 - D) The reaction is stereospecific and not stereoselective
- 37) Which of the following is a hypoglycemic agent having MOA as blocking of ATP sensitive potassium channels?
- A) Mitiglinide
 - B) Pioglitazone
 - C) Liraglutide
 - D) Sitagliptin
- 38) All of the following NSAIDs are safe in children, EXCEPT
- A) Aspirin
 - B) Acetaminophen
 - C) Indomethacin
 - D) Ibuprofen
- 39) Phenothiazine is obtained by _____ with sulfur
- A) Cyclization of dibenzyl amine
 - B) Cyclization of diphenyl amine
 - C) Reduction of diphenyl amine
 - D) Reduction of dibenzyl amine
- 40) SAR shows that the important binding groups in morphine are the phenol, aromatic ring and amine. A diagram can be drawn which shows these functional groups and their relative orientations. What is the term for this?
- A) Pharmacodynamics
 - B) Pharmacokinetics
 - C) Chromophore
 - D) Pharmacophore

- 41) Which of the following is a MOA of aspirin as a platelet aggregation inhibitor?
- A) It acts as a suicide substrate for COX-1 enzyme present in the platelets
 - B) It acts as a transition state analog for the COX-2 enzyme present in the platelets
 - C) It acts as a reversible inhibitor of lipoxigenase present in the platelets
 - D) It acts as an affinity label of oxidoreductase present in the platelets
- 42) Barbiturates with the substitution at the following possesses acceptable hypnotic activity.
- A) 1,3- Disubstitution
 - B) 5,5-Disubstitution
 - C) 1,5-Disubstitution
 - D) 3,3 - Disubstitution
- 43) Which of the following is NOT a biomarker for COVID 19 diagnosis and treatment?
- A) LDH
 - B) CRP
 - C) D Dimer
 - D) ILO
- 44) The difference between adverse drug reaction and side effects is that_____
- A) Side effects are unintended pharmacologic effects that occur when a medication is administered correctly, while a adverse effects are secondary unwanted effect that occurs due to drug therapy
 - B) Adverse events are unintended pharmacologic effects that occur when a medication is administered correctly, while a side effect is a secondary unwanted effect that occurs due to drug therapy
 - C) Adverse effects can't be avoided, whereas, side effects can be avoided
 - D) None of the options correct

- 45) Inhaled salbutamol is useful in bronchial asthma for:
- A) Aborting/terminating asthma attacks
 - B) Round the clock prophylaxis of asthma
 - C) Status asthmaticus
 - D) All of the options correct
- 46) The most important reason for using a combination of chemotherapeutic agents in the treatment of tuberculosis is
- A) To prevent development of resistance to the drugs
 - B) To obtain bactericidal effect
 - C) To broaden the spectrum of activity
 - D) To reduce adverse effects of the drugs
- 47) Inchemo-microscopic work, ruthenium red imparts red color to_____
- A) Lignified tissues
 - B) Cuticular wall
 - C) Mucilage
 - D) Protein deposits
- 48) Which of the following statement made in relation with Hairy Root Culture is NOT true?
- A) *Agrobacterium rhizogenes* is used to cause hairy root disease in plants
 - B) Diseased roots are characterized by high growth rate & genetic stability.
 - C) More amount of hormone level is required to maintain for better results.
 - D) Techniques suitable for root specific secondary metabolites

- 49) Silybin, a compound found in *Silybum marianum*, Asteraceae, is made from combination of
- A) Flavonoid and stilbene
 - B) Flavonoid and lignan
 - C) Flavonoid and coumarin
 - D) Flavonoid and anthraquinone
- 50) A precise definition of the term 'alkaloid' is somewhat difficult because_____
- A) Alkaloid's occurrence is not restricted to plants, they are widely distributed in bacteria, amphibian, insect, marine animals & man.
 - B) In some alkaloids, nitrogen atom is present only in the side chain & not in the aromatic ring.
 - C) Some synthetic compounds are very closely related to the natural alkaloids & satisfy the definition of typical alkaloid
 - D) All options correct



Rough Work