

ENTRANCE EXAMINATION FOR ADMISSION, MAY 2012.

Ph.D. (TOXICOLOGY)

COURSE CODE : 165

Register Number :

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*Signature of the Invigilator*  
(with date)

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COURSE CODE : 165

Time : 2 Hours

Max : 400 Marks

*Instructions to Candidates :*

1. Write your Register Number within the box provided on the top of this page and fill in the page 1 of the answer sheet using pen.
2. Do not write your name anywhere in this booklet or answer sheet. Violation of this entails disqualification.
3. Read each of the question carefully and shade the relevant answer (A) or (B) or (C) or (D) in the relevant box of the ANSWER SHEET using HB pencil.
4. Avoid blind guessing. A wrong answer will fetch you -1 mark and the correct answer will fetch 4 marks.
5. Do not write anything in the question paper. Use the white sheets attached at the end for rough works.
6. Do not open the question paper until the start signal is given.
7. Do not attempt to answer after stop signal is given. Any such attempt will disqualify your candidature.
8. On stop signal, keep the question paper and the answer sheet on your table and wait for the invigilator to collect them.
9. Use of Calculators, Tables, etc. are prohibited.

1. What is the cyclical process of collecting and analyzing data during a single research study called?  
(A) Interim analysis (B) Inter analysis  
(C) Inter-item analysis (D) Constant analysis
2. The process of marking segments of data with symbols, descriptive words, or category names is known as  
(A) Concurring (B) Coding  
(C) Coloring (D) Segmenting
3. When a citation includes more than \_\_\_\_\_ authors, only the surname of the first author is cited followed by et al.  
(A) 3 (B) 4 (C) 5 (D) 6
4. When referencing other works you have cited within the text of the report you should  
(A) State the first and last name of the author  
(B) Use the author, date citation method  
(C) Use an asterisk and a footnote  
(D) Insert the complete citation in parenthesis
5. Where do you provide a step-by-step account of what the researcher and participants did during the research study?  
(A) Introduction (B) Abstract (C) Methods (D) Design
6. Which of the following is necessary in obtaining informed consent?  
(A) A description of the statistical analyses that will be carried out  
(B) A description of the purpose of the research  
(C) A description of the reliability and validity of test instruments  
(D) A list of publications that the researcher has had in the last ten years.
7. What is the over-riding principle governing ethical research behaviour?  
(A) To protect research participants from harm  
(B) To avoid dealing with sensitive topics  
(C) To obtain informed consent of the participants  
(D) To preserve the anonymity of the participants
8. What is the primary approach that is used by the IRB to assess the ethical acceptability of a research study?  
(A) Utilitarianism (B) Deontology  
(C) Ethical skepticism (D) Comparativism



9. Which of the following is not an ethical guideline for conducting research with humans?
- (A) Getting informed consent of the participant
  - (B) Telling participants they must continue until the study has been completed
  - (C) Keeping participant's identity anonymous
  - (D) Telling participants they are free to withdraw at any time
10. Concerning "authorship" in educational research, intellectual ownership is predominantly a function of:
- (A) Effort expended
  - (B) Creative contribution
  - (C) Professional position
  - (D) Level of higher education
11. The following are certain behavioral traits that distinguishes creative individuals from their peers EXCEPT:
- (A) High level of curiosity
  - (B) Unwillingness to learn from experience
  - (C) Preparedness to take risks
  - (D) Persistence in situations of failure
12. Creative thinking differs from critical thinking in which among the following components?
- (A) Analytical
  - (B) Judgemental
  - (C) Selective
  - (D) Divergent
13. Which among the following is an inhibitor of creativity?
- (A) Belief in creativity
  - (B) Recording of ideas
  - (C) Irregular practice of creative thinking
  - (D) Realistic expectations
14. In medical research, "the points we want to reach in a study or in a clinical trial" is known as
- (A) Research problem
  - (B) Research objectives
  - (C) Research hypothesis
  - (D) Research question
15. "A proposition to be evaluated, accepted or rejected by research study and its results" is known as
- (A) Research problem
  - (B) Research objectives
  - (C) Research hypothesis
  - (D) Research question
16. "A tentative explanation for a phenomenon used as a basis for further investigation" is known as
- (A) Research problem
  - (B) Research objectives
  - (C) Research hypothesis
  - (D) Research question

17. "An expression of doubt and uncertainty about the nature and solution of a health problem in specific context" is known as  
 (A) Research problem (B) Research objectives  
 (C) Research hypothesis (D) Research question
18. In biomedical research, "the group for comparison allowing the establishment of contrasts as a measure of the success of treatment" is known as  
 (A) Control (B) Population (C) Test (D) Setting
19. "There will be statistically significant improvement between depressed men and women after cognitive therapy compared with fluoxetine". This statement is an example of which type of hypothesis?  
 (A) One-tailed alternative (B) Two-tailed alternative  
 (C) One-tailed null (D) Two-tailed null
20. A study was carried out in a population to determine the frequency of a disease, the kind of people suffering from it and the distribution of attributes at one point in time. This type of study is known as  
 (A) Cross sectional analytical (B) Longitudinal experimental  
 (C) Cross-sectional descriptive (D) Longitudinal qualitative
21. A study which determines why one particular group or person is affected by a disease while another is not is known as  
 (A) Qualitative (B) Analytical (C) Experimental (D) Descriptive
22. The following are disadvantages of self – completion questionnaire used in a survey when compared to other methods EXCEPT:  
 (A) The responses rates can be low  
 (B) Inappropriate for populations with high levels of illiteracy  
 (C) It need to be short and needs to be in simple language  
 (D) The barriers of embarrassment in collection of sensitive date is more
23. The following are the advantages of face – to – face interviews carried out in a survey EXCEPT:  
 (A) Useful in populations with high levels of illiteracy  
 (B) Provides clarification and deals with misunderstandings  
 (C) Easier collection of sensitive data  
 (D) Ensures almost complete collection of information
24. Which type of sampling is most appropriate when interviews are undertaken in a survey?  
 (A) Random (B) Probability (C) Systematic (D) Cluster



25. In a study, sampling was carried out at every fourth house. Name the sampling technique involved?  
 (A) Random (B) Probability (C) Systematic (D) Cluster
26. Which among the following statements denote reproducibility of results in biochemical assays?  
 (A) Accuracy (B) Precision (C) Specificity (D) Sensitivity
27. Which among the following is a free bibliographic software currently available in the market?  
 (A) Zotero (B) Bibloscape (C) Bookend (D) Endnote
28. Which among the following is the most commonly used measure of the quality of a journal?  
 (A) Evaluation by peers (B) The ISI impact factor  
 (C) Index in major biomedical databases (D) Good public relation services
29. The ISI 2009 impact factor (IF) of a journal is calculated by the following equation,  $IF = \frac{\text{No. of citations in 2008 of articles published in 2006 and 2007}}{X}$  where X is the total no. of articles published in  
 (A) 2005 and 2006 (B) 2006 and 2007  
 (C) 2007 and 2008 (D) 2008 and 2009
30. The following are the Rs of Russell and Burch's ethical foundation in carrying out animal experiments EXCEPT:  
 (A) Rehabilitation (B) Replacement (C) Reduction (D) Refinement
31. The 'replacement' in animal research refers to  
 (A) Use of non-animal research methods where possible  
 (B) Replacement of weak and sick animals with healthy ones  
 (C) Use of evolutionarily higher animals instead of lower animals  
 (D) Replacement of aggressive animals with mild ones
32. What is the ethical foundation of W.M.S. Russell and R.L. Burch's three 'R's practiced in animal experiments?  
 (A) Causing pain and distress in animals for any purpose in research is wrong  
 (B) The research should be of sufficient weight to justify any pain and distress caused  
 (C) The pain and distress of animals is overlooked when research of any relevance has to be carried out  
 (D) Animal experiments are permitted if it causes only mild pain and distress to the animals

33. The following statements are in agreement with the 'reduction' practiced in animal experiments EXCEPT
- (A) Avoid unnecessary duplication of studies
  - (B) Reduce animals to the minimum to achieve significant results
  - (C) Use of each animal must be justified
  - (D) Arbitrary reduction of numbers as much as possible even if it results in insignificant results
34. Which among the following statements is FALSE regarding the ethics of medical research among children?
- (A) Children can be involved in research that could be carried out equally well with adults
  - (B) A parent or legal guardian of each child has to give proxy consent
  - (C) The research should be conducted in settings in which the child and parent can obtain adequate medical psychological support
  - (D) The child's refusal to participate in research must always be respected unless there is no medically acceptable alternative
35. The value around which the observations tend to be most heavily concentrated in a study is known as:
- (A) Average                      (B) Mean                      (C) Median                      (D) Mode
36. The more important requirement for good research is
- (A) Quality of human resources in the laboratory
  - (B) Good furniture and elegant building
  - (C) Advanced equipments
  - (D) Good library facility
37. The steps in the systematic
- (A) Formulate clear questions - selection of idea - identifying the problem - experimental design
  - (B) Identifying the problem - selection of idea - formulate clear questions - experimental design
  - (C) Formulate clear questions - identifying the problem - Selection of idea - experimental design
  - (D) Selection of idea - identifying the problem - formulate clear questions - experimental design
38. A research finding may be tentatively accepted to be scientifically true provided the probability is at least greater than
- (A) 65%                      (B) 85%                      (C) 95%                      (D) 75%



39. The following statement about "hypothesis" is correct  
(A) Hypothesis is a formal statement of expected answer  
(B) Hypothesis cannot predict a relationship between known facts  
(C) Hypothesis is essential even if you want to build a data base  
(D) Hypothesis cannot be tested
40. The sampling method in which every member of the population has an equal chance of being selected for the study is called  
(A) Systematic sampling (B) Incidental sampling  
(C) Random sampling (D) Convenience sampling
41. Animal ethics committee permission is NOT needed for the following experiment  
(A) Cell and tissue culture study  
(B) Experiments done in small animals  
(C) Experiments done for studies of national interest  
(D) Repetition of experiments
42. The term "principal outcome measures" is also called  
(A) Independent variable (B) Extraneous variable  
(C) Dependent variable (D) Internal variable
43. Which one of the following study is experimental research?  
(A) Measurement of hemoglobin level in normally nourished women during pregnancy  
(B) Finding the prevalence of diabetes mellitus among those above 20 years of age in Pondicherry  
(C) Whether the risk for lung disease is increased by smoking or stress.  
(D) Finding the frequency of liver dysfunction in alcoholics
44. The following statement is correct about the 'Lead-in period' in a research study  
(A) It is provided near the end of the study  
(B) During lead-in period neither group receives intervention  
(C) Does not eliminate the dissimilarities between groups  
(D) Help to generate preliminary data
45. A visual impression of the degree and direction of relationship between 2 variables is obtained with  
(A) Bar graph (B) Scatter plot  
(C) Pie diagram (D) Frequency polygon
46. The discrete data is best depicted in a  
(A) Bar graph (B) Histogram  
(C) Pie diagram (D) Frequency polygon

47. The most commonly used measure of dispersion is  
 (A) Mean (B) Median  
 (C) Mode (D) Standard deviation
48. The formula used for co-efficient variation is:  
 (A)  $(\text{Standard deviation}/\text{mean}) \times 100$   
 (B)  $(\text{Standard error of mean}/\text{mean}) \times 100$   
 (C)  $(\text{Variance}/\text{mean}) \times 100$   
 (D)  $(\text{Confidence interval}/\text{mean}) \times 100$
49. The power desired in a study is essential for calculation of  
 (A) Standard error of mean (B) Confidence interval  
 (C) Sample size (D) Statistical significance
50. Kaplan-Meier analysis suitable for  
 (A) Relative risk analysis (B) Survival analysis  
 (C) Absolute risk analysis (D) Odds ratio
51. Progressive accumulation of chemicals along a food chain is called  
 (A) Bio accumulation (B) Bio concentration  
 (C) Bio magnification (D) Bio amplification
52. Cinchonism is described in association with  
 (A) Quinine (B) Artemesin (C) Primaquine (D) Oseltamivir
53. Cingua toxin is elaborated by  
 (A) *Protogonyaulax catenella* (B) *Phyllobates aurotaenia*  
 (C) *Dermacentor andersoni* (D) *Gambierdiscus toxicus*
54. Diabetic ketoacidosis can occur in poisoning due to  
 (A) Metformin (B) Pyriminil  
 (C) Aluminium phosphide (D) Barium carbonate
55. Aluminium phosphide reacts with dilute acids to produce----- gas  
 (A) Chloroform (B) Nitric oxide  
 (C) Nitrous oxide (D) Phosphine
56. Which of the following should be done for a snake bite victim?  
 (A) Manually suck the bite area  
 (B) Incise and let out blood from the bite area  
 (C) Tight tourniquet for the limb  
 (D) Immobilize the limb



57. Which of the following toxin types is rare in human botulism?  
 (A) A (B) B (C) E (D) F
58. The poisoning commonly confused with Guillain Barre Syndrome is  
 (A) Ergot poisoning (B) Paraquat poisoning  
 (C) Nerve gas poisoning (D) Botulism
59. Egg shell thinning in certain raptorial birds was due to the uptake of  
 (A) DDT (B) Lithium (C) Cadmium (D) Arsenic
60. Insertion of a DNA segment into a suitable vector is the basic principle of  
 (A) Hybridization (B) Mutation  
 (C) Polymerization (D) Molecular cloning
61. Which layer of the atmosphere filters the incoming ultra violet radiations?  
 (A) Tropospheric ozone (B) Stratospheric ozone  
 (C) Metaspheric ozone (D) Telospheric ozone
62. A child with pica is more likely to get poisoned by  
 (A) Arsenic (B) Lead (C) Mercury (D) Aluminium
63. "Algal blooms" are due to increase in  
 (A) Phosphates (B) Chlorates (C) Cyanates (D) Bromates
64. "Hatters' shakes" refer to the occupational exposure of  
 (A) Cadmium (B) Lithium (C) Mercury (D) Arsenic
65. In humans, the critical target organ damaged after prolonged exposure to cadmium is  
 (A) Kidney (B) Liver (C) Heart (D) Brain
66. Saccharine is a  
 (A) Synthetic flavor (B) Synthetic dye  
 (C) Food stabilizer (D) Synthetic sweetener
67. Aflatoxins are produced by  
 (A) Fusobacterium (B) Candida  
 (C) Aspergillus (D) Fusarium
68. Most xenobiotic metabolism occur in  
 (A) Liver (B) Kidney (C) Heart (D) Brain

69. Glutathione transferase is required for  
 (A) Oxidation (B) Reduction (C) Conjugation (D) Hydrolysis
70. The functional unit of kidney is  
 (A) Neuron (B) Nephron (C) Cyton (D) Plankton
71. Harold shipman was a British physician turned serial killer. The poison used by him was  
 (A) Cyanide (B) Potassium chloride  
 (C) Pethidine (D) Morphine
72. Which of the following is a reliable test of coagulation in snakebite envenomation?  
 (A) Prothrombin time  
 (B) Activated partial thromboplastin time  
 (C) 20 minute whole blood clotting time  
 (D) Fibrin degradation product
73. Which of the following is more likely to cause renal failure in the victim?  
 (A) Cobra (B) Krait  
 (C) Saw scaled viper (D) Hump nosed viper
74. ----- bites often present in early morning with paralysis mimicking a stroke.  
 (A) Krait (B) Cobra  
 (C) Russell's viper (D) Saw scaled viper
75. Polyvalent ASV available in India is effective against all of the following except  
 (A) Common cobra (B) Common krait  
 (C) Saw scaled viper (D) Hump node viper
76. Which drug can be tried to reverse respiratory paralysis in neurotoxic snake bite?  
 (A) Neostigmine (B) Physostigmine  
 (C) Strichnine (D) Botulinum
77. Fire fighters are likely to get exposed to the following except  
 (A) Carbon monoxide (B) Sulphur dioxide  
 (C) Carbondioxide (D) Phosgene
78. Hydrocarbon aspiration causes acute lung injury by the following except  
 (A) Surfactant depletion (B) Alveolar collapse  
 (C) Intra pulmonary shunting (D) ATP depletion



79. Which of the following cells in the lung parenchyma produce surfactant?  
 (A) Type I alveolar epithelial cell (B) Type II alveolar epithelial cell  
 (C) Alveolar macrophage (D) Clara cells
80. Science of application of study of poisons to the law is called  
 (A) Environmental Toxicology (B) Medical Toxicology  
 (C) Forensic Toxicology (D) Modern Toxicology
81. Who is the father of forensic toxicology?  
 (A) Charaka (B) Susruta (C) Orfila (D) Christison
82. What is the primary attribute required for a diagnostic test?  
 (A) Precision (B) Specificity  
 (C) Sensitivity (D) Cost effectiveness
83. What is the primary attribute of a screening test?  
 (A) Precision (B) Specificity  
 (C) Sensitivity (D) Cost effectiveness
84. Repeated geometric patterns in X-ray abdomen is seen in the following condition  
 (A) Intestinal perforation (B) Body packing  
 (C) Esophageal perforation (D) Chronic duodenal ulcer
85. The following are contraindications for administration of activated charcoal except  
 (A) Gastrointestinal perforation (B) Organophosphorus ingestion  
 (C) Gastrointestinal obstruction (D) Corrosive ingestion
86. Which of the following is a non-ionizing radiation?  
 (A) X-rays (B) Gamma rays  
 (C) Infra-red rays (D) Proton Beams
87. Which of the following is a chromosomal aberration due to radiation injury?  
 (A) Ring chromosome (B) Long chromosome  
 (C) Mesocentric chromosome (D) Philadelphia chromosome
88. The target of carbon monoxide in the body is  
 (A) Heart (B) Lungs (C) Hemoglobin (D) Kidneys
89. Pollutants like dioxins and polychlorinated biphenyls are  
 (A) Probiotics (B) Prebiotics (C) Xenobiotics (D) Saprobiotics
90. Tetrodotoxin binds to ----- channel  
 (A) Sodium (B) Potassium (C) Calcium (D) Magnesium

91. The degree to which a substance is poisonous is called -----  
(A) Harmful effect (B) Adverse effect  
(C) Toxicity (D) Toxic score
92. Toxic substance produced naturally is called  
(A) Toxin (B) Toxicant (C) Dioxin (D) Xenobiotic
93. No effect level (NEL) is also called  
(A) Normal dose (B) Critical dose  
(C) Tolerable dose (D) Threshold dose
94. The persons who are more at risk from illness due to exposure of a hazardous substance than the average healthy persons contribute to  
(A) Sensitive sub population (B) Critical population  
(C) Marginal population (D) Toxic population
95. Gathering and evaluating toxicological information to establish concentration based standards of "safe" exposure is  
(A) Environmental toxicology (B) Occupational toxicology  
(C) Regulatory toxicology (D) Clinical toxicology
96. Dioxin was originally discovered as a contaminant in  
(A) Agent orange (B) Fungicide  
(C) Rodenticide (D) Plastics
97. All the following are electronic databases on toxic chemicals except  
(A) Toxnet (B) Chemtrec  
(C) Hazbat (D) Material safety data sheets
98. What type of toxicologists takes samples of blood, urine and hair for testing?  
(A) Descriptive (B) Analytical  
(C) Forensic (D) Environmental
99. Which of the following is NOT a greenhouse gas?  
(A) Water vapor (B) Carbondioxide  
(C) Ozone (D) Chloroform
100. Which of the following includes chemical, biochemical and molecular events causing deleterious effects on development?  
(A) Carcinogenesis (B) Teratogenesis  
(C) Mutagenesis (D) Organ toxicity