MAULANA AZAD NATIONAL URDU UNIVERSITY

Ph.D Botany (Research Admission Test) RAT - 2022

QUESTION PAPER BOOKLET

Time: 2 hours   Max. Marks: 100

Hall Ticket No.

OMR Serial No.

INSTRUCTIONS TO THE CANDIDATES

1. Candidate should write their Hall Ticket number and OMR number on the space provided above. Candidate should not write their Hall Ticket number and OMR at any other place.

2. This booklet contains 14 pages. Candidate should check the booklet before taking the test. In case of misprint or irregularity in question numbers / pages, etc., should report to the Invigilator immediately.

3. There are 100 Multiple Choice Questions in the booklet. For each question there are four options. The candidate is required to choose the correct answer and darken the circle with blue / black ballpoint pen in the OMR sheet against the corresponding answer number.

4. Candidate will get one mark each for each correct reply in the OMR sheet. If the candidate does not bubble the correct answer against the corresponding question number in the OMR sheet, he will not get marks.

5. If the candidate bubbles more than one circle in OMR Sheet for any question, marks shall not be awarded for the question.

6. There are no Negative marks.

7. At the end of Entrance Test, candidates are allowed to take their question booklet.

Part - A
(Research Methodology)

1. Why do you need to review the existing literature?
   A. To make sure you have a long list of references
   B. Because without it, you could never reach the required word-count
   C. To find out what is already known about your area of interest
   D. To help in your general studying

2. What do you mean by Unit of Analysis?
   A. Main parameter
   B. Variables
   C. Sample
   D. Constructs

3. An image, perception, or concept that is capable of measurement is called.
   A. Scale.
   B. Hypothesis.
   C. Type.
   D. Variable

4. To pursue the research, which of the following is priorly required?
   A. Developing a research design
   B. Formulating a research question
   C. Deciding about the data analysis procedure
   D. Formulating a research hypothesis

5. What are the conditions in which Type-I error occurs?
   A. The null hypotheses get accepted even if it is false
   B. The null hypotheses get rejected even if it is true
   C. Both the null hypotheses as well as alternative hypotheses are rejected
   D. None of the above

6. How to judge the depth of any research?
   A. By research title
   B. By research duration
   C. By research objectives
   D. By total expenditure on research

7. Research is
    A. Searching again and again
    B. Finding a solution to any problem
    C. Working scientifically to search for the truth of any problem
    D. None of the above

8. In the process of conducting research 'Formulation of Hypothesis" is followed by
    A. Statement of Objectives
    B. Analysis of Data
    C. Selection of Research Tools
    D. Collection of Data

9. Concepts are ……………. of Research
    A. Guide
    B. Tools
    C. Methods
    D. Variables

10. Which of the following is not a data-collection method?
    A. Research questions
    B. Unstructured interviewing
    C. Postal survey questionnaires
    D. Participant observation

11. The essential characteristics of a researcher
    A. The passion for finding answers to questions
    B. Reliance on observations and evidence
    C. Organizing knowledge or forming a theory
    D. All of them

12. A formal document that presents the research objectives, design of achieving these objectives and the expected outcomes/deliverables of the study is called
    A. Research design
    B. Research proposal
    C. Research hypothesis
    D. Research report

13. The survey is a ……………. Study
    A. Descriptive
    B. Fact-finding
    C. Analytical
    D. Systematic

14. In a survey, there is an enumerator and a …………………
    A. Guide
    B. Respondent
    C. Supervisor
    D. Messenger

15. The first purpose of a survey is to ……………..
    A. Description
    B. Evaluation
    C. Propagation
    D. Provide Information

16. What are the core elements of a Research Process?
    A. Introduction; Data Collection; Data Analysis; Conclusions and Recommendations
    B. Executive Summary; Literature Review; Data Gathered; Conclusions; Bibliography
    C. Research Plan; Research Data; Analysis; References
    D. Introduction; Literature Review; Research Methodology; Results; Discussions and Conclusions

17. Identifying causes of a problem and possible solutions to a problem is
    A. Field Study
    B. Diagnostic study
    C. Action study
    D. Pilot study

18. The second step in problem formulation is
    A. Statement of the problem
    B. Understanding the nature of the problem
    C. Survey
    D. Discussions

19. The main problem in the questionnaire is
    A. Accessible to Diverse Respondent
    B. Greater Anonymity
    C. Shows an inability of the respondent to provide information
    D. None of these

20. Research is classified based on…… .. and methods
    A. Purpose
    B. Intent
    C. Methodology
    D. Techniques

21. The wrong questionnaire is an example of …………..
    A. Primary data collection problem
    B. Secondary data collection problem
    C. a and b both
    D. None of the above

22. An example of scientific knowledge is_____
    A. Laboratory and field experiments
    B. Social traditions and customs
    C. Authority of the Prophet or great men
    D. Religious scriptures

23. Which technique is generally followed when the population is finite?
    A. Systematic Sampling Technique
    B. Purposive Sampling Technique
    C. Area Sampling Technique
    D. None of the above

24. Which one is called non-probability sampling?
    A. Quota sampling
    B. Cluster sampling
    C. Systematic sampling
    D. Stratified random sampling

25. Research undertaken for increasing knowledge in the scientific world is called
    A. Pure and Basic Research
    B. Action and applied Research
    C. Pilot study
    D. Survey

26. What is a sampling unit?
    A. The population.
    B. The basic unit contains the elements of the population to be sampled.
    C. All the individual elements of the final sample, are drawn together.
    D. The method used to collect the sample.

27. Which of the following is not a non-random sampling method?
    A. Cluster sampling
    B. Quota sampling
    C. Convenience sampling
    D. Accidental sampling

28. Which test is the part of the parametric test?
    A. Sign Test
    B. Run Test for Randomness
    C. Kruskal-Willis Test
    D. z-test

29. SPSS is an acronym of the following?
    A. Statistical Predictions for Social Sciences.
    B. Statistical Predictions for scientific study
    C. Statistical Package for the Social Sciences.
    D. Statistical Package for Scientific Survey

30. The final stage in the Research Process is
    A. Problem formulation
    B. Data collection
    C. Data Analysis
    D. Report Writing

31. A comprehensive full Report of the research process is called.
    A. Thesis
    B. Summary Report
    C. Abstract
    D. Article

32. The first page of the research report is
    A. Appendix
    B. Bibliography
    C. Index
    D. Title Page

33. The chi-square test is:
    A. A mean
    B. A multi-question test.
    C. A statistical mistake.
    D. A statistic

34. ANOVA is
    A. A government body that collects social statistics.
    B. The name of a statistical software package.
    C. A one-way analysis of variance.
    D. A New-way analysis of variance.

35. Which of the following is not one of the seven major parts of the research report?
    A. Results
    B. Abstract
    C. Method
    D. Footnotes

36. In SPSS, what is the "Data Viewer"?
    A. A table summarizing the frequencies of data for one variable
    B. A spreadsheet into which data can be entered
    C. A dialog box that allows you to choose a statistical test
    D. A screen in which variables can be defined and labeled

37. A reasoning where we start with certain particular statements and conclude with a universal statement is called
    A. Inductive Reasoning
    B. Deductive Reasoning
    C. Abnormal Reasoning
    D. Transcendental Reasoning

38. High-Level Language is ……
    A. Disc space-dependent
    B. O.S. dependent
    C. Machine independent
    D. Machine dependent

39. A common test in research demands much priority on
    A. Reliability
    B. Useability
    C. Objectivity
    D. All of the above

40. "Controlled Group" is a term used in…………
    A. Survey Research
    B. Historical Research
    C. Experimental Research
    D. Descriptive Research

41. How is the stochastic equation of information solved?
    A. By statistical rules
    B. By dynamic rules
    C. By statistical and dynamic rules
    D. None of these

42. Whether Library is a system?
    A. Yes, it has various sections as sub-systems.
    B. It is quite impossible
    C. No, it cannot be a system
    D. A library is separate from a system.

43. The case study is type of .... research
    A. Qualitative
    B. Quantitative
    C. Survey
    D. None of them

44. Which of the following is not covered under Intellectual Property Rights?
    A. Copyrights
    B. Patents
    C. Trade Marks
    D. Thesaurus

45. Informal self-education is possible in what kind of library?
    A. National Library
    B. Public Library
    C. Specific Library
    D. College Library

46. Conference proceedings are considered as ………………. documents.
    A. Primary
    B. Conventional
    C. Secondary
    D. Tertiary

47. Innovation is commonly known as
    A. The commercialization of the invention.
    B. Something that already existed but had not been found
    C. New product or process that solves a technical problem
    D. All the above

48. Who defined "research" as a "systematic effort to acquire new knowledge"?
    A. Tom & Zerry
    B. Redman and Mori
    C. F. W. Taylor
    D. Ross Taylor

49. What is the purpose of a research aptitude test for UGC NET candidates?
    A. Provide candidates with basic search ideas
    B. Screening of scientific-minded people
    C. Provide the government with a database of the country's 'future' scientists
    D. Putting obstacles in the way of candidates

50. What is a hypothesis?
    A. A provisional statement whose veracity is yet to be verified.
    B. Assumption based on past experiences.
    C. Statement of Truth
    D. All of them

Part - B

(Botany)

51. In dicots outer layer of the seed coat is known as:
    A. Testa
    B. Tegmen
    C. Endothecium
    D. Tapetum

52. "Translator Mechanism" is found in which family?
    A. Annonaceae
    B. Asclepiadaceae
    C. Orchidaceae
    D. Amaranthaceae

53. "Terpenes" are formed by union of _____units.
    A. Monoterpene
    B. Hemiterpene
    C. Isoprene
    D. Polyterpene

54. Which dye is obtain from Carthamus tinctorius?
    A. Pink dye
    B. Blue dye
    C. Red dye
    D. Dark red dye

55. Non-sense Codon example of:
    A. AUG
    B. UUU
    C. UAA
    D. GAG

56. In bacteria the transformation mechanism was discovered by:
    A. Lederberg
    B. Zinder
    C. Zinder & Lederberg
    D. Griffith

57. Eight nucleated mature embrosac.
    A. Drusa
    B. Oenothera
    C. Polygonum
    D. Plumbago

58. Name the first Electron Acceptor in photosystem-I.
    A. ATP
    B. Ferridoxin
    C. Plastocyanin
    D. Cytochrome

59. What is Pyrethrum.
    A. Name of the plant
    B. Insecticides
    C. Bactericides
    D. Red pigment

60. Phenols are synthesized by which pathway?
    A. Mevelonic Acid Pathway
    B. Methyl Erythroid Phosphate Phatway
    C. Shikimic Acid Pathway
    D. EMP Pathway

61. What is the RQ value of carbohydrates?
    A. 1.6
    B. 0.1
    C. 1
    D. 0

62. What is the scientific name of Sarpagandha.
    A. Withania somnifera
    B. Rauwolfia serpentina
    C. Asparagus racemosus
    D. Emblica officinalis

63. Erythrose-4-Phosphate is a precursor of which amino acids.
    A. Alanine, Valine
    B. Leucine, Isoleucine
    C. Phenylalanine
    D. Emblica officinalis

64. Lycopene is found in:
    A. Tomato
    B. Potato
    C. Carrot
    D. Corn

65. Vinblastin and Vincristine is obtain from:
    A. Catharanthus roseus
    B. Rosa sinensis
    C. Calotropis gigantea
    D. Tridax procumbens

66. Mushrooms belong to which group of plants?
    A. Fungi
    B. Bryophytes
    C. Pteridophytes
    D. Gymnosperms

67. Indian Institute of Horticultural Research is located at :
    A. Kolkatta
    B. Mumbai
    C. Bangalore
    D. Chennai

68. In 'flavonoids' how many carbon are present?
    A. 10
    B. 12
    C. 15
    D. 18

69. "Codeine" is obtained from the following plant.
    A. Cinchona officinalis
    B. Cinchona succirubra
    C. Papaver somniferum
    D. Strychnos nux-vomica

70. Who discovered Binomial System of Nomenclature?
    A. A.P. Decondolle
    B. Takhtajan
    C. Edward Bessey
    D. Linnaeus

71. Which element is required for Nitrogen Fixation.
    A. Zn
    B. Cu
    C. Mg
    D. Mo

72. What is the diameter of DNA molecule?
    A. $3.4 A^0$
    B. $34A$
    C. $20 A^0$
    D. $200 A^0$

11

73. The disease caused by virus:
    A. Typhoid
    B. TB
    C. Cholera
    D. Small Pox

74. Which is not a parenchyma tissue?
    A. Chlorenchyma
    B. Aerenchyma
    C. Idioblast
    D. Collenchyma

75. Bandipur National Park is located at:
    A. Assam
    B. Karnataka
    C. Kerala
    D. Andhra Pradesh

76. "Blue Book" is published by:
    A. UNEP
    B. IUCN
    C. WWF
    D. NBA

77. Which is the first Co_2 acceptor in C_4 plants.
    A. PEP
    B. OAA
    C. PGA
    D. RuDP

78. Bennettitales also called:
    A. Cycadales
    B. Gnetales
    C. Cycadeoidales
    D. Ephedrales

79. CITES stands for
    A. Convention on Indian Trade in Endangered Species
    B. Convention on Indian Terrestrial Eco System
    C. Convention on International Trade in Endangered Species
    D. Convention on International Trade in Endemic Species

80. Head Quarters of IUCN is located at :
    A. Geneva
    B. America
    C. Switzerland
    D. Netherland

81. Protein synthesis of "Phages' takes place in:
    A. Ribosomes of Host
    B. Cytoplasm of Host
    C. In phages
    D. Outside the Host

82. What type of genetic material is present in Mycoplasma?
    A. DNA
    B. RNA
    C. DNA & RNA
    D. Protein

83. "Kranz Anatomy" is found in which plant?
    A. C_2-Plants
    B. CAM Plants
    C. C_3-Plants
    D. C_4-Plans

84. Following is a weed.
    A. Punica granatum
    B. Curcuma longa
    C. Spathodea campanulata
    D. Commelina bengalensis

85. Which hormone is used as anti transpirant.
    A. IAA
    B. ABA
    C. GA
    D. Ethylene

86. IUCN has published the record of threatened species
    A. Red Data Book
    B. Animal Data Book
    C. White Data Book
    D. Black Data Book

87. RNA is present in:
    A. DMV
    B. CMV
    C. TMV
    D. Bacteriophage

88. Example of Parasitic Algae.
    A. Cephaleuros
    B. Rhodomenia
    C. Nostoc
    D. Polysiphonia

89. Hard part of wood is:
    A. Early wood
    B. Summer Wood
    C. Spring Wood
    D. Heart Wood

90. What is the causal organism of 'Whip smut of Sugarcane.
    A. Colletotrichum falcatum
    B. Ustilago scitaminae
    C. Erwinia amylovora
    D. Erwinia carotovora

91. What is the byproduct of Fermentation?
    A. Alcohol and Fat
    B. Acetic Acid
    C. Ether and Acetic
    D. Alcohol and Lactic Acid

92. Gibberellins discovered from.
    A. Bacteria
    B. Fungi
    C. Algae
    D. Virus

93. Following is test cross.
    A. Ttxtt
    B. TTxtt
    C. TtxTt
    D. ttxtt

94. Jaya, Ratna and Krishna are varieties of:
    A. Maize
    B. Wheat
    C. Barley
    D. Rice

13

95. Composition of Gobar gas is:
    - A. CH_4+CO_2
    - B. CH_4+O_2
    - C. CO_2+H_2
    - D. CO_2+SO_2

96. In India the following plant is used as Biofertilizer?
    - A. Lentil
    - B. Sun hemp
    - C. Cow Pea
    - D. All of these

97. what is the objective of Ramsar Convention?
    - A. Forest Conservation
    - B. Wild Life Conservation
    - C. Wetland Conservation
    - D. Biodiversity Conservation

98. Manganese is essential in:
    - A. Nucleic Acid Synthesis
    - B. Cell Wall Formation
    - C. Photolysis of water during Photosynthesis
    - D. Chlorophyll synthesis

99. Plants absorb which type of water?
    - A. Gravitational Water
    - B. Capillary Water
    - C. Soil Water
    - D. Hygroscopic Water

100. r-RNA is found in:
    - A. Lysosomes
    - B. Cytosol
    - C. Ribosomes
    - D. Golgibodies

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