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**M.Phil./Ph.D. Entrance Examination, October - 2021****BOTANY****Research Methodology****Day and Date : Thursday, 28 - 10 - 2021****Total Marks : 100****Time : 4.00 p.m. to 6.00 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) What is the name of the conceptual framework in which the research is carried out?  
A) Research hypothesis  
B) Synopsis of Research  
C) Research paradigm  
D) Research design
- 2) The main aim of the scientific method in the research field is to \_\_\_\_\_  
A) Improve data interpretation  
B) Confirm triangulation  
C) Introduce new variables  
D) Eliminate spurious relations
- 3) The format of thesis writing is the same as in  
A) Writing of Seminar representation  
B) Preparation of research paper/article  
C) A research dissertation  
D) Presenting a workshop/conference paper

**P.T.O.**

- 4) What are the core elements of a dissertation?
- 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
- 5) Which one among the following is the most comprehensive source of population data?
- A) Census
  - B) National Sample Surveys
  - C) Demographic Health Surveys
  - D) National Family Health Surveys
- 6) What is the use of Factorial Analysis?
- A) For setting the hypotheses
  - B) To understand the difference between two variables
  - C) To understand the relationship between two variables
  - D) To understand the difference between various variables
- 7) Arrange the list in correct order as per their usage in the article writing
- A) Abstract, Introduction, Objective, Methodology, Discussion
  - B) Introduction, Objective, Methodology, Discussion, Abstract
  - C) Topic, Objective, Methodology, Discussion, References
  - D) Topic, Abstract, Methodology, Discussion, Bibliography
- 8) Ethical norms in research do not involve guidelines for
- A) Thesis format
  - B) Copyright
  - C) Patenting policy
  - D) Data sharing policies
- 9) Which of the following is an initial mandatory requirement for pursuing research?
- A) Developing a research design
  - B) Formulating a research question
  - C) Deciding about the data analysis procedure
  - D) Formulating a research hypothesis
- 10) In which of the following arrangements a wider spectrum of ideas and issues may be made possible?
- A) Research Article
  - B) Workshop mode
  - C) Conference
  - D) Symposium

- 11) Which of the following is susceptible to the issue of research ethics?
- A) Inaccurate application of statistical Techniques
  - B) Faulty research design
  - C) Choice of sampling techniques
  - D) Reporting of research findings
- 12) What is “Synopsis” of a research project?
- A) It is the blue print of research
  - B) It consists of the plan of research
  - C) It is the summary of the findings of the research
  - D) It is methodology
- 13) Data Analysis is defined by the statistician?
- A) William S.
  - B) Hans Peter Luhn
  - C) Gregory Piatetsky-Shapiro
  - D) John Tukey
- 14) The process of quantifying data is referred to as \_\_\_\_\_
- A) Topology
  - B) Digramming
  - C) Enumeration
  - D) Coding
- 15) Which of these distributions is used for a testing hypothesis?
- A) Normal Distribution
  - B) Chi-Squared Distribution
  - C) Gamma Distribution
  - D) Poisson Distribution
- 16) Information is \_\_\_\_\_
- A) Raw Data
  - B) Processed Data
  - C) Input data
  - D) Organized data
- 17) What is a hypothesis?
- A) A statement that the researcher wants to test through the data collected in a study.
  - B) A research question the results will answer.
  - C) A theory that underpins the study.
  - D) A statistical method for calculating the extent to which the results could have happened by chance.
- 18) The denominator (bottom) of the z-score formula is
- A) The difference between a score and the mean
  - B) The range
  - C) The mean
  - D) The standard deviation

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- 19) In fluorescence microscopy, which of the following performs the function of removing all light except the blue light?
  - A) Exciter filter
  - B) Barrier filter
  - C) Dichroic mirror
  - D) Mercury arc lamp
- 20) The magnification power of a compound microscope does not depend upon \_\_\_\_\_
  - A) The focal length and aperture of the eye lens
  - B) The apertures of the objective lens
  - C) Tube length of the microscope
  - D) None of the above
- 21) Which type of vapour is stored in Mercury lamp?
  - A) Mercury vapour
  - B) Hydrogen vapour
  - C) Xe
  - D) Ozone
- 22) Which scientists gave the details of the techniques of preservation?
  - A) Jacob and Monod
  - B) Kirsop and Doyle
  - C) William and Wilkins
  - D) Boliver and Rodriguez
- 23) What is the temperature of liquid nitrogen ( $^{\circ}\text{C}$ )?
  - A)  $-150^{\circ}\text{C}$
  - B)  $-122^{\circ}\text{C}$
  - C)  $-194^{\circ}\text{C}$
  - D)  $-196^{\circ}\text{C}$
- 24) During the preservation of microbial cell culture \_\_\_\_\_
  - A) Metabolism-stops
  - B) Metabolism-continues
  - C) Metabolism-changes
  - D) Physiology-changes
- 25) Who is known as the Father of tissue culture?
  - A) Bonner
  - B) Laibach
  - C) Haberlandt
  - D) Gautheret
- 26) Algae growing in sandy soil or sandy beaches are known as \_\_\_\_\_
  - A) Terrestrial algae
  - B) Lithophytic algae
  - C) Psammon algae
  - D) Thermal algae
- 27) Flagella is bearing hair-like appendages known as \_\_\_\_\_
  - A) Acronematic
  - B) Pleuronematic
  - C) Centronematic
  - D) Anematic

- 28) Water conducting system in bryophyte is \_\_\_\_\_
  - A) Parenchyma
  - B) Sclerenchyma
  - C) Trachieds
  - D) Sieve tube
- 29) In which bryophyte germination of spore is indirect
  - A) *Funaria*
  - B) *Riccardia*
  - C) *Pellia*
  - D) *Sphaerocarpous*
- 30) Engler (1889) created another group \_\_\_\_\_ in addition to Bentham and Hooker to accommodate \_\_\_\_\_
  - A) Cycadales, *Cycas*
  - B) Gnetales, *Gnetum*
  - C) Coniferales, *Pinus*
  - D) Ginkgoales, *Ginkgo*
- 31) Amongst the following statements, which is the CORRECT statement.
  - A) Double fertilisation and triple fusion are present in gymnosperms
  - B) Double fertilisation is present but triple fusion is absent in gymnosperms
  - C) Double fertilisation is absent but triple fusion is present in gymnosperms
  - D) Double fertilisation and triple fusion are absent in gymnosperms
- 32) \_\_\_\_\_ recognised three classes of gymnosperms considering them equivalent to dicot and monocot and placed them between dicot and monocot.
  - A) Bentham and Hooker
  - B) Sporne
  - C) Taylor
  - D) Tippo
- 33) Many sporophylls form \_\_\_\_\_
  - A) Cones
  - B) Spores
  - C) Sporangia
  - D) Elaters
- 34) The inner most layer of sporangium of *Selaginella* is \_\_\_\_\_
  - A) Elators
  - B) Synangium
  - C) Jacket
  - D) Tapetum
- 35) The term prothallus is used for
  - A) Stage before thallus
  - B) Plant body without differentiation of stem, leaves and roots
  - C) Reduced gametophyte
  - D) Reduced sporophyte

- 36) Population that live together in a defined area is called \_\_\_\_\_  
A) Ecosystem B) Community  
C) Biosphere D) Colony
- 37) When anatomical and physiological barriers are ruptured by pathogens, innate leukocytes start to work by using \_\_\_\_\_  
A) Complement activation B) Inflammation  
C) Pattern recognition D) Phagocytosis
- 38) The APG IV classification system of flowering plants recognizes \_\_\_\_\_ families  
A) 416 B) 413  
C) 415 D) 420
- 39) \_\_\_\_\_ is used for purification of virus through precipitation.  
A) Ammonium acetate B) Ammonium chloride  
C) Ammonium nitrate D) Ammonium sulphate
- 40) \_\_\_\_\_ used the term Virus for the first time.  
A) Adolf Mayer (1886) B) Beijerinck (1898)  
C) Charles Chamberland (1884) D) Iwanowski (1892)
- 41) Histogen theory for Shoot Apical Meristem was proposed by \_\_\_\_\_  
A) Hanstein (1868) B) Schmidt (1924)  
C) Nageli (1858) D) Arber (1950)
- 42) The chief constituent of honey is \_\_\_\_\_  
A) Disaccharides B) Monosaccharide  
C) Polysaccharides D) Fats
- 43) Southern Hybridization is \_\_\_\_\_  
A) Used to Identify a Specific DNA  
B) Used to Identify Both DNA and RNA  
C) Used to Identify a Specific Protein  
D) Used to Identify a Specific RNA
- 44) Restriction endonuclease are often called as \_\_\_\_\_  
A) Cosmids B) Vector  
C) Molecular scissors D) DNA insert

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- 45) In \_\_\_\_\_ cell plate is initiated at the centre, at the end of Telophase.  
A) Plant  
B) Animal  
C) Dinoflagellates  
D) Fungi
- 46) Expression of one gene depends on or is modified by the expression of another gene. then the first gene is said to be \_\_\_\_\_ on the second gene  
A) Epistatic  
B) Pleiotropic  
C) Incompletely dominant  
D) Polygenic
- 47) During \_\_\_\_\_ the nonsister chromatids of homologous chromosomes interwine producing “X” shaped Chiasmata  
A) Prophase I of meiosis  
B) Prophase II of meiosis  
C) Prophase of mitosis  
D) Gap phase of meiosis/mitosis
- 48) Somatic embryos can be converted into \_\_\_\_\_  
A) Synthetic seed  
B) Natural seed  
C) Embryoids  
D) Sterile seed
- 49) \_\_\_\_\_ electrophoresis is ideal for the separation of amphoteric substances.  
A) Native gel  
B) Gradient gel  
C) Isoelectric gel  
D) Two-dimensional polyacrylamide gel
- 50) The forests of \_\_\_\_\_ host many members of the Rafflesia genus, the largest flowers in the world, with a maximum diameter of 1 meter  
A) Malaysia  
B) Congo Basin  
C) Australia  
D) Madagascar



**Rough Work**