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PD - 03

Total No. of Pages : 12

Ph.d Entrance Examination March - April, 2026
Research Methodology
Subject Code: 58800

Day and Date : Wednesday, 07-10-2026

Total Marks : 100

Time : 01.00 p.m. to 03.00 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. Which sampling method involves selecting individuals who are readily available or easy to reach?
A) Random sampling
B) Purposive sampling
C) Convenience sampling
D) Stratified sampling
2. RNA reverse transcriptase enzyme was first isolated from
A) Brome mosaic virus
B) Rous sarcoma virus
C) TMV
D) Pepper Mild Mottle Virus
3. Which chemical is the most commonly used fixative for plant specimens?
A) Ethanol
B) Formaldehyde
C) Mercuric chloride
D) Picric acid

4. What is bibliometry?
 - A) Information Management Tool
 - B) Information Management Service
 - C) Library Service
 - D) Function of Library Network
5. Which of the following is an example of a quantitative research method?
 - A) Case study
 - B) Survey
 - C) Ethnography
 - D) Phenomenology
6. What is the purpose of research design?
 - A) To develop a hypothesis
 - B) To select a sample
 - C) To determine the methods for data collection and analysis
 - D) To collect references
7. Positive square root of arithmetic mean of the square of deviations of various items given in the data is called
 - A) Mean
 - B) Standard deviation
 - C) Coefficient of variance
 - D) Variance
8. What is the purpose of randomization in experimental research?
 - A) To introduce bias in participant selection
 - B) To eliminate bias in participant selection
 - C) To control for extraneous variables
 - D) To manipulate study results
9. Presence of elators in the sporangium is a characteristic feature of
 - A) Riccia
 - B) Marchantia
 - C) Selaginella
 - D) Sphagnum

10. In experimental research, what is the purpose of a control group?
- A) To provide a baseline for comparison
 - B) To serve as the treatment group
 - C) To introduce variability in the data
 - D) To eliminate ethical concerns
11. The common mushroom puffballs and truffles belong to
- A) Ascomycetes
 - B) Basidiomycetes
 - C) Oomycetes
 - D) Deuteromycetes
12. Correlation coefficient (r) lies between
- A) 0 to 1
 - B) 0 to 2
 - C) -1 to +1
 - D) -1 to +2
13. is involved in preventing DNA damage and it produces various proteins required for repairing of damaged DNA.
- A) Nucleotide excision repair
 - B) Base excision repair
 - C) Methyl mismatch repair
 - D) SOS
14. Which of the following name is related to the definition of plagiarism?
- A) Merriam Webster
 - B) Martin Redman
 - C) Robert White
 - D) Charles Jones
15. is based upon the concept of independence the idea where one variable is not affected by or related to another.
- A) Chi-square test
 - B) t-test
 - C) ANOVA
 - D) Correlation

16. In research report, main text of the report consist of following parts:
- A) Aims, Objectives, Calculations, Inference
 - B) Introduction, Methods, Summary, Conclusion
 - C) Introduction, Summary, Main Report, Conclusion
 - D) Principle, Aim, Methods, Main Report, Inference
17. The forests of host many members of the Rafflesia genus, the largest flowers in the world, having a maximum diameter of 1 meter.
- A) Australia
 - B) Congo Basin
 - C) Malaysia
 - D) Madagascar
18. Which of the nutrient mixture is the most suitable for growing algae?
- A) PDA medium
 - B) Nutrient agar
 - C) MacConkey agar
 - D) Walne medium
19. What is a random sample?
- A) A sample selected based on a specific criterion
 - B) A sample selected using a random process
 - C) A sample selected based on convenience
 - D) A sample selected based on the researcher's judgment
20. The first report of somatic embryogenesis was made by in 1958.
- A) Reinert et al.
 - B) Steward et al.
 - C) Murashige and Skoog
 - D) Nitch et al.

21. What is the role of a hypothesis in the scientific research process?
- A) To prove the researcher's preconceived ideas
 - B) To provide a tentative explanation for observed phenomena
 - C) To summarize study findings
 - D) To select the research design
22. In research deals with construction of an artificial environment within which relevant information and data can be generated.
- A) Qualitative approach
 - B) Experimental approach
 - C) Simulation approach
 - D) Inferential approach
23. Which of the following nucleotides is rich in telomere of an organism?
- A) A,T
 - B) T,G
 - C) G,C
 - D) C,A
24. Vinblastine and vincristine yielding *Catharanthus roseus* (L.) G.Don is native to
- A) Madagascar
 - B) Indonesia
 - C) South Africa
 - D) Congo
25. Which statistical measure is used to assess the strength and direction of a relationship between two variables?
- A) Mean
 - B) Median
 - C) Correlation coefficient
 - D) Standard deviation
26. is an excellent cryoprotectant.
- A) Polyvinylpyrrolidone
 - B) Polyethylene glycol
 - C) Hydroxy starch
 - D) Dimethyl sulfoxide

27. The most common pattern of dispersion observed among the individuals of a population is
 - A) Random
 - B) Regular
 - C) Clumped
 - D) Regular clumped
28. Dicot root contains..... number of radial vascular bundles
 - A) One
 - B) Two
 - C) Three
 - D) Four
29. In polyacrylamide gel electrophoresis (PAGE), photodecomposition of generates a free radical that initiates polymerization.
 - A) Acrylamide
 - B) Riboflavin
 - C) Tetramethylenediamine
 - D) Ammonium persulphate
30. Which element plays an important role in pollen germination?
 - A) Potassium
 - B) Magnesium
 - C) Zinc
 - D) Boron
31. is the process of programmed cell death.
 - A) Cell cycle
 - B) Cell signaling
 - C) Apoptosis
 - D) Reverse transcription
32. In..... pollen grain, polar axis and the equatorial diameter are approximately equal.
 - A) Oblate
 - B) Prolate
 - C) Spheroidal
 - D) Colpate

33. The APG IV system of flowering plant classification recognizes
- A) 64 orders and 416 families B) 52 orders and 410 families
C) 60 orders and 412 families D) 47 orders and 415 families
34. is a non-directional force that arises from variable sampling of the gene pool in each generation.
- A) Mutation B) Migration
C) Random Genetic Drift D) Natural Selection
35. If a culture starts with 20 cells, how many cells will be present after 10 generations with no cell death?
- A) 200 B) 10200
C) 20480 D) 40960
36. Law of homologous series of variation was proposed by
- A) J. R. Harlan B) N. I. Vavilov
C) B. P. Pal D) J. D. Hooker
37. Lysosomes contains vast array of hydrolytic enzymes which can digest any foreign material but cannot digest
- A) Lipids B) Starch
C) Cellulose D) Glycogen
38. A biome that is characterized by mosses, lichens, sedged, and forbs, but absence of trees
- A) Tundra B) Taiga
C) Savanna D) Tropical rain forest

39. Gymnospermous endosperm is
- | | |
|--------------------|----------------------|
| A) Always haploid | B) Always diploid |
| C) Always triploid | D) Having polyploidy |
40. Angular leaf spot of cotton is caused by
- A) *Xanthomonas compestris* pv. citri
- B) *Xanthomonas axonopodis* pv. oryzae
- C) *Xanthomonas compestris* pv. punici
- D) *Xanthomonas compestris* pv. malvaciarum
41. are derived from isoprenoid pathway that start from isopentenyl diphosphate.
- | | |
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| A) Auxins | B) Cytokinins |
| C) Ethylene | D) Polyamines |
42. The metapopulation concept was first introduced by in 1969.
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| A) Hanski | B) Allee |
| C) Gonzalez | D) Levins |
43. type of meristematic tissue is responsible for growth and development in plants in terms of increase in the circumference of stem of plant.
- | | |
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| A) Intercalary | B) Apical |
| C) Lateral | D) Axillary |
44. Excitation filter, a dichromatic mirror and a barrier filter are used in microscopy
- | | |
|-------------------|-------------|
| A) Fluorescence | B) Confocal |
| C) Phase contrast | D) Electron |

45. photons are required for the release of one oxygen molecule in photosynthesis processs.
- A) 4
B) 8
C) 12
D) 16
46. are small DNA or RNA segments that recognize complementary sequences in DNA or RNA molecules and thus allow identification and isolation of these specific DNA sequences from an organism.
- A) Bacteriophages
B) Biosensor
C) Molecular probes
D) Vector
47. Mycoplasma-like organisms (MLOs) are microorganisms found in the of diseased plants and assumed to be the cause of the disease.
- A) Phloem and phloem parenchyma
B) Xylem and vessels
C) Cambium
D) Pith
48. When the members of population mate with each other because they are genetically related, the mating is called mating.
- A) Random
B) Consanguineous
C) Assortative
D) General
49. One or two peripheral layers persist for the nourishment of the developing spores. These nourishing cells form
- A) Elators
B) Sopores
C) Jacket
D) Tapetum

50. A model of evolution which theorizes that most speciation is slow, uniform and gradual is called

- A) Phyletic gradualism
- B) Punctuated equilibrium
- C) Quantum evolution
- D) Adaptive radiation



- Rough Work -

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