**RAIGANJ UNIVERSITY**

**ENTRANCE TEST FOR ADMISSION TO M.Phil/Ph.D. PROGRAMME**

**SESSION 2020-2021**

**DATE: 19.01.2021**

**WRITTEN EXAMINATION TIME: 2h (12 Noon-2pm) F.M:70**

**PAPER –I (Research Methodology)**

**Answer all questions**

**Part-A: Put (√) marks on the write options of the following questions. 1×25=25**

1. What is the name of the conceptual framework in which the research is carried out?

1. Research hypothesis
2. Synopsis of Research
3. Research paradigm
4. Research design

2. Which of the following features are considered as critical in qualitative research?

1. Collecting data with the help of standardized research tools.
2. Design sampling with probability sample techniques.
3. Collecting data with bottom-up empirical evidence.
4. Gathering data with top-down schematic evidence.

3. How is random sampling helpful?

1. Reasonably accurate
2. An economical method of data collection
3. Free from personal biases
4. All of the above

4. In order to pursue the research, which of the following is priorly required?

1. Developing a research design
2. Formulating a research question
3. Deciding about the data analysis procedure
4. Formulating a research hypothesis

5. The format of thesis writing is the same as in

1. Writing of Seminar representation
2. Preparation of research paper/article
3. A research dissertation
4. Presenting a workshop/conference paper

6. What does the longitudinal research approach actually deal with?

1. Long-term research
2. Short-term research
3. Horizontal research
4. None of the above

7. Which of the following does not correspond to characteristics of research?

1. Research is not passive
2. Research is systematic
3. Research is not a problem-oriented
4. Research is not a process

8.  What is the main aim of interdisciplinary research?

1. To over simplify the problem of research
2. To bring out the holistic approach to research
3. To create a new trend in research methodology
4. To reduce the emphasis on a single subject in the research domain

9. How to judge the depth of any research?

1. By research title
2. By research duration
3. By research objectives
4. By total expenditure on research

10. Who can successfully conduct Research?

1. Someone who is a hard worker
2. Possesses post-graduation degree
3. Has studied research methodology
4. Possesses thinking and reasoning ability

11. Which of the following is not the method of Research?

1. Survey
2. Historical
3. Observation
4. Philosophical

12. A research problem is feasible only when

1. It has utility and relevance
2. It is new and adds something to knowledge
3. It is researchable
4. All of the above

13. Authenticity of a research finding is its

1. Validity
2. Objectivity
3. Originality
4. All of the above

14.  What does a good thesis involve?

i) Reducing punctuations as well as grammatical errors to minimalist
ii) Correct reference citations
iii) Consistency in the way of thesis writing
iv) Well defined abstract

Select the answers from the codes given below:

1. ii), iii) and iv)
2. i), ii), iii) and iv)
3. i), ii) and iii)
4. i), ii) and iv)

15. What are the core elements of a dissertation?

1. Introduction; Data Collection; Data Analysis; Conclusions and Recommendations
2. Executive Summary; Literature Review; Data Gathered; Conclusions; Bibliography
3. Research Plan; Research Data; Analysis; References
4. Introduction; Literature Review; Research Methodology; Results; Discussions and Conclusions

16. Research problem is selected from the standpoint of

1. Social relevance
2. Financial support
3. Researcher's interest
4. Availability of relevant literature

17. How can we enhance the research objective?

1. By making it more valid
2. By making it more reliable
3. By making it more impartial
4. All of the above

18.  Which one among the following falls under the category of research development?

1. Descriptive Research
2. Philosophical Research
3. Action Research
4. All of the above

19. Research is

 a. Searching again and again

 b. Finding solution to any problem

 c. Working in a scient[if](http://www.netugc.com/)ic way to search for truth of any problem

 d. None of the above

20. A common test in research demands much priority on

 a. Reliability

 b. Usability

 c. Objectivity

 d. All of the above

21. The essential qual[i](http://www.netugc.com/)ties of a researcher are

 a. Spirit of free enquiry

 b. Reliance on observation and evidence

 c. Systematization or theorizing of knowledge

 d. All the above

22. 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

23. A research paper is a brief report of research work based on

 a. Primary Data only

 b. Secondary Data only

 c. Both Pr[i](http://www.netugc.com/)mary and Secondary Data

 d. None of the above

24. Questionnaire is a:

 a. Research method

 b. Measurement technique

 c. Tool for data collection

 d. Data analysis technique

25. “Controlled Group” is a term used in...............

 a. Survey research

 b. Historical research

 c. Exper[i](http://www.netugc.com/)mental research

 d. Descriptive research

**Part –B: Answer any one question from the following.**

1. What do you mean by research? What are the characters of scientific research? What are the criteria of good research? (2+3+5)
2. How do you define positive and negative control in an experiment, state with example? Briefly explain the importance of control in an experiment. (5+5)

**PAPER –II (Subject)**

Answer all questions

**Part – A: Put (√) marks on the write options of the following questions.**

1. **From where corona virus got its name?**
a. Due to their crown-like projections.
b. Due to their leaf-like projections.
c. Due to their surface structure of bricks.
d. None of the above
2. What types of viruses contain the enzyme lysozyme to aid in their infection?
a.Bacteriophage
b. Animal Viruses
c. Plant Viruses
d. Fungal Viruses
e. Human Viruses
3. A chemical component that is found in all viruses is:
a. Protein
b. Lipid
c. DNA
d. RNA
e. Glycoproteins
4. **Which of the following is a helical virus?**

a. TMV

b. T4 phage

c. Poxvirus

d. Herpes virus

5. Select a food borne toxin

a.Botulinum toxin

b.Tetanus Toxin

c.Diphtheria toxin

d.Cholera Toxin

6. A cell without a cell wall is termed as

1. Tonoplast
2. Protoplast
3. Symplast
4. Apoplast

7. Which of the following is not a thermostable polymerase?

a. pfu polymerase

b. Taq polymerase

c. Vent polymerase

d. DNA polymerase III

 8. Microfilaments are composed of a protein called

1. Tubulin
2. Actin
3. Myosin
4. Chitin

9. Name the enzyme secreted by pancreas?

a) Pepsin
b) Chymotrypsin
c) Trypsin
d) Alcohol dehydrogenase

10. Mark the CORRECT function of enzyme, Peptidase?

a) Cleave phosphodiester bond
b) Cleave amino bonds
c) Remove phosphate from a substrate
d) Removal of H2O

1. Monoclonal antibodies recognize a single:
a. Antigen
b. Bacterium
c. Epitope
d. B cell
2. What is the nature of an enzyme?
a) Vitamin
b) Lipid
c) Carbohydrate
d) Protein
3. An important requirement for the intestinal pathogens is

 a. The must be Gram negative

 b. The must be Gram positive

 c. They must survive low-oxygen environment

 d. They can compete with heterogeneous gut microbiota

1. Alkaptonuria is a genetic disorder due to defect in
2. Homogentisate oxidase
3. Tyrosine transaminase
4. Phenylalanine hydroxylase

d. Fumarylacetoacetase

 15. Catalytic activity of toxin is associated with

1. Total toxin
2. Only heavy chain
3. Both heavy & light chain
4. Only light chain

16. NGS (e.g. Illumina sequencing) uses

1. electrophoresis to separate bases by size
2. light detection at each cycle of synthesis
3. Both of the above
4. None of the above

17. Which of the following ion produces a toxic effect in the brewing process?

1. Manganese
2. Calcium
3. Copper
4. Sulphate

18. Juice clarification extraction is facilitated by using

1. Cellulases
2. Amylase
3. Inulinase
4. Lactase

19. Which of the following endonuclease has been purified from Aspergillus

1. S1 nuclease
2. RNase H
3. RNase A
4. Mung bean nuclease

20. Koshland’s theory of enzyme action is known as

1. Reduced fit theory
2. Lock and key theory
3. Induced fit theory
4. Enzyme coenzyme theory

21. Father of Medical Microbiology is

a. Pasteur

 b. Jenner

 c. Koch

 d. A.L.Hock

22. The ability of a pathogen to spread in the host tissues after establishing the infection is known as

a. Adhesion

b. Invasiveness

c. Toxigenicity

d. None of these

23. Griffith (1928) reported the phenomenon of transformation first in

a. H. influenza

b. Bacillus species

c. Pneumococci

d. E.coli

24. β-haemolytic bacteria is

a. Streptococcus pyogenes

b. Str. pneumoniae

c. Str. viridans

d. Str. Faecalis

25. Bacteria are more sensitive to antibiotics at which phase of growth curve?

a. Decline phase

b. Stationary phase

c. Lag phase

 d. Log phase

**Part –B: Answer any one question from the following.**

1. What is Covid 19? What are the symptoms of Covid 19?Is Covid 19 the same as SARS? Can I catch Covid 19 from my pet? How long does the Covid 19 survive on surfaces? (1+2+2+2+3)
2. What is Next Generation Sequencing (NGS)? Write in brief about different NGS sequencing method which can be applied for obtaining finished DNA sequencing from pure DNA. (2+8)