

Test Booklet No. _____

This booklet consists of 100 questions and 12 printed pages.

RGUPET/____/____

Series

NIL

**RGUPET 2023
Ph.D. in ZOOLOGY**

Full Marks: 100

Time: 3 Hours

Roll No.

--	--	--	--	--	--	--	--

Day and Date of Examination : _____

Signature of Invigilator(s) : _____

Signature of Candidate : _____

General Instructions:

PLEASE READ ALL THE INSTRUCTIONS CAREFULLY BEFORE MAKING ANY ENTRY.

1. DO NOT OPEN THIS TEST BOOKLET UNTIL YOU ARE TOLD TO DO SO.
2. Candidate must write his/her Roll Number on the space provided.
3. This Test Booklet contains 100 Multiple Choice Questions (MCQs) from the concerned subject. Each question carries 1 mark.
4. Please check the Test Booklet to verify that the total pages and total number of questions contained in the test booklet are the same as those printed on the top of the first page. Also check whether the questions are in sequential order or not.
5. Candidates are not permitted to enter into the examination hall 15 minutes after the commencement of the entrance test or leave the examination hall before 30 minutes of end of examination.
6. Making any identification mark in the OMR Answer Sheet or writing Roll Number anywhere other than the specified places will lead to disqualification of the candidate.
7. Candidates shall maintain silence inside and outside the examination hall. If candidate(s) is/are found violating the instructions mentioned herein or announced in the examination hall, they will be summarily disqualified from the entrance test.
8. In case of any dispute, the decision of the Entrance Test Committee, RGU shall be final and binding.
9. The OMR Answer Sheet consists of two copies, the Original copy and the Student's copy.

1	Hypothesis cannot be stated in					
	a) Null and question form term	b) General terms	c) Declarative terms	d) None of Above	b	General terms
2	The process of selecting a subset of a population for a survey is known as					
	a) Survey research	b) Representation	c) Triangulation	d) Sampling	d	Sampling
3	When a research problem is related to heterogenous population, the most suitable method is					
	a) Cluster sampling	b) Stratified sampling	c) Convenient sampling	d) Lottery method	b	Stratified sampling
4	Which of these is not a method of data collection?					
	a) Questionnaires	b) Interview	c) Observation	d) Experiments	b	Observation
5	For a proposition to be true, it should have the following characteristics except					
	a) It must be objective.	b) It must be in tune with accepted beliefs.	c) It must be consistent.	d) It must be testable.	d	It must be testable
6	Which of the following figures reflect the highest value of Karl Pearson's coefficient of correlation?					
	a) +0.22	b) +0.91	c) -0.49	d) -0.92	d	-0.92
7	Which scale is the simplest form of measurement?					
	a) Nominal	b) Ordinal	c) Interval	d) Ratio	a	Nominal
8	To ensure accuracy of research, the sample should be					
	a) Taken randomly	b) Fixed by quota	c) Representative of the population	d) Purposive	c	Representative of the population
9	In research, something that does not vary is called a					
	a) Variable	b) Method	c) Constant	d) None of above	c	Constant
10	Which of the following variable cannot be expressed in quantitative terms?					
	a) Socio-economics	b) Marital status	c) Numerical attitude	d) Professional attitude	d	Professional attitude

11	The list of special terms and phrase used is given in the form of a					
	a) Glossary	b) Quotation	c) Foot note	d) Bibliography	a	Glossary
12	In research methodology, interpretation is the search of					
	a) Statistical data	b) Research problem	c) Research plan	d) Research findings	d	Research findings
13	UGC insists on research papers to be published in Journals with					
	a) ISBN number	b) ISSN number	c) ISNN number	d) Serial number	b	ISSN number
14	The quality of research journal is indicated by its					
	a) Impact factor	b) i10-score	c) h-index	d) g-index	a	Impact factor
15	A null hypothesis is					
	a) When there is no difference between the variables	b) The same as research hypothesis	c) Subjective in nature	d) when there is difference between the variables	a	When there is no difference between the variables

16	In the scientific method, what is the correct sequence of steps followed in conducting research?				c	Hypothesis, data collection, analysis, conclusion
	a) Conclusion, hypothesis, data collection, analysis	b) Data collection, hypothesis, analysis, conclusion	c) Hypothesis, data collection, analysis, conclusion	d) Conclusion, data collection, analysis, hypothesis		
17	What is the purpose of a control group in experimental research?				a	To provide a reference point for comparison with the experimental group
	a) To provide a reference point for comparison with the experimental group	b) To manipulate the independent variable to test its effect	c) To collect observational data in a natural setting	d) To establish a correlation between two variables		
18	Which research approach focuses on studying animal behavior in their natural habitats without interfering or manipulating their environment?				b	Field research
	a) Experimental	b) Field	c) Laboratory	d) Cross-		

	research	research	research	sectional research		
19	What is the primary purpose of conducting a literature review in zoological research?				a	To identify research gaps and formulate research questions
	a)To identify research gaps and formulate research questions	b)To collect data from previous studies	c)To summarize the results of a study	d)To publish the research findings		
20	Which of the following is an example of a quantitative research variable in Zoology?				a	Species diversity
	a)Species diversity	b)Habitat type	c)Body coloration	d)Reproductive behaviour		
21	In Zoological research, what is the purpose of obtaining ethical clearance or approval?				c	To protect the welfare of animals involved in the study
	a)To ensure the safety of the researchers	b)To secure funding for the research project	c)To protect the welfare of animals involved in the study	d)To guarantee publication of the research findings		
22	Which statistical analysis method is commonly used to determine if there is a significant difference between two or more groups in a study?				c	Analysis of variance (ANOVA)
	a)T-test	b)Chi-square test	c)Analysis of variance (ANOVA)	d)Correlation analysis		
23	What is the primary purpose of random sampling in zoological research?				d	To obtain a representative sample that reflects the population
	a)To ensure that all individuals in the population are included in	b)To reduce the cost and time required for data	c)To eliminate the need for statistical analysis	d)To obtain a representative sample that reflects the population		

	the study	collection				
24	What is the primary purpose of using model organisms in Zoological research?				b	To investigate fundamental biological processes that are common across species
	a) To study rare and endangered species	b) To investigate fundamental biological processes that are common across species	c) To conduct large-scale field surveys	d) To develop new techniques for genetic engineering		

25	What is a variable?				b	Something that can change in a research study
	a) A constant in a research study	b) Something that can change in a research study	c) A hypothesis in a research study	d) A dependent measure in a research study		
26	What is a literature review?				a	A summary of the research already conducted on a topic
	a) A summary of the research already conducted on a topic	b) A list of references used in a research study	c) A description of the methods used in a research study	d) A summary of the results of a research study		

27	What is validity in research?				a	The degree to which a study measures what it intends to measure
	a)The degree to which a study measures what it intends to measure	b)The degree to which a study can be generalized to other populations	c)The degree to which a study produces consistent results over time	d)The degree to which a study is reliable		
28	What is research?				a	A systematic and scientific process of gathering and analyzing information
	a)A systematic and scientific process of gathering and analyzing information	b)A creative process of finding new ideas	c)A process of testing hypotheses	d)A process of finding solutions to practical problems		
29	Which of the following is not a step in the research process?				d	Publishing results
	a)Developing a research question	b)Collecting data	c)Analyzing data	d)Publishing results		

30	What is the difference between qualitative and quantitative research?				a	Qualitative research is subjective, while quantitative research is objective
	a)Qualitative research is subjective, while quantitative research is objective	b)Qualitative research uses numbers, while quantitative research uses words	c)Qualitative research uses statistical analysis, while quantitative research does not	d)Qualitative research is exploratory, while quantitative research is confirmatory		
31	What is a research design?				a	The overall plan for conducting a research study
	a)The overall plan for conducting a research study	b)The specific procedures used to collect data	c)The analysis of data collected in a study	d)The literature review for a research study		
32	Which of the following is an initial mandatory requirement for pursuing research?				b	Formulating a research question
	a)Developing a research design	b)Formulating a research question	c)Deciding about the data analysis procedure	d)Formulating a research hypothesis		
33	Ethical norms in research do not involve guidelines for:				a	Thesis format
	a)Thesis format	b)Copyright	c)Patenting policy	d) Data sharing policies		
34	Which of the following is not a/an web browser?				d	Yahoo
	a)Internet Explorer	b)Mozilla Firefox	c)Google Chrome	d)Yahoo		

35	A good thesis writing should involve (a)reduction of punctuation and grammatical errors to a minimum (b) careful checking of references (c) consistency in the way the thesis is written (d) a clear and well written abstract				a	(a), (b), (c) and (d)
	a) (a), (b), (c) and (d)	b)(a), (b) and (c)	c) (a), (b) and (d)	d)(b), (c) and (d)		
36	The frequency distribution of a research data which is symmetrical in shape similar to a normal distribution but center peak is much higher, is				c	Leptokurtic
	a)Skewed	b)Mesokurtic	c)Leptokurtic	d)Platykurtic		
37	Sampling error decreases with the				b	Increase in sample size
	a)Decrease in sample size	b)Increase in sample size	c) Process of randomization	d)Process of analysis		

38	What is the name of the conceptual framework in which the research is carried out?				d	Research design
	a) Research hypothesis	b) Synopsis of Research	c) Research paradigm	d) Research design		
39	Which of the following features are considered as critical in qualitative research?				c	Collecting data with bottom-up empirical evidence.
	a) Collecting data with the help of standardized research tools.	b) Design sampling with probability sample techniques.	c) Collecting data with bottom-up empirical evidence.	d) Gathering data with top-down schematic evidence.		
40	In order to pursue the research, which of the following is priorly required?				b	Formulating a research question
	a) Developing a research design	b) Formulating a research question	c) Deciding about the data analysis procedure	d) Formulating a research hypothesis		
41	The format of thesis writing is the same as in				c	A research dissertation
	a) Writing of Seminar	b) Preparation	c) A research dissertation	d) Presenting a workshop/conferenc		

	representation	of research paper/article		e paper		
4 2	What does the longitudinal research approach actually deal with?				a	Long-term research
	a) Long-term research	b) Short-term research	c) Horizontal research	d) None of the above		
4 3	What is the main aim of interdisciplinary research?				b	To bring out the holistic approach to research
	a) To over simplify the problem of research	b) To bring out the holistic approach to research	c) To create a new trend in research methodology	d) To reduce the emphasis on a single subject in the research domain		
4 4	The main aim of the scientific method in the research field is to _____.				d	Eliminate spurious relations
	a) Improve data interpretation	b) Confirm triangulation	c) Introduce new variables	d) Eliminate spurious relations		
4 5	How to judge the depth of any research?				c	By research objectives
	a) By research title	b) By research duration	c) By research objectives	d) By total expenditure on research		
4 6	Authenticity of a research finding is its				b	Objectivity
	a) Validity	b) Objectivity	c) Originality	d) All of the above		
4 7	What are the core elements of a dissertation?				d	Introduction; Literature Review; Research Methodology ; Results; Discussions and
	a) Introduction; Data Collection; Data Analysis; Conclusions and Recommendations	b) Executive Summary; Literature Review; Data Gathered; Conclusions ;	c) Research Plan; Research Data; Analysis; References	d) Introduction; Literature Review; Research Methodology; Results; Discussions and Conclusions		

		Bibliography				Conclusions
48	Research can be classified as:				d	All the above
	a) Basic, Applied and Action Research	b) Quantitative and Qualitative Research	c) Philosophical, Historical, Survey and Experimental Research	d) All the above		
49	Which of the following is classified in the category of the developmental research?				d	All the above
	a) Philosophical research	b) Action research	c) Descriptive research	d) All the above		
50	What is the name of the conceptual framework in which the research is carried out ?				d	Research design
	a) Research hypothesis	b) Synopsis of Research	c) Research paradigm	d) Research design		

DOMAIN

51	What do mean by <i>Zeitgedachtnis</i> in ethology				c	Time memory
	a) Landmark memory	b) Food memory	c) Time memory	d) Light-Darkness memory		
52	The Predator- Prey model was given by				b	A.J Lotka & V. Voltera
	a) A.J Lotka & C.S Holling	b) A.J Lotka & V. Voltera	c) V. Voltera & F. Gause	d) Voltera, Lotka & Holling		
53	Bog is an example of what ecosystem?				d	Wetland
	a) Rhitron	b) Lotic	c) Lentic	d) Wetland		
54	Which of the following is not a population character				c	Diversity
	a) Density	b) Growth	c) Diversity	d) Dipersion		
55	Which is of the following is the lowest biodiversity region				c	Tundra
	a) Desert	b) Temperate	c) Tundra	d) Taiga		
56	According to which ecogeographical's rule, the larger size					

	individuals are found in colder environment and smaller size individuals are found in warmer regions.					
	a) Bergmann's rule	b) Allen's rule	c) Jordan's rule	d) Gloger's rule	a	Bergmann's rule
57	Historia plantarum is work of					
	a) Theophrastus	b) Aristotle	c) Carolus Linnaeus	d) Ernst Haeckel	a	Theophrastus
58	Recently African Cheetahs were introduced in which of the Indian National Park					
	a) Kaledo National Park	b) Gir National Park	c) Ranthombore National Park	d) Kuno National Park	d	Kuno National Park
59	Which of the following is not a keystone species					
	a) Tiger	b) Wild buffaloes	c) African Elephant	d) Starfish	b	Wild buffaloes
60	The Mono climax theory of succession was proposed by:					
	a) Robert H. Whittaker	b) A. G Tansley	c) F.E. Clements	d) R.F. Daubenmire	c	F.E. Clements
61	Darwin's Finches is an example of					
	a) Struggle for existence	b) convergence evolution	c) Adaptive radiation	d) Niche overlap	c	Adaptive radiation
62	Crabs, lobster, oysters and copepods are example of					
	a) Nekton	b) Benthos	c) Plankton	d) Neuston	b	Benthos
63	An association between two individuals or more where both are benefitted and which are obligatory					
	a) Commensalism	b) Mutualism	c) Protocooperation	d) Amensalism	b	Mutualism
64	The high Biological Oxygen Demand indicates:					
	a) Microorganism free water	b) Microorganism contaminated water	c) Pure water	d) All of the above	b	Microorganism contaminated water
65	The organism with narrow range for tolerance of environmental factors is					
	a) Stenophagic	b) Sstenohaline	c) Stenotopic	d) None of the above	c	Stenotopic
66	The Lincoln index is used to measures					
	a) Population	b) Population	c) Population	d) Population	b	Population size

	density	size	mortality	natality		
67	The carrying capacity of a habitat is determined by					
	a) Density	b) Mortality	c) Natality	d) Resources	d	Resources

68	Eukaryotic chromosomes are made up of					
	a) DNA	b) Proteins	c) Lipid	d) Both a and b	d	Both a and b
69	Which of the following is example of tumor suppressor gene?					
	a) <i>jun</i>	b) <i>H-ras</i>	c) <i>RB</i>	d) <i>K-ras</i>	c	<i>RB</i>
70	Receptors for the signal recognition particles (SRP) are present on					
	a) Smooth endoplasmic reticulum	b) Plasma membrane	c) Golgi apparatus	d) Rough endoplasmic reticulum	d	Rough endoplasmic reticulum
71	What is the shape of tRNA in three dimensional (3D) structure?					
	a) L-shaped	b) Clover leaf shaped	c) V-shaped	d) None	a	L-shaped
72	In the most severe form of progeria, Hutchinson–Gilford syndrome, a dominant mutation occurs in the gene encoding					
	a) Lamin A	b) Myosin	c) Telomerase	d) Tubulin	a	Lamin A
73	The outer nuclear membrane is continuous with					
	a) Mitochondria	b) Lysosome	c) Endoplasmic reticulum	d) Golgi apparatus	c	Endoplasmic reticulum
74	The dark areas, which are often closely associated with the nuclear membrane, contain condensed concentrated DNA, called					
	a) Euchromatin	b) Pseudochromatin	c) Heterochromatin	d)None	c	Heterochromatin
75	All proteins found in the nucleus are synthesized in					
	a) Cytoplasm	b) Nucleus	c) Lysosome	d)Both a and b	a	Cytoplasm
76	Which of the following allow movement of small molecules and ions between the cytosols of adjacent cells.					
	a) Tight junction	b) Adherens junction	c) Desmosome	d) Gap junction	d	Gap junction
77	Receptor of most bacterial lipopolysaccharides is					
	a) TLR1	b) TLR9	c) TLR4	d) TLR3	c	TLR4

78	Which of the following antibody can cross placenta?					
	a) IgM	b) IgD	c) IgG	d) IgE	c	IgG

79	How many pairs of antennae do crustaceans typically have?				b	Two pairs
	a) One pair	b) Two pairs	c) Three pairs	d) Four pairs		
80	What is the characteristic feature of the forewings of beetles?				c	Hardened
	a) Membranous	b) Transparent	c) Hardened	d) Vestigial		
81	Which leg segment in honey bees contains a comb used for collecting pollen from the abdomen?				a	Basitarsus
	a) Basitarsus	b) Tibia	c) Metatarsus	d) Femur		

82	Which one of the following would contribute to intrinsic fluorescence to a protein?				a	Aromatic amino acids
	a) Aromatic amino acids	b) Disulfide bonds	c) Charged amino acids	d) Branched chain amino acids		
83	Mutation in gene 'X' leads to lethality in a haploid organism. Which one of the following is best suited to analyse the function of gene 'X'?				b	Temperature-sensitive mutant
	a) Pleiotropic mutants	b) Temperature-sensitive mutant	c) Recessive mutants	d) Mutants with low penetrance		
84	Telomerase, a RNA-protein complex which completes the replication of telomeres during DNA synthesis, is a specialised				a	RNA dependent DNA polymerase
	a) RNA dependent DNA polymerase	b) DNA dependent DNA polymerase	c) DNA dependent RNA polymerase	d) RNA dependent RNA polymerase		
85	Which of the following are NOT transcribed by RNA polymerase II?					

	a) miRNA and some snRNA	b) miRNA and snoRNA	c) mRNA and snoRNA	d) tRNA and 5S rRNA	d	tRNA and 5S rRNA
86	Which one of the following is a food borne toxin?				b	Botulinum toxin
	a) Tetanus toxin	b) Botulinum toxin	c) Cholera toxin	d) Diphtheria toxin		
87	Cell to cell communication is important in development of an organism. The ability of cells to respond to a specific inductive signal is called -				b	Competence
	a) Regional specificity of induction	b) Competence	c) . Juxtacrine signalling	d) Instructive interaction		
88	Which one of the following analytical techniques does NOT involve an optical measurement?				d	Differential Scanning Calorimetry
	a) ELISA	b) Microarray	c) Flow cytometry	d) Differential Scanning Calorimetry		
89	The tetanus vaccine given to humans in the case of a deep cut is a				d	Toxoid vaccine
	a) DNA vaccine	b) Recombinant vector vaccine	c) Subunit vaccine	d) Toxoid vaccine		
90	The presence and distribution of specific mRNAs within a cell can be detected by-				c	in situ hybridization
	a) Northern blot analysis	b) RNase protection assay	c) in situ hybridization	d) real-time PCR		
91	Which of the following inactivates the serine/threonine protein kinase mTOR related to cell growth in mammalian system ?				a	Rapamycin
	a) Rapamycin	b) Erythromycin	c) Chloramphenicol	d) Rifamycin		

92	Which of the following is a primary consumer in a food chain?				b	Rabbit
	a) Lion	b) Rabbit	c) Snake	d) Hawk		
93	Which of the following is an example of a reptile?				b	Crocodile
	a) Shark	b) Crocodile	c) Dolphin	d) Whale		
94	Which of the following is an example of a bird?				d	Penguin
	a) Shark	b) Crocodile	c) Dolphin	d) Penguin		
95	Which of the following is a decomposer in a food chain?				d	Fungi

	a)Grass	b)Rabbit	c)Snake	d)Fungi		
96	Which of the following is not a component of the biosphere?				d	Ionosphere
	a)Lithosphere	b)Hydrosphere	c)Atmosphere	d)Ionosphere		
97	Which of the following is a characteristic of reptiles?				c	They lay eggs
	a)They are warm-blooded	b)They have feathers	c)They lay eggs	d)They have moist skin		
98	Which of the following is an example of a carnivore?				c	Lion
	a)Rabbit	b)Deer	c)Lion	d)Cow		
99	Which of the following is an example of a marsupial?				a	Kangaroo
	a)Kangaroo	b)Bear	c)Wolf	d)Fox		
100	Which of the following is not a characteristic of mammals?				c	They have feathers
	a)They give birth to live young	b)They have mammary glands	c)They have feathers	d)They are warm-blooded		

SPACE FOR ROUGH WORK