



Hemchandracharya North Gujarat University PHD Exam

Exam Name : HNGU_PHD_Zoology_30.01.2024_12.00 PM TO 02:00 PM

Exam Date : 2024-01-30

Exam Time : 12:00:00 PM To 02:00:00 PM

Total Marks : 100

Note : The correct answer is indicated by the green color. સાચો જવાબ લીલા રંગ દ્વારા સૂચવવામાં આવે છે.

Question List:

Section: Section-A

- Which of the following is included in features of research? [1 Mark]
 - Research is a logical process
 - Research needs accuracy
 - Research is a process carried out with passion
 - **All of these**
- Which of the following is not a type of evolutionary research? [1 Mark]
 - Contemporary evaluation
 - Periodic evaluation
 - **Political evaluation**
 - Final evaluation
- What is the type of information that classified below? Classified information: (1) Yes (2) No. [1 Mark]
 - **Binary-nominal**
 - Binary-ordinal
 - Ratio measurement
 - Interval measurement
- Number of books in the library' this data is related to which kind of scale? [1 Mark]
 - Nominal scale
 - Ordinal scale
 - **Interval scale**
 - Ratio scale
- Why do you study review of literature? [1 Mark]
 - To study what is already known about the subject
 - To know about concepts and principles have been applied to the subject
 - To study about the main contributors in this context
 - **All of these**
- What is research design? [1 Mark]

- A way of conducting research that is not theoretical
 - The choice to use qualitative or quantitative methods
 - The style in which you present your research findings, E.g. Graph.
 - **Structure for each stage of data collection and analysis**
- **95% of total area under standard normal curve is between _____ and _____. [1 Mark]**
 - - 0.96 to + 0.96
 - **- 1.96 to + 1.96**
 - - 2.58 to + 2.58
 - $-\infty$ to $+\infty$
- **If a boy cycles 8 km at the speed of 8 km per hour, and walks another 8 km at the speed of 2 km per hour. His average speed per hour is [1 Mark]**
 - 5 km
 - 16/5 km
 - 6 km
 - **4 km**
- **Which of the following is not a Non- parametric test of hypothesis testing? [1 Mark]**
 - **t-test**
 - Sign Wilcoxon Test
 - Mann-Whitney Test
 - Kruskal Wallis Test
- **Which one of the following statistical measures is based on all observations? [1 Mark]**
 - Quartile Deviation
 - **Harmonic mean**
 - Range
 - Mode
- **What are the values of Skewness and Kurtosis for normal distribution? [1 Mark]**
 - 3 and 0
 - **0 and 3**
 - -3 and 0
 - $-\infty$ to $+\infty$
- **Qualitative observation is usually done for exploratory purposes; it is also called _____ observation. [1 Mark]**
 - Structured
 - **Naturalistic**
 - Complete
 - Probed
- **What is a pilot survey? [1 Mark]**
 - **The process of verification by the first field work to test the questionnaire before conducting questionnaire based primary survey**
 - Survey conducted before subject selection.
 - Statistical investigation after completion of research study
 - Research proposal offered by researcher
- **Which of the following is not true for functional research? [1 Mark]**
 - Conducts research according to the problem itself.
 - **The result obtained can be applied to the wider world.**
 - Work can be improved through it
 - It is activity focused.
- **Which of the following is not included in the source of primary data. [1 Mark]**
 - **RBI report**
 - Group discussion
 - Interview
 - Observation

- **A survey in which information is collected from each and every individual of the population is known as: [1 Mark]**
 - Sample survey
 - Pilot survey
 - Biased survey
 - **Census Survey**

- **What are the essential features of a research design?**
 - (1) It is an active and time based plan.
 - (2) The plan is based on a research question.
 - (3) It shows the procedure for each research activity.
 - (4) Sources and types of information corresponding to the scheme are selected. [1 Mark]
 - 1 and 2
 - 1, 2, and 3
 - **1, 2, 3, and 4**
 - 2 and 3

- **Another name for a Likert Scale is a(n): [1 Mark]**
 - **Summated rating scale**
 - Interview protocol
 - Ranking
 - Event sampling

- **A Type I error occurs when we: [1 Mark]**
 - Reject a false null hypothesis
 - **Reject a true null hypothesis**
 - Do not reject a false null hypothesis
 - Do not reject a true null hypothesis

- **In order to determine the p-value of a hypothesis test, which of the following is not needed? [1 Mark]**
 - Whether the test is one-tail or two-tail
 - The value of the test statistic
 - The form of the null and alternate hypotheses
 - **The level of significance**

- **Which of the following sampling methods, is a probability method? [1 Mark]**
 - udgement
 - Judgement
 - **Simple random**
 - Convenience

- **Which of the following is not a type of non-probability sampling? [1 Mark]**
 - Convenience sampling
 - Quota sampling
 - Snowball sampling
 - **Stratified random sampling**

- **Ethics can be defined as: [1 Mark]**
 - **A process of reasoning in terms of the right thing to do.**
 - Rules governing society.
 - The basis of the criminal code.
 - A list of rights and wrongs.

- **Bibliography it Means: [1 Mark]**
 - Foot notes
 - Biography
 - Questions
 - **List of books referred**

- **An abstract contains: [1 Mark]**
 - A brief summary of research problems
 - A brief Analysis of data
 - **A brief summary of the findings of the report**
 - A brief interpretation of data

- **Full form of APA [1 Mark]**
 - African Psychological Association
 - **American Psychological Association**
 - Asian Psychological Association
 - Australian Psychological Association

- **Which of the following statement is true for Research Ethics. (I) Standard research ethics changes from person to person. (II) Research emerges from the societal problems and the observation of a researcher [1 Mark]**
 - I only
 - **II only**
 - I & II both
 - None of these

- **A complete survey of population is called [1 Mark]**
 - **Census**
 - Sample
 - Report
 - None of these

- **The proposal's literature review is important because: [1 Mark]**
 - It is expected by the university.
 - **It looks authoritative.**
 - It shows that you are knowledgeable about the literature that relates to your research topic
 - The tutor insists upon it.

- **Size of critical region is known as _____ [1 Mark]**
 - B
 - $1 - \beta$
 - Critical value
 - **Size of the test**

- **What is a sign of Mode? [1 Mark]**
 - Σ
 - M
 - X
 - **Z**

- **A thesis statement is [1 Mark]**
 - An observation
 - **An assertion**
 - A Fact
 - A discussion

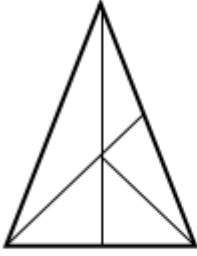
- **Based on the information of runs scored by two players A and B, A's coefficient of variation is 37 and B's coefficient of variation is 40. Which of the two players has more stable ? [1 Mark]**
 - **A player**
 - B player
 - Both A Player and B Player
 - Neither A nor B.

- **Between which two numbers does the probability value lie? [1 Mark]**
 - 0 to -1
 - **0 to +1**

- -1 to +1
 - 1 to 2
- **Which of the following distributions is a normal distribution? [1 Mark]**
 - χ^2
 - F distribution
 - **Normal distribution**
 - None of these
- **Which of the following toolbars is used to execute code in the MATLAB interface? [1 Mark]**
 - File toolbar
 - Home toolbar
 - Edit toolbar
 - **Plot toolbar**
- **What is the role of computers in research and computing? [1 Mark]**
 - Data storage and analysis
 - Operating laboratory equipment
 - Text processing and reporting
 - **All of these**
- **How does the binary number system represent data in computers? [1 Mark]**
 - **Using combinations of 0 and 1**
 - In the same way as decimal numbers
 - Using graphics and images
 - Using text and code
- **Why are various software packages used in research? [1 Mark]**
 - **To analyze and graph data**
 - To document laboratory results
 - To review reference literature
 - To write books
- **What does Microsoft Word do? [1 Mark]**
 - Data analysis
 - Create presentations
 - **Write documents**
 - Send emails
- **Find out the next term in the following series: 0, 3, 8, 15, 24, ... [1 Mark]**
 - **35**
 - 32
 - 39
 - 37
- **If UPE=SNC, then QHD= [1 Mark]**
 - NKH
 - **OFB**
 - PGE
 - MKF

• Image [1 Mark]

How many triangles are there in the following figure?



A	6
B	10
C	11
D	12

- A
- B
- C
- **D**

• The average age of 32 students is 10 years. If the teachers age is included, then their average age increase by one year. What is the teacher's age in years? [1 Mark]

- 21
- 33
- **43**
- 45

• Image [1 Mark]

Find the missing number in the following:

1	2	3
4	5	6
7	8	9
27	38	?

A	52
B	51
C	50
D	49

- A
- **B**
- C
- D

• The teacher explained the first chapter to students. (Select the correct passive form of the given sentence.) [1 Mark]

- **The first chapter was explained to students by the teacher.**
- The first chapter had been explained to students by the teacher.
- The first chapter had explained to students by the teacher
- The first chapter had been explain to students by the teacher.

• Give the one word substitute for 'one who possesses many talents'. [1 Mark]

- Wise
- Exceptional
- **Versatile**

- Extra ordinary
- Give the antonym of 'mild' [1 Mark]
 - **Gruff**
 - Bold
 - Strong
 - Active
- Only one of the students _____ completed the homework. [1 Mark]
 - Have
 - Was
 - **Has**
 - Is
- Exercise is necessary _____ good health [1 Mark]
 - At
 - In
 - **For**
 - Without

Section: Section-B

- Which of the following sugars is found in nucleic acid? [1 Mark]
 - Dextrose
 - Glucose
 - Levulose
 - **Deoxyribose**
- Basic structure of protein was given by whom? [1 Mark]
 - WM Stanley
 - Nicholson
 - Watson
 - **F Sanger**
- During cell growth, DNA synthesis takes place in which phase? [1 Mark]
 - **S-phase**
 - G1-phase
 - G2-phase
 - M-phase
- In meiosis, crossing over is initiated at [1 Mark]
 - leptotene
 - zygotene
 - diplotene
 - **pachytene**
- What are enzymes chemically called? [1 Mark]
 - hydrocarbons
 - amino acids
 - fats
 - **proteins**
- In eubacteria, a cellular component that resembles eukaryotic cells is... [1 Mark]
 - nucleus
 - ribosomes
 - cell wall
 - **plasma membrane**

- **The membrane is selectively permeable. Many molecules can move across the membrane without any requirement of energy, this is called [1 Mark]**
 - active transport
 - osmosis
 - **passive transport**
 - diffusion
- **The term 'linkage' was coined by [1 Mark]**
 - **TH Morgan**
 - T Boveri
 - G Mendel
 - W Sutton
- **The correct sequence of taxa is [1 Mark]**
 - Class—Order—Family—Tribe—Genus—Species
 - **Class—Order—Tribe—Family—Genus—Species**
 - Phylum—Order—Class—Tribe—Genus—Species
 - Phylum—Tribe—Class—Order—Genus—Species
- **Which of the following is capable of self-replication? [1 Mark]**
 - Enzymes
 - Amino acid
 - **DNA**
 - Protein
- **Semiconservative model of DNA replication was first demonstrated by [1 Mark]**
 - Watson and Crick
 - **Meselson and Stahl**
 - Herbert Taylor
 - Har Gobind Khorana
- **Process of protein synthesis in a cell is called as.... [1 Mark]**
 - transcription
 - **translation**
 - transduction
 - translocation
- **In which direction mRNA is synthesised on DNA template? [1 Mark]**
 - **5' à 3'**
 - 3' à 5'
 - Both
 - All of these
- **Where does protein synthesis take place in the animal cell? [1 Mark]**
 - only in the cytoplasm
 - in the nucleolus as well as in the cytoplasm
 - **in the cytoplasm as well as in mitochondria**
 - only on ribosomes attached to a nucleus
- **A species inhabiting different geographical areas is known as [1 Mark]**
 - **allopatric**
 - sympatric
 - biospecies
 - sibling species
- **Apoptosis', which occurs in case of irreparable damage to the cell, is caused by, [1 Mark]**
 - P 27 protein
 - **P 53 protein**
 - cyclins
 - GLUT-4 proteins

- Which of the following dyes is best suited for staining chromosomes? [1 Mark]
 - Basic Fuchsin
 - Safranin
 - Methylene blue
 - **Acetocarmine**

- Which one of the following four membranes is most likely to have a lipid composition that is distinct from the other three? [1 Mark]
 - Endoplasmic reticulum
 - **Mitochondrial outer membrane**
 - Lysosome membrane
 - Golgi apparatus

- Which of the following statements is not true for cancer cells in relation to mutations? [1 Mark]
 - Mutations destroy telomerase inhibitor
 - Mutations inactivate the cell control
 - **Mutations inhibit production of telomerase**
 - Mutations in proto-oncogenes accelerate the cell cycle

- Which of the following reasons written below is not a cause of cancer? [1 Mark]
 - Ionising radiations
 - Altered oncogenes
 - Chemical carcinogens
 - **None of these**

- Which are the bile pigments? [1 Mark]
 - haemocyanin
 - biliverdin
 - bilirubin
 - **Both biliverdin & bilirubin**

- Pepsin is secreted by [1 Mark]
 - **zymogen cells**
 - epithelial cells
 - liver
 - pancreas

- What is the disease that occurs in mature adult human being due to deficiency of calciferol? [1 Mark]
 - keratomalacia
 - **osteomalacia**
 - glossitis
 - pernicious anaemia

- Which of the following is an essential fatty acid in mammals? [1 Mark]
 - Stearic acid
 - Acetic acid
 - **Palmitic acid**
 - Gamma linolenic acid

- Oxygen dissociation curve of myoglobin is [1 Mark]
 - hypobolic
 - **hyperbolic**
 - linear
 - sigmoid

- Reduction in pH of blood will be... [1 Mark]
 - reduce the blood supply to the brain
 - **decrease the affinity of haemoglobin with oxygen**

- release bicarbonate ions by the liver
 - reduce the rate of heartbeat
- **Where does carbonic anhydrase occurs? [1 Mark]**
 - lymphocytes
 - blood plasma
 - **RBC**
 - leucocytes
- **Which of the following is an occupational respiratory disorder? [1 Mark]**
 - Botulism
 - **Silicosis**
 - Anthracis
 - Anthracis
- **In adult man, normal BP is... [1 Mark]**
 - 100/80 mm Hg
 - **120/80 mm Hg**
 - 100/120 mm Hg
 - 100/120 mm Hg
- **Double circulation is the characteristic feature of which of the following? [1 Mark]**
 - **Human**
 - Fishes
 - Arthropods
 - Annelids
- **In ureotelic animals, urea is formed by the... [1 Mark]**
 - **Ornithine cycle**
 - Cori's cycle
 - Krebs' cycle
 - EMP pathway
- **Filtration occurs in.... [1 Mark]**
 - Bowman's capsule
 - **glomerulus**
 - Malpighian body
 - ureter
- **Kidney stones are crystals of... [1 Mark]**
 - sodium chloride
 - silica
 - **calcium oxalate**
 - potassium chloride
- **Select the correct pathway for the passage of urine in humans. [1 Mark]**
 - Renal vein à Ureter à Bladder à Urethra
 - **Collecting tubule à Ureter à Bladder à Urethra**
 - Pelvis à Medulla à Bladder à Urethra
 - Cortex à Medulla à Bladder à Urethra
- **The lower jaw in mammals is made up of [1 Mark]**
 - mandible
 - **dentary**
 - maxilla
 - angulars
- **Myelin sheath is produced by [1 Mark]**
 - **Schwann cells and oligodendrocytes**
 - Astrocytes and Schwann cells

- Oligodendrocytes and osteoclasts
 - Osteoclasts and astrocytes
- **Fight or flight reactions cause the activation of [1 Mark]**
 - the parathyroid glands, leading to increased metabolic rate
 - the kidney, leading to suppression of renin-angiotensin-aldosterone pathway
 - **the adrenal medulla, leading to increased secretion of epinephrine and norepinephrine**
 - the pancreas leading to a reduction in the blood sugar levels
- **Which of the following statements is correct about node of Ranvier? [1 Mark]**
 - Axolemma is discontinuou
 - **Myelin sheath is discontinuous**
 - Both neurilemma and myelin sheath are discontinuous
 - Covered by myelin sheath
- **Which of the following structure is present in man but not in frog? [1 Mark]**
 - pancreas
 - adrenal gland
 - thyroid gland
 - **salivary gland**
- **Which organic compounds have first evolved in the direction of origin of life on the earth? [1 Mark]**
 - Urea and amino acids
 - Urea and nucleic acids
 - Proteins and nucleic acids
 - **Proteins and amino acids**
- **Which of the following represents order of 'Horse'? [1 Mark]**
 - Equidae
 - **Perissodactyla**
 - Caballus
 - Ferus
- **Darwin's finches are an excellent example of [1 Mark]**
 - **adaptive radiation**
 - seasonal migration
 - brood parasitism
 - connecting links
- **A population is a group of [1 Mark]**
 - individuals in a species
 - individuals in a family
 - **species in a community**
 - communities in an ecosystem
- **Permanent outward movement of individuals is known as the [1 Mark]**
 - natality
 - mortality
 - **emigration**
 - migration
- **Asymptote in a logistic growth curve is obtained, when [1 Mark]**
 - the value of 'r' approaches zero
 - **K = N**
 - K > N
 - K < N
- **Which of the following is most dangerous to wildlife? [1 Mark]**
 - Overexploitation

- Man-made forest
 - **Habitat destruction**
 - Introduction of foreign species
- **Which of the following is not correctly matched? [1 Mark]**
 - **Acoelomated — Platyhelminthes**
 - Acoelomates — Molluscs
 - Pseudocoelomates — Aschelminthes
 - Coelomates — Arthropods
- **Larva of Balanoglossus is... [1 Mark]**
 - Muller's larva
 - tadpole
 - **tornaria larva**
 - kentrogen larva
- **Which among these is the correct combination of aquatic mammals? [1 Mark]**
 - Seals, Dolphins, Sharks
 - Dolphins, Seals, Trygon
 - **Whales, Dolphins, Seals**
 - Trygon, Whales, Seals
- **Which of the following are correctly matched with respect to their taxonomic classification? [1 Mark]**
 - Flying fish, cuttle fish, silver fish – Pisces
 - Centipede, millipede, spider, scorpion – Insecta
 - **Housefly, butterfly, tse-tse fly, silver fish – Insecta**
 - Spiny anteater, sea urchin, sea cucumber – Echinodermata