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M.Phil./Ph.D. Entrance Examination, October - 2021**ZOOLOGY****Day and Date : Wednesday, 27 - 10 - 2021****Total Marks : 100****Time : 04.00 p.m. to 06.00 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 calculations are allowed.

- 1) A short summary of technical research report is called as _____
 - A) article
 - B) research abstract
 - C) publication
 - D) guide
- 2) What is correct about fundamental research?
 - A) A research which involves finding a solution for an immediate problem facing a society
 - B) A research concerned with generalizations and with the formulation of a theory.
 - C) A research involving surveys and fact-finding enquiries of different kinds.
 - D) None of these
- 3) The main purpose of research is to _____
 - A) increase social status of an individual
 - B) increase job prospects of an individual
 - C) help in the personal growth of an individual
 - D) to enhance society by advancing knowledge through the development of scientific theories, concepts and ideas.

P.T.O.

- 4) Random sampling is helpful as it is _____
A) not accurate
B) free from personal biases
C) an economical method of data collection
D) it is based on bias
- 5) Type-I Error occurs if _____
A) the null hypothesis is rejected even though it is true
B) the null hypothesis is accepted even though it is false
C) both null hypothesis and alternative hypothesis are rejected
D) none of these
- 6) Quantitative research has been criticized because _____
A) the measurement process suggests a spurious and artificial sense of accuracy
B) the reliance on instruments and procedures makes it high in ecological validity
C) it underestimates the similarities between objects in the natural and social worlds
D) it overestimates the similarities between objects in the natural and social worlds
- 7) I bought a silk shirt at 10% discount and sold it to a friend at a loss of 10%. If the friend paid me Rs. 729.00 for the silk shirt, what was the undiscounted price of the silk shirt?
A) 900
B) 800
C) 1000
D) 911.25
- 8) Find the next value in the series 0, 3, 8, 15, 24, 35, 48, ?
A) 51
B) 55
C) 63
D) 65
- 9) In the process of conducting research, 'Formulation of Hypothesis' is followed by
A) Statement of Objectives
B) Analysis of Data
C) framing the experimental design
D) Collection of Data
- 10) What effect does increase in the sample size have upon sampling error?
A) It reduces the sampling error
B) It increases the sampling error
C) it has no effect on the sampling error
D) None of the above

- 11) If 74683 means GREAT, then 7684 means?
A) GEAR B) HEAR
C) REAG D) GAER
- 12) The Individual with an IQ _____ is considered as exceptionally smart.
A) Below 40 B) 50
C) 60 to 80 D) 130 and above
- 13) Which of the following is not ethical practice in research with humans?
A) Maintaining participants' anonymity
B) Gaining informed consent
C) Informing participants that they are free to withdraw at any time
D) Disclosing their personal information and name publicly
- 14) Quality of measurement procedure that provides repeatability and accuracy is called as
A) validity B) reproducibility
C) reliability D) authenticity
- 15) Which of the following statements is true?
A) The larger the sample size, the greater is the sampling error
B) The smaller the sample size, the greater is the sampling error
C) The more categories being measured, the smaller the sample size
D) A confidence level of 95 percent is always sufficient
- 16) The appropriate analytical technique is determined by _____
A) the research design
B) nature of the data collected
C) nature of the hypothesis
D) nature of research design and data collected
- 17) Which term best describes the consistency of an assessment measure?
A) Correlation B) Reliability
C) Validity D) Variance
- 18) An appropriate research design involves which of the following factors?
A) the objective of the problem to be studied
B) the means of obtaining information
C) the nature of the problem to be studied
D) all factors mentioned here are essential.

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- 19) Smoking leads to an increased risk of lung cancer is what type of correlation?
A) Strong correlation B) Positive correlation
C) Weak correlation D) Negative correlation
- 20) The group that receives the treatment of a proven molecule for comparison, is called as _____
A) Experimental group B) Positive Control group
C) Treatment group D) Independent group
- 21) In tissue culture laboratory hot air oven, autoclave and water purification system should be kept in _____
A) storage area B) washing and sterilization area
C) tissue culture room D) balance room
- 22) In spectoflurometer primary cell is between _____
A) source and the cell B) cell and detector
C) source and detector D) next to detector
- 23) Thin layer chromatography is performed on a sheet of _____
A) paper B) glass
C) wood D) plaster of Paris
- 24) The dimension of Electrophoresis gel is typically 8.5 cm x 5 cm with a thickness of _____ mm
A) 0.5-1 B) 1-2
C) 2-3 D) 3-4
- 25) _____ is a typical adsorbent used in chromatography technique.
A) Silica B) Alumina
C) Carbon D) Cellulose
- 26) Unit of evolution is _____
A) Population B) Species
C) Individuals D) Sub-species
- 27) Isolation leads to _____
A) Evolutionary divergence B) Species differentiation
C) Formation of analogous structures D) Formation of similar traits
- 28) Insecticidal properties of the DDT was determined for the first time by _____
A) Paul Muller B) O'Ziedler
C) Gerhard Schadder D) O' Brino

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- 29) Match the items in column I and column II and choose the correct option:
- | Column I | Column II |
|---------------------------------|---------------------|
| A. UV | i. Biomagnification |
| B. Biodegradable Organic matter | ii. Eutrophication |
| C. DDT | iii. Eye problems |
| D. Phosphates | iv. BOD |
- A) A-ii, B-i, C-iv, D-iii B) A-iii, B-ii, C-iv, D-i
 C) A-iii, B-iv, C-i, D-ii D) A-iii, B-i, C-iv, D-ii
- 30) _____ is the central portion of the cell nucleus and is composed of ribosomal RNA, proteins and DNA.
- A) Mitochondria B) Golgi apparatus
 C) RER D) Nucleolus
- 31) The fertilized eggs of honey bee produces
- A) Workers B) Drones
 C) Queen D) Workers and queen
- 32) In an autoclave, usually 15 min sterilization is conducted at
- A) temperature 145°C and pressure 10lb
 B) temperature 121°C and pressure 15lb
 C) temperature 150°C and pressure 10lb
 D) temperature 60°C and pressure 15lb
- 33) The most commonly found insects in corpses & carcasses are
- A) Cryptozoids B) *Entamoeba histolytica*
 C) blow flies D) *Dermestes lardarius*
- 34) When 0.1M NaOH is added to an equimolar mixture of weak acid and its conjugate base, the pH of the solution
- A) will remain unaltered
 B) will increase to 14
 C) not show drastic change in the pH as compared to unbuffered solution
 D) will decrease
- 35) Which of the following statements about the TCA cycle is correct?
- A) Oxygen is used to oxidize the acetyl group carbons of acetyl-CoA in the TCA cycle.
 B) Three molecules of NADH and one molecule of FADH₂ are produced in one turn of the TCA cycle.
 C) Oxygen is not used in the TCA cycle, so the cycle can occur in anaerobic conditions.
 D) The TCA cycle produces water that is formed during the complete oxidation of glucose.

- 36) Immunoprecipitation occurs only when
- A) antibody excess
 - B) antigen excess
 - C) insoluble antigen-antibody lattice is formed at equivalence point
 - D) antigen less
- 37) Standard deviation is
- A) the square root of variance
 - B) measured using the unit of the variable
 - C) measured using the squared unit of the variable
 - D) values generally comparable with the average value
- 38) Histologically Stellate Reticuloendothelial cells are present in
- A) sublingual gland
 - B) salivary Gland
 - C) liver
 - D) parotid gland
- 39) Heart beat more than 140 per minute is known as
- A) Bradycardia
 - B) Tachycardia
 - C) Tamponade
 - D) Cynosis
- 40) _____ is the initiation codon.
- A) UUU
 - B) AUG
 - C) UAA
 - D) UGG
- 41) Mullers *CIB* method for detection of mutation in *Drosophila melanogaster* is _____
- A) Sex linked recessive lethal
 - B) Autosomal Dominant non-lethal
 - C) Autosomal recessive lethal
 - D) Sex linked recessive Non-lethal
- 42) Type I hypersensitivity reaction is induced by certain type of antigens referred as _____
- A) allergens
 - B) microbes
 - C) parasites
 - D) all of the above
- 43) Which of the following toxicity can occur due to single exposure?
- A) Acute toxicity
 - B) Sub-acute toxicity
 - C) Sub-chronic toxicity
 - D) Chronic toxicity
- 44) Organic cofactors are bound to _____
- A) enzyme
 - B) substrate
 - C) product
 - D) intermediate of the reaction

- 45) Enzyme Commission (EC) number of enzyme alcohol dehydrogenase is ____
A) 1.1.1.1 B) 2.2.2.2
C) 3.3.3.3 D) 4.4.4.4
- 46) Which of the following is not a surgical manipulation of *In Vitro* Fertilization (IVF)?
A) Assisted Zona Hatching
B) Cytoplasmic transfer
C) Intra Cytoplasmic Sperm injection
D) Incubation of sperms together with secondary oocytes
- 47) In MTT assay reduction of yellow colour tetrazolium to purple coloured formazan indicates _____
A) death of the cells B) viability of the cells
C) proliferative capacity of the cells D) cell senescence
- 48) Which of the following tests is employed to test the sterility of the serum?
A) loopful serum is streaked on suitable culture media to see bacterial and fungal growth if any.
B) to culture the cells in serum supplemented medium and observe the death of cells due to infection.
C) to culture the cells in serum supplemented medium and observe the growth of bacteria/fungi if any.
D) to autoclave the serum and incubate with suitable culture medium.
- 49) Inbreeding leads to _____
A) loss of vigor B) increase in homozygosity
C) decrease in variation D) all of these are correct options
- 50) A host that harbours a parasite in which it undergoes sexual method of reproduction is _____ host.
A) Definitive B) Intermediate
C) Paratenic D) Reservoir



Rough Work