

DO NOT OPEN THIS TEST BOOKLET UNTIL YOU ARE ASKED TO DO SO

TEST BOOKLET
AP(CC)ZOOLOGY-2016


Time Allowed : 2 Hours]

[Maximum Marks : 100

All questions carry equal marks.

INSTRUCTIONS

1. Immediately after the commencement of the examination, you should check that test booklet does not have any unprinted or torn or missing pages or items, etc. If so, get it replaced by a complete test booklet.
2. Write your Roll Number only in the box provided alongside.
Do not write anything else on the Test Booklet.
3. This Test Booklet contains **100** items (questions). Each item comprises four responses (answers). Choose only one response for each item which you consider the best.
4. After the candidate has read each item in the Test Booklet and decided which of the given responses is correct or the best, he has to mark the circle containing the letter of the selected response by blackening it completely with Black or Blue ball pen. In the following example, response "C" is so marked :


5. Do the encoding carefully as given in the illustrations. While encoding your particulars or marking the answers on answer sheet, you should blacken the circle corresponding to the choice in full and no part of the circle should be left unfilled. After the response has been marked in the ANSWER SHEET, no erasing/fluid is allowed.
6. You have to mark all your responses **ONLY** on the ANSWER SHEET separately given according to 'INSTRUCTIONS FOR CANDIDATES' already supplied to you. *Responses marked on the Test Booklet or in any paper other than the answer sheet shall not be examined.*
7. All items carry equal marks. Attempt all items. Your total marks will depend only on the number of correct responses marked by you in the Answer Sheet. There will be no negative marking.
8. Before you proceed to mark responses in the Answer Sheet fill in the particulars in the front portion of the Answer Sheet as per the instructions sent to you.
9. If a candidate gives more than one answer, it will be treated as a wrong answer even if one of the given answers happens to be correct.
10. After you have completed the test, hand over the Answer Sheet only, to the Invigilator.

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1. The ear of snakes includes well developed :
 - (A) External, Middle and Internal ear
 - (B) Internal ear and Columella auris
 - (C) Middle and Internal ear
 - (D) External and Internal ear

2. A colour-blind man has a normal brother and a colour-blind sister. With respect to the phenotypes of the parents, it is likely that :
 - (A) the father had a normal vision and the mother was colour-blind
 - (B) the father was colour-blind and the mother had normal vision
 - (C) both the mother and father were colour-blind
 - (D) both the mother and father had normal-vision

3. Gene pool refers to total number of :
 - (A) similar genes present in different individuals of population
 - (B) different genes present in a specific individual of population
 - (C) different genes present in all the individuals of population
 - (D) similar genes present in a specific individual of population

4. Which endocrine gland develops from an outgrowth of the epithelium lining the roof of the mouth ?
- (A) pineal (B) anterior pituitary
(C) posterior pituitary (D) hypothalamus
5. Triple repeat sequence occurs in :
- (A) Tay Sachs disease (B) Huntington's disease
(C) Cystic fibrosis (D) Hemophilia
6. End product of glycolysis in RBC is :
- (A) 3-Phosphoglycerate (B) Acetyl CoA
(C) Lactic acid (D) Pyruvic acid
7. The amino acids that carry positive charge upon ionization are :
- (A) Aspartate and Glutamate (B) Aspartic and Lysine
(C) Serine and Threonine (D) Lysine and Arginine

8. The blood vessel that connects the pulmonary artery with the aorta but closes up at the time of birth is called :
- (A) ductus caroticus (B) ductus cuvier
(C) ductus arteriosus (D) ductus endolymphaticus
9. The beadlike unit of chromatin structure is the :
- (A) Nucleosome (B) Kinetochore
(C) Scaffold (D) Chromatid
10. In the evolution of land vertebrates, which of the following aortic arches has been retained ?
- (A) Sixth (B) Fifth
(C) Second (D) First
11. Teeth of sharks and teleosts are :
- (A) Heterodont (B) Thecodont
(C) Pleurodont (D) Acrodont

12. Gap junctions are absent in :

- (A) Single unit smooth muscle (B) Multi-unit smooth muscle
(C) Cardiac muscle (D) Skeletal muscle

13. The periodic backward movement of warm water to the tropical East Pacific is known as :

- (A) Tsunami current (B) El Niño current
(C) Peru current (D) Humboldt current

14. Which of the following karyotypes represents Klinefelter's syndrome ?

- (A) 47, XXX (B) 47, XXY
(C) 47, XY, +21 (D) 47, XYY

15. Which of the following pathogens enters the human body without the help of a vector ?

- (A) *Wuchereria* (B) *Plasmodium*
(C) *Schistosoma* (D) *Trypanosoma*

16. One pg is equal to :

(A) 1×10^{-12} g

(B) 1×10^{12} g

(C) 1×10^9 g

(D) 1×10^{-9} g

17. Which one of the following pairs is mismatched ?

(A) Prolactin — Pituitary

(B) Antidiuretic hormone — Kidney

(C) Luteinizing hormone — Mammary gland

(D) Adrenocorticotrophic hormone — Adrenal cortex

18. Which of the following communicable diseases is transmitted by *Culex* sp. ?

(A) Dengue

(B) Yellow fever

(C) Japanese encephalitis

(D) Dengue haemorrhagic fever

19. Which of the following genotype frequencies of AA, Aa and aa, respectively satisfy the Hardy-Weinberg principle ?

(A) 0.64, 0.27, 0.03

(B) 0.36, 0.55, 0.09

(C) 0.25, 0.50, 0.25

(D) 0.49, 0.42, 0.09

20. The Beer Lambert law governs :

(A) Spectrophotometry

(B) Immunoblotting

(C) ELISA

(D) RIA

21. Release of spermatozoa from Sertoli cells into the lumen of the seminiferous tubules is known as :

(A) spermiation

(B) spermateleosis

(C) spermiogenesis

(D) sperm maturation

22. The volume of gas inspired and expired with each breath is known as :

(A) inspiratory reserve volume

(B) tidal volume

(C) lung volume

(D) vital capacity

23. An increase in the length of hind limb of frog is due to long :

(A) femur

(B) carpels

(C) femur and tibiofibula

(D) astragalus and calcaneum

24. When the posterior lobe of the pituitary gland no longer releases adequate amounts of ADH, the result is development of :
- (A) diabetes insipidus (B) diabetes mellitus
(C) hyperglycemia (D) glycosuria
25. The natural umbrella of ozone layer is present in :
- (A) troposphere (B) mesosphere
(C) stratosphere (D) atmosphere
26. In humans and other primates, the hemispheres of the cerebrum are connected by a nerve tract called the :
- (A) pons (B) thalamus
(C) cerebral cortex (D) corpus callosum
27. Beriberi, rickets and scurvy are caused due to deficiency of :
- (A) Vit B₁₂, Vit A and Vit C (B) Vit B₁, Vit D and Vit C
(C) Vit B₂, Vit D and Vit C (D) Vit B₆, Vit C and Vit D

28. Temperature-dependent sex determination is found in :

- (A) monotremes (B) amphibians
(C) snakes (D) crocodilians

29. Cells are prone to become tumorigenic if :

- (A) telomeres contain repeated sequences
(B) activity of telomerase enzyme is very low
(C) activity of telomerase enzyme is unusually high
(D) histone protein molecules form a complex with DNA

30. In the ornithine cycle, carbon dioxide and ammonia are used for the synthesis of :

- (A) urea (B) uric acid
(C) bilirubin (D) creatinine

31. The Bohr effect explains why :

- (A) hemoglobin binds carbon monoxide more readily than oxygen
(B) hemoglobin unloads its oxygen when it encounters low pH
(C) diffusion occurs slowly over long distances
(D) oxygen is present in the atmosphere at relatively low concentrations

32. Which of the following plasma protein(s) coat(s) surface of microbes to form a membrane attack complex ?

(A) Histamine

(B) Complement proteins

(C) Interferon

(D) Antigen

33. The Purkinje fibers consist of specialized :

(A) nerve cells

(B) endothelial cells

(C) smooth muscle cells

(D) cardiac muscle cells

34. Which of the following blood vessels in a mammal carry blood with respectively the highest and the lowest concentrations of urea ?

(A) Hepatic vein and renal artery

(B) Hepatic artery and hepatic vein

(C) Hepatic artery and renal artery

(D) Hepatic vein and renal vein

35. An epitoke is a :

- (A) terminal segment of polychaete
- (B) juvenile polychaete
- (C) non-feeding stage of polychaete
- (D) reproductive stage of polychaete

36. Phenol is used for extracting genomic DNA from various types of cells because it :

- (A) dissolves DNA completely
- (B) extracts hydrophobic proteins and other components
- (C) is a hydrophilic solvent
- (D) is lighter than water

37. The template strand of gene contains the sequence 3'-TTCAGTCGT-5', then sequence of non-template strand will be :

- (A) 5'-AAGUCAGCA-3'
- (B) 3'-AAGTCAGCA-5'
- (C) 5'-AAGTCAGCA-3'
- (D) 5'-TTCAGTCGT-3'

38. The initial dorsal-ventral orientation of vertebrate embryos is determined by :
- (A) the point of entry of the sperm
 - (B) the point of contact with the uterus
 - (C) genetic differences in the cells
 - (D) gravity
39. When a bacteriophage is integrated into a cellular genome it is called a :
- (A) virulent virus
 - (B) prophage .
 - (C) transducing virus
 - (D) lytic virus
40. When a polymerase chain reaction (PCR) amplification was performed on human genomic DNA, multiple products of varying sizes were obtained, including one of the expected size. Which of the following modifications to the protocol is the most likely to eliminate the extra PCR products ?
- (A) Increasing the elongation time from 3 minutes to 4 minutes
 - (B) Raising the denaturation temperature from 94°C to 96°C
 - (C) Raising the annealing temperature from 52°C to 56°C
 - (D) Raising the elongation temperature from 70°C to 74°C

41. Function of *t*RNA is to bring :
- (A) amino acids to the ribosome (B) amino acids to the *m*RNA
(C) anticodon to the ribosome (D) anticodon to the *m*RNA
42. The term hybridoma means :
- (A) hybridization of DNA and RNA molecules
(B) recombination of DNA molecules
(C) fusion of gametic cells in culture
(D) fusion of somatic cells in culture
43. Which of the following is a single lipid bilayer membrane structure :
- (A) Smooth endoplasmic reticulum (B) Nucleus
(C) Plastids (D) Lysosome
44. Sickle cell disease illustrates the :
- (A) dominance (B) incomplete dominance
(C) multiple pairing (D) recessiveness

45. A 0.05 mol.l^{-1} solution may also be correctly expressed as :
- (A) 50 millimolar solution (B) 5 millimolar solution
(C) 50 micromolar solution (D) 5 micromolar solution
46. Triglycerides travel through lymphatic vessels in the form of small particles called :
- (A) Chylomicrons (B) Micelles
(C) Ascites cells (D) Lipid globules
47. The main determinant of blood pressure is :
- (A) peripheral resistance (B) blood volume
(C) elasticity of arteries (D) cardiac output
48. The T wave of ECG corresponds to which event in the cardiac cycle ?
- (A) Depolarisation of the pacemaker
(B) Repolarisation of the ventricles
(C) Closure of the aortic valves
(D) Depolarisation of the ventricles

49. Which of the following blood cells develops into a macrophage in loose connective tissue ?
- (A) Monocyte (B) Lymphocyte
(C) Neutrophil (D) Platelet
50. A housekeeping gene that is constantly transcribed is also known as :
- (A) cistron (B) basic gene
(C) structural gene (D) constitutive gene
51. Third generation sequencing of DNA is characterized by :
- (A) sequencing homologous RNA instead of DNA
(B) random fragmentation of DNA
(C) sequencing single DNA molecule
(D) sequencing DNA regions with high GC content
52. If in a human being, mature neuron at G_0 stage of the cell cycle contains X amount of DNA, then mature spermatozoa will contain DNA.
- (A) 2X (B) 1X
(C) 0.5X (D) 4X

53. The migration of a protein on an SDS polyacrylamide gel is best described as inversely proportional to the log of :
- (A) carbohydrate content (B) molecular weight
(C) negative charge (D) native volume
54. After a high protein meal, most of the nitrogen in amino acids that is targeted for the synthesis of urea biosynthesis is transferred via transamination to :
- (A) ornithine (B) acetoacetate
(C) citrulline (D) alpha-ketoglutarate
55. The age of pyramid with broad base indicates :
- (A) low percentage of young individuals
(B) high percentage of old individuals
(C) low percentage of old individuals
(D) high percentage of young individuals
56. The most popular and widely used engineered plasmid vector is :
- (A) pBR 322 (B) pUC
(C) pSC 101 (D) pUC 19

57. Which of the following cells is arrested at G_0 Phase in human ?
- (A) Mature nerve cell (B) Smooth muscle cell
(C) Liver cell (D) Cardiac muscle cell
58. Blood pressure is highest in :
- (A) pulmonary vein (B) pulmonary artery
(C) systemic artery (D) systemic vein
59. Obstruction of lymph vessel causes :
- (A) edema (B) lymphoma
(C) tonsils (D) atherosclerosis
60. The majority of carbon dioxide produced by the cells is transported to the lungs :
- (A) attached to hemoglobin (B) dissolved in the blood
(C) as bicarbonate (D) as free H^+ ions
61. Which of the following is a bacterial disease ?
- (A) Leprosy (B) Polio
(C) Chickenpox (D) Influenza

62. Which form of hepatitis is contracted sexually ?
- (A) Hepatitis A (B) Hepatitis B
(C) Hepatitis C (D) Hepatitis D
63. Which of the following patterns indicate resource limitation ?
- (A) Exponential (B) Logistic
(C) Logarithmic (D) Geometric
64. Cycloheximide inhibits :
- (A) DNA replication (B) Transcription
(C) Translation (D) Glycolysis
65. 'Nitrogen fixation' means conversion of atmospheric nitrogen to :
- (A) ammonia (B) proteins
(C) nucleic acids (D) ammonium ions
66. A group of potentially inbreeding individuals present in a location is referred to as :
- (A) Biome (B) Community
(C) Population (D) Metapopulation

67. The sodium-potassium pump transports :
- (A) Na^+ and K^+ out of the neuron
 - (B) Na^+ and K^+ into the neuron
 - (C) Na^+ into the neuron and K^+ out of the neuron
 - (D) Na^+ out of the neuron and K^+ into the neuron
68. The hot spots concept has been proposed by :
- (A) Hugo von Mohl
 - (B) Norman Myers
 - (C) Alfonso Corti
 - (D) Robert Brown
69. Which of the following compounds moves readily traverses the cell membrane ?
- (A) Peptide hormone
 - (B) Steroid hormone
 - (C) Pro-hormone
 - (D) Phospholipase C
70. Molecule that *cannot* bind antigen :
- (A) Intact immunoglobulin
 - (B) Fab
 - (C) F(ab')_2
 - (D) F_c

71. Amniotic egg first evolved in :
- (A) Amphibia (B) Aves
(C) Reptilia (D) Mammalia
72. In response to increase in the osmolality of blood :
- (A) ADH secretion decreases
(B) Blood volume tends to increase
(C) ADH secretion as well as blood volume decrease
(D) ADH secretion and blood volume do not change
73. The use of living organisms to degrade environmental pollutant is known as :
- (A) micro-remediation (B) bioremediation
(C) nano-remediation (D) all of these
74. Oxidative phosphorylation refers to :
- (A) alcoholic fermentation
(B) the citric acid cycle production of ATP
(C) production of ATP by chemiosmosis
(D) anaerobic production of ATP

75. Which of the following is activated by phosphorylation ?
- (A) Mitogen-activated protein kinase (MAPK)
 - (B) Glycogen synthase
 - (C) Acetyl CoA carboxylase
 - (D) Hexokinase
76. Which one of the following is less affected by global warming ?
- (A) North pole
 - (B) South pole
 - (C) Equatorial region
 - (D) North and South poles
77. With reference to the pituitary, which of the following statements is *true* ?
- (A) Neurohypophysis secretes vasopressin and oxytocin
 - (B) Neurohypophysis secretes TSH and STH
 - (C) Neurohypophysis collects and stores vasopressin and oxytocin
 - (D) Adenohypophysis secretes vasopressin and oxytocin

78. SYBR Green is useful in real time PCR because it :
- (A) fluoresces only when bound to single-stranded DNA
 - (B) fluoresces only when bound to double-stranded DNA
 - (C) stops fluorescing when bound to double-stranded DNA
 - (D) stop fluorescing when bound to RNA
79. Kala-azar is caused by :
- (A) *Taenia solium*
 - (B) *Trypanosoma gambiense*
 - (C) *Leishmania donovani*
 - (D) *Wuchereria bancrofti*
80. The synthesis of DNA on RNA template is called :
- (A) Transactivation
 - (B) Translation
 - (C) Transcription
 - (D) Reverse transcription
81. Which of the following glaciers has the largest ice cover ?
- (A) Chandra Nahan
 - (B) Mukkila
 - (C) Bara Shigri
 - (D) Bhadal

82. Which mountain pass joins Chamba and Jammu ?

(A) Dulchi

(B) Kunzam

(C) Sach

(D) Padri

83. Which of the following rivers is said to have some mythical relation with the sun ?

(A) Satluj

(B) Yamuna

(C) Beas

(D) Ravi

84. With which ancient sage are the Audumbaras associated ?

(A) Vashishth

(B) Bhrigu

(C) Vishwamitra

(D) Parashar

85. Which of the following temples has pyramidal roof ?

(A) Shakti Devi temple (Chhatrari, Chamba)

(B) Lakshna Devi temple (Bharmaur, Chamba)

(C) Parashar temple at Mandi

(D) None of the above

86. Approximately how many people participated in Kullu Nati on October 26, 2015 which was recorded in the Guinness Book World Records as the largest folk dance ?
- (A) three thousand (B) six thousand
(C) ten thousand (D) thirteen thousand
87. Who is the author of *Kangra Valley Paintings* ?
- (A) M.S. Randhawa (B) H.C. Saraswat
(C) S.S. Negi (D) S.S. Shashi
88. According to 2010-11 Agricultural census what percentage of land holdings in H.P. are marginal ?
- (A) 69.78 percent (B) 76.89 percent
(C) 87.96 percent (D) 98.31 percent
89. Which of the following hydropower project in H.P. was executed by M/s Gangdari Hydropower Pvt. Ltd. ?
- (A) Fozal (B) Tangnu Romai
(C) Jongini (D) Baragaon

90. What assistance is provided by the H.P. Government under Mata Shabri Mahila Sashaktikaran Yojna ?

- (A) Subsidy for purchase of Gas Connection
- (B) Medical and legal assistance to rape victims
- (C) Maintenance and education of children
- (D) Rehabilitation of women who are in moral danger

91. Which day is observed as Kisan Day in India ?

- (A) November 02
- (B) November 23
- (C) December 10
- (D) December 23

92. When was Digital India Campaign launched ?

- (A) November 14, 2014
- (B) January 01, 2015
- (C) July 01, 2015
- (D) January 01, 2016

93. Which one of the following banks was merged with State Bank of India in 2008 ?
- (A) Bank of Travancore (B) Bank of Indore
(C) Bank of Saurashtra (D) Bank of Bikaner and Jaipur
94. Which was the first state in India to pass Parents Maintenance Act ?
- (A) Himachal Pradesh (B) Maharashtra
(C) Kerala (D) None of these
95. Who was awarded Jnanpith Award in April, 2015 ?
- (A) Bhalachandra Mungekar (B) Bishnudass Bhawe
(C) Bhalchandra Nemade (D) Hari Narain Apte
96. Which of the following structures did *not* suffer much damage during the earthquake that shook Nepal in April, 2015 ?
- (A) Vatsala Durga Temple (B) Darbar Square
(C) Pashupati Nath Temple (D) Dharahara Tower

97. Which day is observed as the National Day of France ?
- (A) April 14 (B) June 14
(C) July 14 (D) August 14
98. Recep Tayyip Erdogan is President of :
- (A) Turkey (B) Tunisia
(C) Sudan (D) Syria
99. In which country is Holey Artisan Cafe which witnessed terrorist attack around July 2016 ?
- (A) France (B) Germany
(C) Bangladesh (D) Belgium
100. In which country of the world Christmas is celebrated in July ?
- (A) in Argentina only (B) in Bolivia only
(C) in Chile only (D) in all of these