JAMMU AND KASHMIR PUBLIC SERVICE COMMISSION

RESHAM GHAR COLONY, BAKSHI NAGAR, JAMMU - 180001

Website: http://jkpsc.nic.in Jammu: 0191-2566533

email: coejkpsc2017@gmail.com

Subject: Written Examination for filling up of Gazetted Vacancies in various Govt. Medical Colleges in Health and Medical Education Department, 2023- Provisional Answer Key thereof.

Notification No. PSC/Exam/S/2024/33
Dated: 21.06.2024

In pursuance of Rule 10 (c) of the Jammu & Kashmir Public Service Commission (Conduct of Examination) Rules, 2022, as amended upto date, the Provisional Answer Key of Question Paper pertaining to the Written Examination for the post of **Assistant Professor (Physiology) in Health and Medical Education Department, held on 21.06.2024**, is hereby notified for seeking objections from candidates.

Provisional Answer Key

Test Booklet Question No. (Series A)	
Q1.	B
Q2.	A
Q3.	A
Q4.	D
Q5.	B
Q6.	D
Q7.	A
Q8.	A
Q9.	A
Q10.	B
Q11.	A
Q12.	A
Q13.	D
Q14.	B
Q15.	B

Test Booklet Question No. (Series A)	
Q16.	B
Q17.	D
Q18.	A
Q19.	B
Q20.	C
Q21.	A
Q22.	C
Q23.	A
Q24.	A
Q25.	A
Q26.	D
Q27.	C
Q28.	C
Q29.	D
Q30.	B

Test Booklet Question No. (Series A)	
Q31.	A
Q32.	C
Q33.	B
Q34.	C
Q35.	A
Q36.	B
Q37.	C
Q38.	B
Q39.	A
Q40.	A
Q41.	A
Q42.	A
Q43.	B
Q44.	A
Q45.	B

Test Booklet Question No. (Series A)	
Q46.	D
Q47.	B
Q48.	C
Q49.	B
Q50.	A
Q51.	A
Q52.	A
Q53.	D
Q54.	A
Q55.	C
Q56.	D
Q57.	C
Q58.	C
Q59.	C
Q60.	A
Q61.	C
Q62.	A
Q63.	C
Q64.	C
Q65.	D
Q66.	C
Q67.	B
Q68.	A
Q69.	A
Q70.	B

Test Booklet Question No. (Series A)	
Q71.	A
Q72.	A
Q73.	B
Q74.	A
Q75.	A
Q76.	B
Q77.	C
Q78.	A
Q79.	B
Q80.	C
Q81.	D
Q82.	C
Q83.	A
Q84.	C
Q85.	C
Q86.	A
Q87.	B
Q88.	A
Q89.	D
Q90.	A
Q91.	D
Q92.	B
Q93.	D
Q94.	B
Q95.	D

Test Booklet Question No. (Series A)	
Q96.	A
Q97.	D
Q98.	C
Q99.	B
Q100.	B
Q101.	C
Q102.	A
Q103.	D
Q104.	C
Q105.	C
Q106.	A
Q107.	B
Q108.	A
Q109.	B
Q110.	B
Q111.	D
Q112.	B
Q113.	C
Q114.	B
Q115.	B
Q116.	A
Q117.	C
Q118.	B
Q119.	C
Q120.	C

The candidates are advised to refer to **Question Booklet (Series A)** to match the corresponding question(s) in their respective Question Booklet Series and if any candidate feels that the key to any of the question(s) is/are wrong, he/she may represent on prescribed format/proforma annexed as **Annexure-A** along with the documentary proof/evidence **(hard copies only)** and fee of Rs.500/- per question in the form of Demand Draft drawn in favour of **COE, J&K PSC** (refundable in case of genuine/correct representation) to the Controller of Examinations, Jammu & Kashmir Public Service Commission, from 24.06.2024 to 26.06.2024. **The candidates are further advised to clearly mention the question(s) objected to with reference to its serial number as it appears in the Question Booklet of Series A of the provisional answer key.**

Further, any objection/application not accompanied by the requisite Demand Draft of Rs.500/- as prescribed, shall not be considered/entertained under any circumstances. Candidates are, in their own interest, advised to adhere to these instructions and not submit any objection unaccompanied by the Demand Draft as required under extant rules.

The Commission shall not entertain any such representation(s) after the expiry of the stipulated period i.e. **after 26.06.2024 (Wednesday), 05.00 pm**.

The provisional answer key is available on the website of the Commission http://www.jkpsc.nic.in.

21.06.2024

(G.L Sharma), JKAS
Additional Secretary
J&K Public Service Commission

No. PSC/Ex-Secy/2024/63 Dated: 21.06.2024

Copy to the: -

1. Director, Information and Public Relations, J&K for publication of the notice in all leading newspapers published from Jammu/Srinagar.
2. P.S. to Hon'ble Chairman, J&K Public Service Commission for information of the Hon'ble Chairman.
3. P.S. to Hon'ble Member, Shri _____ for information of the Hon'ble Member.
4. P. A. to Secretary, J&K Public Service Commission for information of the Secretary.
5. P.A. to Controller of Examinations, J&K Public Service Commission.
6. Main file/Stock file/Notice Board.

Annexure-A

Representation regarding objection(s) to any Question/Answer pertaining to the Written Test conducted for the post of Assistant Professor (Physiology) on 21.06.2024

(NOTE: USE SEPARATE FORMS FOR SEPARATE QUESTIONS)

Discipline : Physiology

Name of the Applicant : _____

Roll No. : _____

Correspondence Address : _____

Contact/Mobile No. : _____

Date of Application: _____.06.2024

Demand Draft No. date : _____

Candidates Account No.(16 digit) & IFSC Code : _____

_____

Question No. in Series A	Details of the Objection	Resource Material (copy to be enclosed)	Details of the Website (if any)
Correct Answer/Option as per candidate :			

Signature of the Candidate

Note: Application for each question/answer shall be made on separate page in the given format, otherwise the first question entered in the format shall only be considered.

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

Booklet Serial No. 205021

Test Booklet Series

TEST BOOKLET
ASSISTANT PROFESSOR PHYSIOLOGY
Written Test - 2024
(73)

A

Time Allowed: Three Hours *Maximum Marks: 120*

INSTRUCTIONS

1. IMMEDIATELY AFTER THE COMMENCEMENT OF THE EXAMINATION, YOU SHOULD CHECK THAT THIS 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. **Please note that it is the candidate's responsibility to encode and fill in the Roll Number and Test Booklet Series Code A, B, C or D carefully and without any omission or discrepancy at the appropriate places in the OMR Answer /Response Sheet. Any omission/discrepancy will render the Response Sheet liable for rejection.**
3. You have to enter your Roll Number on the Test Booklet in the Box provided alongside.

   DO NOT **write** ***anything else*** on the Test Booklet.
4. This Test booklet contains **120** items (questions). Each item comprises of four responses (answers). You will select the response which you want to mark on the Answer Sheet/Response Sheet. In case you feel that there is more than one correct response, mark the response which you consider the best. In any case, choose ***ONLY ONE*** response for each item.
5. You have to mark all your responses ***ONLY*** on the separate Answer /Response Sheet provided. *See directions in the Response Sheet.*
6. ***All*** items carry equal marks.
7. Before you proceed to mark in the Answer /Response Sheet, the response to various items in the Test Booklet, you have to fill in some particulars in the Answer /Response Sheet as per instructions sent to you with your Admission Certificate.
8. After you have completed filling in all your responses on the Response Sheet and the examination has concluded, you should hand over to the Invigilator ***only the Answer /Response Sheet.*** You are permitted to take away with you the Test Booklet and ***Candidate's Copy of the Response Sheet .***
9. Sheets for rough work are appended in the Test Booklet at the end.
10. **Penalty for wrong answers:**

    THERE WILL BE PENALTY FOR WRONG ANSWERS MARKED BY THE CANDIDATE IN THE WRITTEN TEST (OBJECTIVE TYPE QUESTIONS PAPERS).

    (i) There are four alternatives for the answer to every question. For each question for which a wrong answer has been given by the candidate, **(0.25)** of the marks assigned to that question will be deducted as penalty.

    (ii) 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 and there will be same penalty as above for that question.

    (iii) If a question is left blank, i.e., no answer is given by the candidate, there will be **no penalty** for that question.

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

1. Increased renin release is caused by

A) Increased sodium chloride delivery to the macula densa cells

B) Decreased renal perfusion pressure

C) Decreased urea delivery to the collecting duct cells

D) Increased renal perfusion pressure

2. Osmoreceptors are located in

A) Organum Vasculosum of the Lamina Terminalis (OVLT)

B) Rostro ventrolateral medulla

C) Retrotrapezoid nucleus

D) Principal cells in the distal tubule

3. An important side effect of the loop diuretics is

A) Hypokalemia

B) Hyperkalemia

C) Hypernatremia

D) Acidosis

4. A plasma sample revealed the following values in a patient. Diagnose acid-base status of the patient.

pH = 7.61, PCO_2 = 50 mm Hg, HCO_3 = 50 mEq/L

A) Respiratory acidosis with renal compensation

B) Respiratory alkalosis with respiratory compensation

C) Metabolic acidosis with respiratory compensation

D) Metabolic alkalosis with respiratory compensation

5. Nondigestible substances (typically dietary fibers) that promote the growth and activity of beneficial gut bacteria are termed as

A) Probiotics

B) Prebiotics

C) Postbiotics

D) Synbiotics

6. The parietal cell is inhibited by

A) Histamine

B) Gastrin

C) Acetylcholine

D) Somatostatin

7. The vitamin whose absorption is dependent on parietal cell secretion is

A) Vitamin B12

B) Vitamin E

C) Vitamin D

D) Vitamin A

8. The renal corpuscles are located in
   A) Renal cortex
   B) Outer medulla
   C) Inner medulla
   D) Renal pelvis

9. The transport maximum for renal reabsorption of glucose is
   A) 375 mg/min
   B) 180 mg/min
   C) 120 mg/min
   D) 80 mg/min

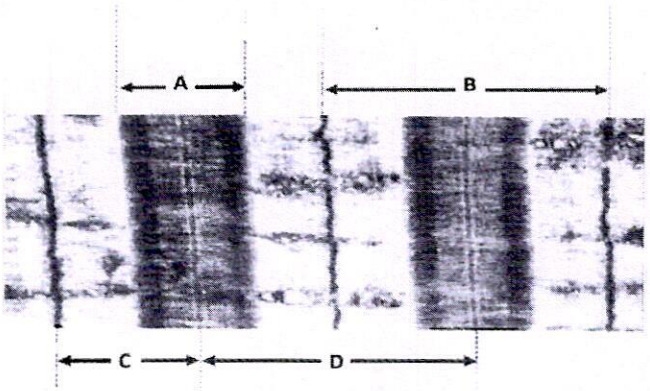
10. Which of the following aquaporin channels are regulated by ADH
   A) AQP1
   B) AQP2
   C) AQP3
   D) AQP4

11. The gold standard for determination of GFR is:
   A) Inulin clearance
   B) Creatinine clearance
   C) PAH clearance
   D) Cystatin C clearance

12. What is the correct sequence of all the events during cell cycle?
   A) Mitosis (Prophase, metaphase, anaphase, telophase, cytokinesis), G1, S, G2
   B) Mitosis (Prophase, anaphase, telophase, metaphase, cytokinesis), G1, S, G2
   C) S, G1, Mitosis (Prophase, metaphase, anaphase, telophase, cytokinesis), G2
   D) S, G1, Mitosis (Prophase, anaphase, telophase, metaphase, cytokinesis), G2

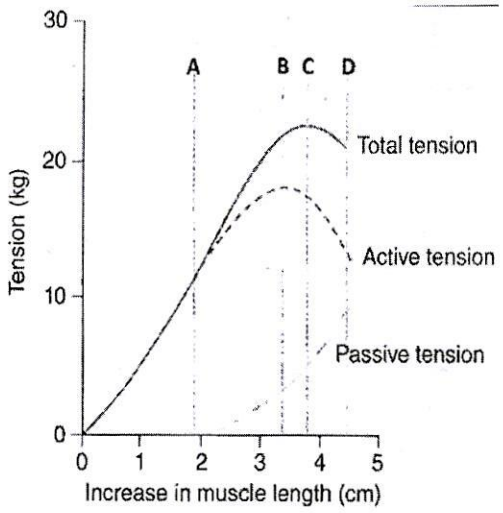
13. Metabolic acidosis with increased anion gap is seen in
   A) Renal tubular acidosis
   B) Diarrhoea
   C) Addison's disease
   D) Diabetic ketoacidosis

14. In the electron micrograph of a skeletal muscle (× 13,500) shown below, what correctly represents a sarcomere length?



   A) A
   B) B
   C) C
   D) D

15. In the length tension plot of human triceps muscle shown below which of the following represents the resting length?



A) A
B) B
C) C
D) D

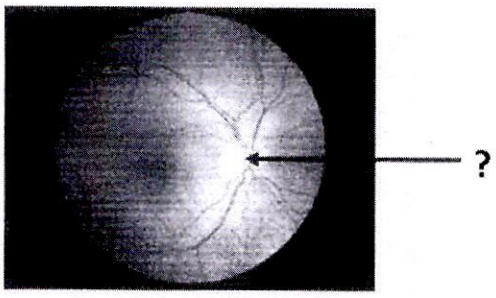
16. The Channel associated with Mg++ blockade is

A) AMPA
B) NMDA
C) Kainate
D) GPCR

17. What is TRUE about the thermoreceptors:

A) There are 4-10 times as many heat-sensitive as cold-sensitive spots
B) TRPM8 receptors are activated by warmth and TRPV4 by moderate cold temperatures
C) The threshold for activation of warmth receptors is 42°C
D) The thermoreceptors do not respond below 10°C

18. The image below shows the fundus of the eye in a healthy human as seen through the ophthalmoscope. What region does the arrow indicate?



A) Optic disk
B) Macula
C) Fovea
D) Blind spot

19. A lesion at the level of left optic tract will lead to which visual field defect?

A) Left homonymous hemianopia

B) Right homonymous hemianopia

C) Left heteronymous hemianopia

D) Right heteronymous hemianopia

20. Identify the FALSE statement in the following description of eye movements:

A) Convergence movements bring the visual axes toward each other

B) Vestibular movements are adjustments that occur in response to stimuli initiated in the semicircular canals

C) Saccades are involuntary up and down eye movements

D) Smooth pursuit movements are tracking movements of the eyes following moving objects

21. Following head trauma in an accident, a patient is able to retain long-term memory for events that occurred prior to surgery and has intact short term memory. However, he is unable to form new long term memory. Which of the following lobes is most likely involved?

A) Temporal

B) Parietal

C) Frontal

D) Occipital

22. Which of the following is **NOT** a correct statement?

A) Post-tetanic potentiation is the production of enhanced postsynaptic potentials in response to stimulation

B) In Pavlov's experiment ringing of the bell was the conditioned stimulus

C) Habituation is a classic example of associative learning

D) Sensitization is due to presynaptic facilitation

23. During examination a patient is speaking excessively but the speech comprises of jumbled sentences which is full of neologisms and jargon with few meaningful words. There is difficulty in comprehension in both written and spoken language. This language disturbance will be classified as

A) Wernicke's aphasia

B) Broca's aphasia

C) Isolation aphasia

D) Anomic aphasia

24. In which of the following conditions, there is the highest probability of oscillations in the homeostatic regulatory system?

A) Long lag time and high gain system

B) Short lag time and high gain system

C) Long lag time and low gain system

D) Short lag time and low gain system

25. Which of the following is the site of spermatogenesis in testes?

A) Seminiferous tubule

B) Vas deferens

C) Epididymis

D) Seminal vesicle

26. Capacitation of spermatozoa takes place in

A) Epididymis

B) Seminiferous tubule

C) Vas deferens

D) Female genital tract

27. GnRH release from the hypothalamus is **NOT** affected by

A) Estrogen

B) FSH

C) Inhibin

D) Kisspeptin

28. Pubertal change under the influence of ovarian and adrenal androgen in females is:

A) Menarche

B) Thelarche

C) Pubarche

D) Gonadarche

29. The completion of the second meiotic division in the oocyte occurs

A) At the onset of puberty

B) At the time of recruitment of primordial follicle for development

C) At the time of ovulation

D) At the time of fertilization

30. The routinely done urine pregnancy test is based on detection of

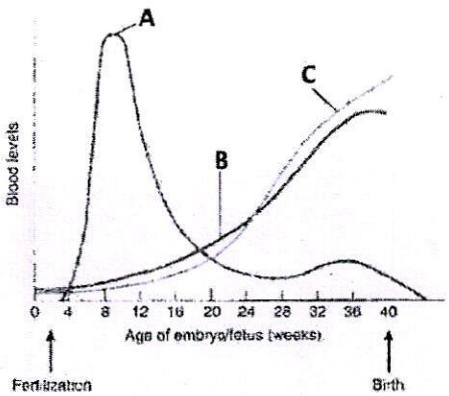
A) α subunit of hCG

B) β subunit of hCG

C) γ subunit of hCG

D) δ subunit of hCG

31. Identify the hormone depicted by the curve A



A) hCG
B) Progesterone
C) Estrogen
D) Inhibin

32. WHO defines infertility as "a disease of the reproductive system defined by the failure to achieve a clinical pregnancy after
A) 2 months or more of regular unprotected sexual intercourse"
B) 6 months or more of regular unprotected sexual intercourse"
C) 12 months or more of regular unprotected sexual intercourse"
D) 24 months or more of regular unprotected sexual intercourse"

33. Pulse pressure increases with
A) Decrease in stroke volume
B) Decrease in arterial compliance
C) Prolonged systole
D) Decrease in aortic valve diameter

34. An increase in heart rate causes
A) Greater reduction in duration of systole than that of diastole
B) Equal reduction in duration of both systole as well as diastole
C) Greater reduction in duration of diastole than that of systole
D) No change in cardiac output, provided the change in heart rate is within physiological limits.

35. Following sympathetic stimulation, ventricular function curve
A) Shifts to left
B) Shifts to right
C) Shows a steeper descent
D) Does not change

36. The first heart sound

A) Is best heard in presternal region

B) Is due to closure of atrio-ventricular valves

C) Is feeble in mitral stenosis

D) Marks the end of the systole

37. Mean circulatory filling pressure is the

A) Average of central and arterial pressures during the cardiac cycle

B) Mean atrial pressure during the filling phase

C) Pressure which would be attained at all points in circulations if the heart were suddenly stopped

D) Mean of the pulmonary and systemic arterial pressures

38. The sensory organ in the semicircular canals is

A) Organ of Corti

B) Crista ampullaris

C) Maculae

D) Statoconia

39. The jugular venous pressure is a representative of the pressure in the

A) Right atrium

B) Left atrium

C) Right ventricle

D) Left ventricle

40. The primary central chemoreceptor is

A) Retrotrapezoid nucleus

B) Retroventricular medulla

C) Pre-Bötzinger Complex

D) Bötzinger Complex

41. In hypoxia,

A) HIF complex binds to HRE elements in the genome, activating gene expression

B) HIF la is targeted for destruction by the proteasome after hydroxylation.

C) HIF lb is targeted for destruction by the proteasome after hydroxylation.

D) HIF complex binds to HRE elements in the genome, inactivating gene expression

42. The Bowditch phenomenon observed in cardiac physiology is an example of

A) Intrinsic regulation of heart
B) Extrinsic regulation of heart
C) Hormonal regulation of heart
D) Neural regulation of heart

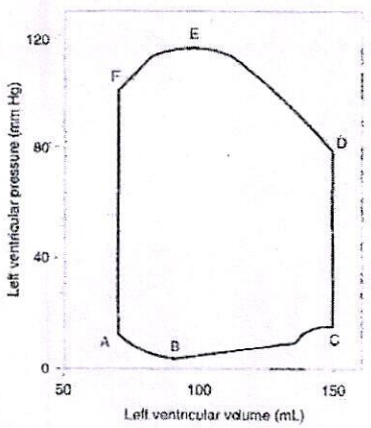
43. Which of the following biopotential requires a transducer for recording in a digital acquisition system?

A) Compound muscle action potential
B) Maximum voluntary contraction
C) Electromyogram
D) Motor evoked potential

44. The decrease in the cytosolic calcium marks the end of cardiac contraction. Which of the following contributes maximally to the calcium removal from the cytosol?

A) SER Ca 2+ ATPase
B) Sarcolemmal Na+/Ca 2+ exchanger
C) Sarcolemmal Ca 2+ ATPase
D) Mitochondrial Ca 2+ uniport

45. In the left ventricular pressure volume loop depicted below, which event in the cardiac cycle occurs at point D.



A) Start of ventricular systole
B) Opening of aortic valve
C) Start of ventricular diastole
D) Closure of aortic valve

46. Which of the following is **NOT** observed on exposure to microgravity environment in space?

A) Decrease in bone density
B) Decrease in blood volume
C) Increase in heart volume
D) Increase in red cell mass

47. The detachment of Myosin head bound to actin during cross bridge cycling is initiated by:

A) Fall in sarcoplasmic Ca 2+ levels
B) Binding of ATP to myosin head
C) Conformational change in troponin C
D) Release of ADP and Pi by myosin head

48. A 35 year old healthy male, started complaining of breathlessness after reaching a hill station by flight. The condition worsened on physical exertion. Most probable diagnosis is

A) Anemic hypoxia
B) Histotoxic hypoxia
C) Hypoxic hypoxia
D) Stagnant hypoxia

49. In the adult human sensory homunculus,

A) The lip representation as compared to other body parts, in proportion to their actual size, is very small
B) The leg is represented medial to hand representation
C) The trunk is not represented as it is not rich in sensory innervation
D) Cortical stimulation of the representation can lead to movement of the respective body part.

50. Miniature end plate potential:

A) Depends upon the quanta of neurotransmitter released
B) Leads to decreased excitability of a muscle
C) Is due to hyperpolarization of the motor end plate
D) Is the term for action potential at the motor end plate

51. Gain of a control system is measured by —

A) Relative correction of error.
B) Time taken to detect the error.
C) Time taken to correct the error.
D) Energy consumed to correct the error.

52. Which of the following has the most water per unit volume?

A) 1 M Glucose
B) 1M Sodium chloride
C) 1M Calcium chloride
D) All of the above options have same

53. In an experimental situation, the K^+ concentration outside the cell is 5 mM and inside the cell is 150 mM. What is the expected equilibrium potential for K^+ for this situation?

A) +60 mV
B) -60 mV
C) +90 mV
D) -90 mV

54. A trauma case in emergency reported that a particular nerve is injured with Sunderland Grade I injury. Which of the following comments is true?

A) Axon is not injured; hence, full recovery is possible.
B) Myelin is injured; hence, only partial recovery is possible.
C) Wallerian degeneration is likely to take place within 48 hours.
D) It is neurotmesis, so no recovery is possible.

55. You have a patient admitted for surgery. As a part of workup performed for surgical fitness, you order for the investigation International Normalized Ratio (INR). INR is the calculated by the formula, where A is

A) Bleeding time
B) Clotting time
C) Prothrombin time
D) Thromboplastin time

56. The formula an be used to estimate.

A) Mean Corpuscular Volume (MCV)
B) Mean Corpuscular Hemoglobin (MCH)
C) Mean Cell diameter
D) Mean Corpuscular Hemoglobin Concentration (MCHC)

57. Which of the following is correct regarding the blood-gas barrier of the lung

A) Smooth muscles form an important layer in the blood-gas barrier
B) The thinnest part of the blood-gas barrier has a thickness of about 3 μm
C) Oxygen crosses the blood-gas barrier by passive diffusion
D) The total area of the blood-gas barrier is about 5 square meter

58. Which is correct regarding Airway resistance?

A) Is reduced with low lung volume
B) Does not affect the work of breathing
C) Is inversely proportional to the radius of the airway
D) Is increased with administration of Atropine

59. Second heart sound (S2) is associated with-

A) Rapid ventricular filling
B) Atrial contraction
C) Closure of semilunar valves
D) Closure of AV valves

60. Rhythmic Oscillations in the RMP of gastrointestinal smooth muscle are called:

A) Slow waves
B) Peristalsis
C) MMCs
D) None of the above

61. Sensory aphasia is characterized by all EXCEPT:
A) Inability to comprehend
B) Logorrhea
C) Slow speech
D) Neologism

62. No matter where a particular sensory pathway is stimulated along its course to the cortex, the conscious sensation produced is referred to the location of the receptor. This principle is called:
A) Law of projection
B) Law of specific nerve energy
C) Weber Fechner Law
D) Bell Magendie law

63. Pitch discrimination of sound is by the location of vibration of:
A) Organ of Corti
B) Cochlea
C) Basilar membrane
D) Tectorial membrane

64. When a person is in the fasting state:
A) Liver glycogen levels are increased
B) The excretion of urea in the urine decreases
C) Basal Metabolic Rate (BMR) decreases.
D) Glucose is the only fuel used by CNS.

65. Which of the following statements correctly describes the secretion of ACTH?
A) It is decreased during periods of stress
B) It is inhibited by aldosterone
C) It is stimulated by glucocorticoids
D) It shows circadian rhythm in humans

66. Primary hyperparathyroidism is characterized by:
A) Decreased plasma calcium
B) Increased plasma phosphate
C) Phosphaturia and calciuria
D) Extreme osteoblastic activity

67. Which of the following nutrient has highest Specific Dynamic Action (SDA)
A) Carbohydrates
B) Proteins
C) Fats
D) Vitamins

68. The sensor for tubuloglomerular feedback is:
A) Macula densa
B) Proximal Convoluted tubule
C) Distal Convoluted tubule
D) Collecting duct

69. Growth hormone level is decreased in:
A) REM sleep
B) Fasting
C) Exercise
D) Stressful stimuli

70. Substances that cause increased secretion of bile by causing contraction of gall bladder are called:
A) Choleretics
B) Cholagogues
C) Cholelithiasis
D) Hydrocholeretics

71. A male patient who was diagnosed to have damaged left dorsal column at the level of T11 would feel of loss of sensations on:
A) Left side of body
B) Right side of body
C) Both sides
D) No loss on either side

72. In Weber's Test, normally:
A) Sound is heard equally well on both sides
B) Nerve deafness sound is based better on affected side.
C) Frequency of Tuning fork used is 112/sec.
D) Conductive deafness sound is based better on healthy side

73. In Electroretinogram:
A) A wave is due action potential.
B) B wave is electrical activity of bipolar and ganglion cells.
C) C wave is sharp and quick depolarization of pigment epithelium.
D) D wave is due to next cycle of light.

74. Argyll Robertson pupil is seen when:
A) Lesions are around cerebral aqueduct at level of superior colliculi.
B) Fibers mediating accommodation reflex are damaged.
C) Light reflex is preserved.
D) Cortical fibres are damaged.

75. 35-year-old man came to emergency with sudden severe pain in his left eye. Tests show an intraocular pressure (IOP) of 30 mm Hg in left eye and 15 mm Hg of IOP in right eye. The probable diagnosis is:
A) Acute angle-closure glaucoma
B) Chronic glaucoma
C) Conjunctivitis
D) Corneal abrasion

76. In restrictive disease of the lung one expects to see:
A) A normal FEV1 and a normal vital capacity
B) A normal FEV1 but a low normal vital capacity
C) Low FEV1 but a normal vital capacity
D) A low FEV1 and a low vital capacity

77. At birth, the closure of ductus arteriosus is stimulated by:
A) Low CO_2 concentration in blood
B) High resistance in pulmonary vessels
C) High O_2 concentration in blood
D) Low levels of circulating catecholamines

78. High altitude pulmonary edema is due to :

A) Pulmonary vasoconstriction.

B) Increased pulmonary vascularity.

C) Polycythemia leading to increased viscosity.

D) Hypertrophy of right ventricle.

79. A 34-year-old man sustains a bullet wound to the chest that causes a pneumothorax. What best describes the changes in lung volume and thoracic volume in this man compared with normal?

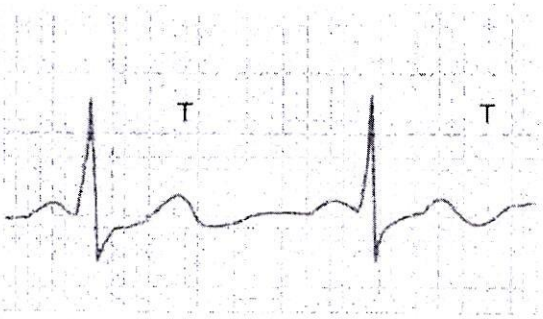
A) Decreased lung volume and thoracic volume

B) Decreased lung volume but increased thoracic volume

C) No change in lung volume but decreased thoracic volume

D) Increased lung volume but no change in thoracic volume

80.



50 year old man developed congestive heart failure and was given drug A. This led to ECG changes as provided in the figure. Identify drug A:

A) Nifedipine

B) Captopril

C) Digitalis

D) Hydralazine

81. An animal shows lack of fear, extreme curiosity, forgetfulness, oral tendency and hyper sexuality after lesion of:

A) Cerebellum

B) Mammillary body

C) Broca's area

D) Amygdala

82. Classical conditioning is a type of learning in which:

A) An association is established between an unconditioned stimulus and a unconditioned response

B) An association is established between an conditioned stimulus and a conditioned response

C) An unconditioned stimulus is able to provoke the conditioned response after learning

D) Conditioned stimulus is able to provoke the conditioned response after learning

83. Epigenetics is the study of:
A) Environment and Diet induced genetic modifications
B) Epidemiology of mutations
C) X linked inheritance
D) Autosomal recessive inheritance

84. The lesion of Wernicke's area causes
A) Motor aphasia
B) Nonfluent aphasia
C) Fluent aphasia
D) Conduction aphasia

85. Orexinergic neurons are found predominantly in:
A) Pons
B) Ventrolateral preoptic area
C) Lateral hypothalamic area
D) Para ventricular nucleus

86. Within physiological limits the force of contraction of ventricle is directly proportional to initial length is given by:
A) Frank Starling law
B) Laplace's law.
C) Poiseuille's law.
D) Henry's law

87. Small intestinal contractions are:
A) Maximum in fasted individual
B) Mainly propulsive in fed individual
C) Enhanced by sympathetic activity
D) Reduced by parasympathetic activity

88. At high altitude, there is an increase in:
A) Pulmonary ventilation
B) Alveolar water vapour pressure
C) Arterial PO2
D) Cerebral blood flow

89. A deep sea diver at a depth of 30 meters would be exposed to an atmospheric pressure:
A) 1 atm
B) 2 atm
C) 3 atm
D) 4 atm

90. In pilots, positive G results in:
A) Blackout
B) Decrease in hydrostatic pressure in lower limb
C) Increase in cardiac output
D) Redout

91. The polypeptide chains of fetal hemoglobin are:

A) 2 α and 2 β

B) 2 γ and 2 δ

C) 2 β and 2 δ

D) 2 α and 2 γ

92. During normal ovulatory cycle:

A) The highest amount of FSH is secreted just after ovulation

B) Endometrium develops secretory changes during the luteal phase

C) Progesterone is secreted from corpus albicans

D) The Granulosa cell layer is vascularized during follicular phase

93. During exercise, glucose enters into skeletal muscle via:

A) GLUT 1

B) GLUT 2

C) GLUT 3

D) GLUT 4

94. A person performing moderate exercise for 1 minute, primarily uses energy from:

A) Lipolysis

B) Glycolysis

C) Breakdown of ATP

D) Breakdown of phosphocreatine

95. Vaccination is based on the principle of:

A) Agglutination

B) Phagocytosis

C) Precipitation

D) Immunological memory

96. The gold standard for the measurement of cardiac output is:

A) Fick's method

B) Dye dilution method

C) Doppler echocardiography

D) Impedance plethysmography

97. A 10-year-old boy came with complaints of muscle weakness and is diagnosed with periodic hyperkalemic paralysis. The probable mechanism causing the symptomatology is:

A) Decreased potassium conductance in muscle cells

B) Hyperpolarization of muscle cells

C) Increased duration of action potentials produced by α-motoneurons

D) Inactivation of sodium channels in muscle cells

98. A 40 year old woman presents with complaints of muscle weakness and cramps. Laboratory investigations revealed hypokalemic alkalosis, hyperaldosteronism, high plasma renin activity and high urinary calcium. The part of nephron implicated for the defect is:

A) Early Proximal Convoluted Tubule

B) Late Proximal Convoluted Tubule

C) Thick ascending loop of Henle

D) Distal Convoluted Tubule

99. The correct sequence of factors in the process of coagulation is:

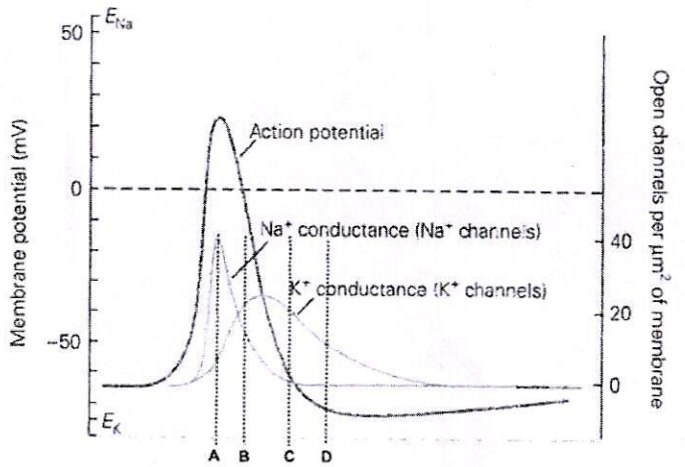
A) XII, XIII, IX, XI, X

B) XII, XI, IX, X, XIII

C) IX, X, XI, XII, XIII

D) XII, XIII, IX, X, XI

100. In the given record of mammalian neuronal action potential, A, B, C, and D represents various time points as indicated by vertical broken lines during the course of action potential. Inactivation of the pool of voltage gated Na^+ channels in the membrane is maximal at:



A) A

B) B

C) C

D) D

101. Hyperpolarization occurs in stimulus transduction in:

A) Taste receptors

B) Olfactory receptors

C) Visual receptors

D) Vestibular receptors

102. High altitude pulmonary edema is due to:

A) Pulmonary vasoconstriction

B) Increased pulmonary vascularity

C) Polycythemia leading to increased viscosity

D) Hypertrophy of right ventricle

103. C fibre is typically characterized by:

A) The phenomenon of saltatory conduction in it

B) 1-3 micrometer fibre diameter

C) Its high excitability

D) Its maximum susceptibility to local anaesthetics.

104. Herring-Breuer inflation reflex in the human:

A) Increase the rate of respiration

B) Is an important factor in normal control of ventilation

C) Is not activated until the tidal volume increases above 1.5 L

D) Is activated only when tidal volume is less than 1 L

105. Fetal circulation is maintained by:

A) Pair of umbilical arteries and pair of umbilical vein

B) Single umbilical artery and single umbilical vein

C) Pair of umbilical arteries and an umbilical vein

D) Umbilical artery and a pair of umbilical vein

106. The tissue of the heart with the least resting membrane potential is:

A) Sino-atrial node

B) Atria

C) Purkinje Fiber

D) Ventricles

107. The AV nodal delay is represented in the ECG by:

A) PR interval

B) PR segment

C) QT segment

D) ST segment

108. Autoantibodies against pre-synaptic voltage gated calcium channels is seen in:

A) Lambert Eaton Myasthenic syndrome

B) Botulism

C) Myasthenia gravis

D) Guillain Barre syndrome

109. Resting cell membrane of a neuron is maximally permeable to:

A) Na^{+}

B) K^{+}

C) Ca^{22+}

D) Mg^{2+}

110. The 'a' wave of Jugular Venous Pulse (JVP) represents:

A) Right ventricular contraction

B) Right atrial contraction

C) Passive atrial filling

D) Passive ventricular filling

111. A 50-year-old man has a blood pressure of 140/86 mm Hg. His ECG has no P wave but QRS complexes occur regularly. The heart rate of the subject is 46 beats/min. What is the probable diagnosis?

A) First-degree heart block

B) Second-degree heart block

C) Third-degree heart block

D) Sinoatrial heart block

112. A 55-year-old man has been diagnosed with Stokes-Adams syndrome. Two minutes after the syndrome starts to cause active blockade of the cardiac impulse, which of the following is the pacemaker of the heart?

A) Sinus node

B) A-V node

C) Purkinje fibers

D) Left atrium

113. Standing up from supine position to standing position results in:

A) Increase in hydrostatic pressure in legs and a decrease in heart rate

B) Decrease in hydrostatic pressure in legs and heart rate

C) Increase in hydrostatic pressure in legs and increase in heart rate

D) Decrease in hydrostatic pressure in legs and increase in heart rate

114. The posterior pituitary hormones are transported via:

A) Median eminence portal vessel system

B) Tuberohypophyseal tract

C) The IIIrd ventricle

D) Short portal vessels

115. The lower esophageal sphincter:

A) Is an anatomically distinct ring of smooth muscle

B) Relaxes as a bolus arrives

C) Is mainly under hormonal control

D) Consists of multiunit smooth muscle

116. Glomerular filtration rate (GFR) increases with:

A) Increase in glomerular capillary Hydrostatic pressure

B) Increase in glomerular capillary colloid osmotic pressure

C) Increase in tubular hydrostatic pressure

D) Increase in tubular colloid osmotic pressure.

117. Renal reabsorption of amino acids in proximal convoluted tubule takes place by:

A) Diffusion

B) Primary active transport

C) Secondary active transport

D) Bulk flow

118. The integrating centre for Baroreflex is located at:

A) Nucleus Basalis of Meynert

B) Nucleus tractus Solitarius

C) Organum vasculosum laminae terminalis

D) Aqueduct of Sylvius

119. Heparin acts as an anticoagulant by its action on:

A) Plasmin

B) Tissue factor

C) Antithrombin III

D) Thrombomodulin

120. An example for carrier mediated facilitated diffusion is:

A) Nicotinic Ach receptor

B) $Na^+ K^+$ ATPase

C) Glucose transporter 1 (GLUT 1)

D) $Na^+ Ca^{2+}$ exchange

ROUGH WORK

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