ENTRANCE EXAMINATIONS – 2020

Ph.D. Cognitive Science

Marks: 70
Time: 2.00 hrs.

Hall Ticket No.

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1. Write your Hall Ticket Number in the OMR Answer Sheet given to you. Also write the Hall Ticket Number in the space provided above.

2. Read carefully the following instructions:

a. This Question paper has Two Sections: Part- I and Part- II .

b. Part - I has 35 and Part - II has 35 objective type questions of one mark each.

c. Part I is to be answered by all candidates. There are two sets of questions for part II corresponding to the two specialities: Neuroscience and Cognitive Science. **Answer ONLY ONE of the sets corresponding to your speciality of interest.** Please note that Part I is mandatory. The option is only in Part II.

d. The speciality name and code is mentioned in the beginning of each set in part II. Mark the booklet code for the stream in the OMR sheet. Booklet code A for 'Cognitive Science'. Booklet code B for 'Neuroscience'. Please answer questions corresponding to only one of the specialities.

e. There is negative marking for all the questions in parts I and II. Each wrong answer carries -0.33 mark

f. Answers are to be marked on the OMR answer sheet following the instructions provided there upon.

g. Hand over the OMR answer sheet at the end of the examination to the Invigilator.

h. No additional sheets will be provided. Rough work can be done in the question paper itself/space provided at the end of the booklet.

PART-I

Mandatory for all candidates

1. Two railway tickets from Amritsar to Bathinda and three tickets from Amritsar to Chandigarh cost Rs. 177. Three tickets from Amritsar to Bathinda and two tickets from Amritsar to Chandigarh cost Rs. 173. The fare for Bathinda from Amritsar will be Rs.

   A. 25

   B. 27

   C. 30

   D. 33

2. The average score of boys in an examination of a school is 71 and of girls is 73. The averages score of school in that examination 71.8. Find the ratio of the number of boys between number of girls appeared in the examination

   A. 1:2

   B. 2:3

   C. 3:2

   D. 4:3

3. From a solid cylinder whose height is 2.4 cm and diameter 1.4 cm, a conical cavity of the same height and same diameter is hollowed out. Find the total surface area of the remaining solid to the nearest cm squares.

   A. 18

   B. 20

   C. 22

   D. 24

4. The correct order of following steps involved in the research process is:

   1. Formulating the research problem

   2. Developing the hypothesis

   3. Collecting the data

   4. Analysis of data

A. 1-2-3-4

B. 2-3-4-1

C. 3-4-2-1

D. 3-2-1-4

5. The variable which can be manipulated in the experimental research is known as

A. Independent variable

B. Dependent variable

C. Linear variable

D. Exponential variable

6. In a coding language, "HYDERABAD" is coded as 'ixedszcze' then "CHENNAI" will be coded as

A. difoobj

B. dgfmozj

C. zxesmwp

D. bidmmkj

7. Pick up the correct answer after reading the following statements and conclusion:

Statements:

i) All heroes are villains.

ii) All villains are zeros.

iii) Some heroes are jokers.

Conclusion:

I) Some jokers are heroes

II) Some villains are jokers

III) Some zeros are villains

A. Only I, II follow

B. All I, II, III follows

C. Only I, III follow

D. Only II, III follow

Read the following situation carefully and answer the following three questions (Ques. No. 8-10)

On a playing ground, Adam, Monica, Bob, Simon and Paul are standing as described below facing the North.
(i) Monica is 40 metres to the right of Simon.
(ii) Adam is 60 metres to the south of Monica.
(iii) Bob is 25 metres to the west of Simon.
(iv) Paul is 90 metres to the north of Adam.

8. Who is to the north-east of the person who is to the left of Monica?

A. Bob

B. Simon

C. Adam

D. Paul

9. If a boy walks from Bob, meets Simon followed by Monica, Adam and then Paul, how many metres has he walked if he has travelled the straight distance all through?

A. 215 metres

B. 185 metres

C. 155 metres

D. 245 metres

10. Who is to the south of the person who is to the north-east of Simon?

A. Adam

B. Bob

C. Both Bob and Monica

D. Both Adam and Monica

11. Arrange to make a meaningful sentence in English:

P a preliminary record of your ideas,
Q of the reader's needs in understanding your idea ideas,
R and will allow you to remind yourself at every turn
S such an account will give you

Such an account will give you a preliminary record of your ideas, and will allow you to remind yourself at every turn of the reader's needs in understanding your idea.

A. QRPS

B. QPSR

C. RQSP

D. SPRQ

12. Choose the most appropriate pair to fill in the blanks in the same order

If you think _____ is predetermined by talent, it becomes a _____ of something you can't change.

A. versatility, result

B. confidence, master

C. goal, beauty

D. success, product

13. Which of the options can be inferred from the passage below?

It is a large pool, although not quite Olympic size. To swim a mile you must complete eighty-two lengths, which, in its very tedium, often feels as much a mental exercise as a physical one. The water is kept unusually warm, to please the majority of people who patronize the health center, the kind who come not so much to swim as to lounge pool-side or rest their bodies in the sauna. Fatou has swum here five or six times now, and she is often the youngest person in the pool by several decades.

A. Mental exercise is same as physical exercise and Fatou is very young

B. Majority of the people come to the health center primarily to swim and Fatou is one of them.

C. Majority of the people are much older than Fatou and sauna is quite poplar in the health center.

D. The pool is as large as the Olympic size and the water is kept warmer than most pools.

14. An ant running at 9 meters per hour along a branch is 0.240 meters ahead of the head of a 0.120 meters long millipede running at 45 meters per hour in the same direction. In how much time will the millipede's tail end pass the ant?

A. 36sec

B. 72sec

C. 3.6sec

D. 18sec

15. The point/points where the following two functions intersect.

$$y=x^2+4 \qquad y=4x$$

A. -2,2

B. -4,1

C. 2

D. -2

16. If each side of a rectangle is increased by 10% what is he percentage increase in the area of that rectangle?

A. 11%

B. 21%

C. 22%

D. 12%

17. If two fair dice are thrown, what is the probability of the sum of the numbers that turn up to be anything other than 9?

A. 1/9

B. 8/9

C. 17/18

D. 1/18

18. Find x

4	27	8
2	1	3
5	30	X

A. 7

B. 9

C. 11

D. 8

19. drivel : sensibleness is like

A. current : recent

B. clear : mild

8

C. angry : irritating

D. graceless :august

20. Which of the plugs P, Q, R or S shown with view looking down on the pins will fit the socket?

Socket

A. P

B. Q

C. R

D. S

21. 14th December 2004 is Monday. 25th November 2005 comes on which day?

A. Sunday

B. Tuesday

C. Friday

D. Thursday

22. Find the word that best describes the relation as the first pair of words Safe : Secure :: Protect :_?

A. Lock

B. Guard

C. Sure

D. Conserve

23. Find the word that best describes the relation as the first pair of words Melt : Liquid :: Freeze :_?

A. Solid

B. Ice

C. Condense

D. Push

24. What is next in the series ZCF, YBE, XAD, WZC, __

A. VUY

B. VYB

C. VYU

D. YUV

25. What is next in the series SCD, TEF, UGH, __, WKL

A. IJT

B. CMN

C. VIJ

D. UJI

26. Pointing to a man in the photograph a woman said, "He is the son of my paternal grandmother's only son". How is the man related to the woman?

A. Brother-in-law

B. Son

C. Father

D. Brother

27. If 'Quo Lie Heer' means 'Boy is handsome'; 2. 'Lai Quo Mea' means 'Sunaina is cute'; 3. 'Ruo Sel Mea' means 'All are cute'; 4. 'Si Hai Lie' means 'Dog was handsome'; then which of the following words stands for 'Boy'?

A. Quo

B. Lie

C. Heer

D. Lai

28. Bhairav walked 30 ft towards North, then took a left turn and walked 15 ft. He again took a left turn and walked 30 ft. How far and in which direction is Bhairav from the starting point?

A. 15 ft to the West

B. 45 ft to the South

C. 30 ft to the East

D. 15 ft to the North

29. In a certain code, 15789 is written as XTZAL and 2346 is written as NPSU. How is 23549 written in that code?

A. NPTUL

B. PNTSL

C. NPTSL

D. NBTSL

30. Choose the option closest in meaning to the given word.

Cryptic —

    A. Obscure

    B. Written

    C. Copied

    D. Dead

31. All of the following are potential possible values of the correlation coefficient EXCEPT for

A. 0

B. -1.6

C. -0.78

D. 0.35

32. What is a Type II error in statistical analysis?

A. Failure to reject a null hypothesis when it is false ·

B. Rejecting a true null hypothesis

C. Accepting a null hypothesis

D. Rejecting a null hypothesis

33. What is the difference between the highest and lowest scores in a data distribution called?

A. Mode

B. Skewness

C. Quartile

D. Range

34. In a discrimination task, participants are asked to press A on seeing a circle and L on seeing a square. In order to ensure the response mapping doesn't confound the results, half of the participants are given opposite instructions: press A for square and L for circle. What is this method called?

A. Random sampling

B. Randomisation

C. Counter-balancing

D. Double-blinding

35. Which of the following tests would you perform to examine if the accuracy in a test is better than chance level (50%)?

A. Paired t-test

B. One sample t-test

C. Independent sample t-test

D. None of the above

PART - II

Speciality: Cognitive Science (Mark the Booklet code A in OMR sheet)

PLEASE ANSWER THIS SECTION ONLY IF YOU WISH TO APPLY FOR

PHD COGNITIVE SCIENCE SPECIALISATION

36. A study looking at correlation between second language (L2) proficiency and executive control as measured through stroop effect finds a negative correlation of -0.9. What does this indicate?

A. As L2 proficiency increases, stroop effect decreases, executive control ability decreases

B. As L2 proficiency increases, stroop effect decreases, executive control ability increases

C. As L2 proficiency increases, stroop effect increases, executive control ability increases

D. As L2 proficiency increases, stroop effect increases, executive control ability decreases

37. Which philosopher of mind first proposed 'anomalous monism'?

A. Thomas Nagel

B. Herbert Feigl

C. Donald Davidson

D. JJ Smart

38. Folk, Remington and Johnson (1992) pioneered a paradigm - called the contingent capture paradigm - to examine top-down control on attention orienting. What type of targets were used in this task?

A. Shape and Number targets

B. Onset and shape targets

C. Only Colour targets

D. Onset and Colour targets

39. Green and Abutalebi (2013) proposed the adaptive control hypothesis which is about:

A. Bilingualism, context and control

B. Emotion, executive control and psychological disorders

C. Twins adopted by different set of parents

D. Inhibitory control in children

40.What is the phenomenon of a saccade landing in between two objects on the screen called?

A. Inhibition of return

B. Center of gravity

C. Attentional blink

D. Change blindness

41.Superior colliculus plays a key role in which of the following processes?

A. Eye movement control

B. Emotion regulation

C. working memory encoding

D. speech production

42.A participant is asked to make an eye movement to a single white disc that can appear at one of the two empty placeholders beside the fixation cross. What type of task is this?

A. Localisation

B. Discrimination

C. Search

D. Anti-saccade

43.Distractor suppression in a visual search task is quantified by:

A. Slower RT in the presence of an irrelevant singleton

B. Faster RT in the presence of an irrelevant singleton

C. no responses on trials with irrelevant singleton

D. distractors are never suppressed in visual search

44. In a task, participant A is asked to press Left shift key when they see a blue circle. Another participant B seated beside the participant A is asked to press Right shift key on seeing a red circle. Participant A is found to be faster when the blue circle appears on the left of the screen as opposed to the right of the screen. This is referred to as:

A. joint stroop effect

B. joint simon effect

C. joint conflict effect

D. joint priming effect

45. Which of the following theories/models proposed that attentional selection necessarily involves planning an eye movement to the to-be-attended location?

A. Biased competition model

B. pre-motor theory

C. dual-stream model of visual processing

D. spotlight model

46. According to the signal suppression hypothesis (Sawaki and Luck, 2010), which ERP component signifies distractor suppression?

A. Pd

B. N400

C. N1

D. LRP

47.Which one of the following is the phonological cohort of the translation equivalent of गुलाब/ gulab in English?

A. ball

B. rope

C. gun

D. jasmine

48. A patient with a brain injury is having trouble understanding spoken words and sentences. She often says things that follow normal sentence structure but don't have any real meaning. What is she most likely experiencing?

A. Global aphasia

B. Wernicke's aphasia

C. Anomic aphasia

D. Broca's aphasia

49. Which of the following is a major feature of Chomsky's nativist theory of language acquisition?

A. Infants can distinguish all the sounds of the world's languages at birth.

B. Children learn words by associating sounds with contexts.

C. Innate mechanisms guide the selection of rules for learning any language.

D. There is a critical period for learning language in early childhood.

50. Who proposed the global workspace model? Who subsequently proposed the global neuronal workspace model?

A. Bernard Baars, Stanislas Dehaene

B. Stanislas Dehaene, Bernard Baars

C. Both are by Bernard Baars

D. Both Stanislas Dehaene

51. What is the average time taken to initiate a saccade in humans?

A. About 0.02 s

B. About 0.2 s

C. Greater than 0.5 s

D. Greater than 1 s

52. The global precedence effect is most commonly seen in which paradigm?

A. Posner cueing

B. Visual search

C. Navon

D. RSVP

53. In the bilingualism literature, what does 'cognitive advantages of bilingualism' refer to?

A. Bilinguals tend to perform better than monolinguals on certain tasks measuring inhibitory control etc.

B. Bilinguals tend to be more social than monolinguals

C. Bilinguals tend to be wealthier than monolinguals

D. Bilinguals like participating more in cognitive science experiments than monolinguals.

54. How many levels does the perceptual awareness scale (PAS) proposed by Ramsoy & Overgaard to measure subjective awareness of unconscious stimuli have?

A. 2

B. 3

C. 4

D. 7

55. In the classic additional singleton paradigm introduced by Jan Theeuwes in 1992, participants had to search for a green diamond. Sometimes, a red circle was presented. Participants were slower finding the target in the presence of the red circle. What does this finding indicate:

A. top-down control based on task goals

B. Bottom-up capture by the red circle

C. Bottom-up capture by the green target

D. probability-learning of target location

56. Which of the following aspects of introspective psychology did behaviourism object to?

A. Introspective psychology claimed to be studying behaviour

B. Introspective psychology claimed to be studying "inner" psychological states

C. Introspective psychology claimed to be studying brain states

D. Introspective psychology placed great emphasis on evidence and data

57. Which of the following paradigms uses the concept of binocular rivalry is used to present unconscious stimuli?

A. backward making

B. forward masking

C. continuous flash suppression

D. object substitution masking

58. Which of the following researchers is a proponent of the theory of event coding in the domain of action control?

A. Richard Nisbett

B. Bernhard Hommel

C. Michael Posner

D. David Green

59. A participant is administered a task A while concurrently performing task B (this is the experimental condition). Task B requires the same cognitive resources as task A. A control condition is administered with only task A. Which of the following would you expect on task A in the experimental condition compared to the control condition?

A. Impaired performance

B. Equivalent performance

C. Improved performance

D. No difference

60. Property dualism closely resembles which of the following positions in philosophy of mind:

A. Reductive physicalism

B. Non-reductive physicalism

C. Behaviorism

D. Functionalism

61. Which of the following frameworks suggested that even complex behaviour like language can be studied as a series of conditioned responses?

A. Identity theories

B. Behaviourism

C. Functionalism

D. Dualism

62. Who proposed the dual forms (reacive vs. Proactive) of cognitive control?

A. Michael Posner

B. Todd Braver

C. Stanislas Dehaene

D. Michael Tanenhaus

63. On a stop-signal task, a shorter SSRT implies:

A. greater inhibitory control

B. lesser inhibitory control

C. SSD does not measure inhibitory control

D. loss of inhibitory control

64. Saccades are grouped into three categories depending on their latencies: Latency < 80 ms; 80 ms < Latency < 130 ms; Latency > 130 ms. What are these population of saccades called as:

A. regular, express, anticipatory

B. express, anticipatory, regular

C. anticipatory, express, regular

D. anticipatory, regular, express

65.Who proposed the Chinese room argument in opposition to strong AI (Artificial Intelligence)?

A. David Chalmers

B. Daniel Dennett

C. Hilary Putnam

D. John Searle

66. A bilingual highly proficient and dominant in L1, with low proficiency in L2 is administered an object naming task. Which of the following results would you ideally expect?

A. Faster naming in L2 compared to L1

B. Faster naming in L1 compared to L2

C. No difference in naming speeds between L1 and L2

D. Can't say

67. What is the key difference between calculating the percentage of accurate responses vs. calculating d' using signal detection theory?

A. Accuracy takes into consideration response bias, but d' does not.

B. d' takes into consideration response bias, but accuracy does not.

C. There is no difference

D. Accuracy is calculated for discrimination tasks and d' for detection tasks

68. In rapid serial visual presentation two targets T1 and T2 are presented within a stream of stimuli. Accuracy in detecting T2 is impaired due to attentional blink. Curiously, AB is not observed when:

A. T2 is a letter

B. T1 is a letter

C. T2 immediately follows T1

D. Participants don't blink during T2

69. Participants are presented with four line drawings and a spoken word referring to one of the line drawings. It is typically seen that eye movements are biased towards the spoken word referent. What is the name of this paradigm?

A. Visual world paradigm

B. Oculomotor cueing

C. gaze cueing

D. pro- and anti-saccade

70. On a flanker task, group A is found to be faster than group B on both congruent and incongruent trials. Group B also has higher conflict effect (incongruent RT - congruent RT) compared to Group A. What does this imply?

A. Group A show better executive processing

B. Group A show better conflict resolution

C. Could be A or B

D. Neither A nor B.

PART - II

Speciality: Neuroscience (Mark the Booklet code B in OMR sheet)

PLEASE ANSWER THIS SECTION ONLY IF YOU WISH TO APPLY FOR

PHD NEUROSCIENCE SPECIALISATION

36. Water is transported across the cell membrane mainly by:

A. Pumps

B. Molecular motors

C. Osmotic pressure

D. Dissolving in the cell membrane

37. A dog learning to associate food reward with ringing of bell is an example of

    A. Classical conditioning

    B. Operant conditioning

    C. Instrumental learning

    D. Working memory

38. An antibody against GABA is to be used to localize GABA in an experiment on mouse tissue. Which combination of primary and secondary antibodies will

    A. Anti-GABA raised in mouse as primary and anti-mouse secondary

    B. Anti-GABA raised in rabbit as primary and anti-mouse secondary

    C. Anti-GABA raised in mouse as primary and anti-rabbit as secondary

    D. Anti-GABA raised in rabbit as primary and anti-rabbit secondary

39. A bat does echolocation to move around and hunt its prey. Loudness of the echo can be used by the bat to estimate what about the object at a distance?

    A. Angle subtended by the object

    B. Size of the object

    C. Azimuth of the object

    D. Distance to the object

40. Multiple sclerosis affects functioning of the brain because?

    A. Mitochondria and hence energetics of the neurons is compromised

    B. Conduction of electrical signals in neurons fail

    C. Channel defects causes change in membrane potential

    D. Synaptic transmission is affected

41. Lens in the human eye has to change focus with the object that is being looked at so that

    A. The object is in the focal point of the lens

    B. Real image of the object falls on the retina

    C. We can magnify the object to the right size

    D. Image falls upright on the retina

42. Functional Magnetic Resonance Imaging (FMRI) can be used as a method to measure activity of neurons in the brain because

    A. Neurons' activity causes magnetic field around them to change

    B. Neurons' activity causes electric field around them to change

    C. Blood flow change causes changes in the magnetic field around brain

    D. Astrocytes regulate blood flow in sync with activity of neurons

43. The potential difference across the membrane of the cell is determined by

    A. The concentration gradient of all the ions across the membrane

    B. The concentration gradient of the ions that are permeable through the membrane

    C. The concentration gradient of the Sodium ions across be membrane·

    D. The concentration gradient of the Potassium ions across be membrane

44. Optogenetics enables one to

    A. Test what happens when certain neurons are activated or inactivated

    B. Measure the activity of certain neurons

    C. Modify genes using blue light

D. Modify transcription rates using blue light

45. Balancers are used in drosophila genetics to

    A. To prevent mutations in lab maintained strains

    B. To ensure constant amount of crossover during meiosis

    C. Prevent crossover of homologous chromosomes in meiosis

    D. To maintain normal levels of expression in lab maintained strains

46. The major site of triacylglycerol and cholesterol synthesis is

    A. Brain

    B. Kidney

    C. Bone marrow

    D. Liver

47. As per the population genetics, the Hardy–Weinberg equilibrium can be disturbed by:

    i)   Natural selection

    ii)   Mutation

    iii)   Founder effect

    iv)   Outbreeding

    A.   Only i and ii

    B.   Only i, ii and iii

    C.   Only ii and iv

    D.   All of these (i, ii, ii and iv)

48. The multiple binding sites for transcription factors can be mapped by:

A. Western blotting

B. RT-PCR

C. Footprinting

D. In-situ hybridization

49. The most accepted resolution for C-value paradox came from:

A. The inclusion of junk DNA in the genome size

B. The recalculation of C-value after eliminating non-coding DNA

C. The discovery of Transmission Electron Microscopy

D. The knowledge of different forms of DNA (A-form, B-form, etc.)

50. Corona viruses are:

A. Positive double-stranded RNA viruses

B. Negative double-stranded RNA viruses

C. Negative single-stranded RNA viruses

D. Positive single-stranded RNA viruses

51. Which one is the correct sequence of events that takes place during phototransduction when light falls onto the retina?

I. Closure of Na+ channels

II. Activation of transducin

III. Decreased release of glutamate

IV. Decrease in intracellular cGMP

V. Structural changes in rhodopsin

A. I-II-III-IV-V

B. V-II-IV-I-III

C. II-I-III-V-IV

D. V-I-III-II-IV

52. A mixture contains three similarly sized peptides J, K and L. The peptide J is positively charged, K is weakly negative, and L is strongly negative. If this mixture is passed through an ion-exchange chromatography column containing an anionic resin, their order of elution will be:

A. J, K, L

B. L, K, J

C. K, L, J

D. J, K and L elute together

53. Match the classes of RNA molecules in Group I with their functions in Group II.

Group I	Group II
P. snoRNA	1. Protects germline from transposable elements
Q. piRNA	2. Blocks translation of selected mRNA
R. miRNA	3. Template for telomere elongation
S. snRNA	4. Modification and processing of rRNA
	5. Splicing of RNA transcripts

A. P-3, Q-5, R-2, S-4
B. P-1, Q-3, R-2, S-5
C. P-1, Q-4, R-5, S-2

D. P-4, Q-1, R-2, S-5

54. Lesions of the substantia nigra in brain lead to the common and extremely severe disease known as:
    A. Alzheimer's disease
    B. Parkinson's disease
    C. Down syndrome
    D. Dysarthria

55. Which of the following vitamin is used for treating the patients of hypothyroidism?
    A. Vitamin C

B. Vitamin B12

C. Vitamin D

D. Vitamin A

56. Which of the following statement is true?
I. The DNA synthesis is faster than the RNA synthesis

II. rRNA and tRNA together constitutes more than 95% of the total RNA in a cell

III. Pulse-Field Gel Electrophoresis is useful for separating the smaller size (less than 1 kb) DNA fragments

IV. Real time PCR involves the use of fluorescence resonance energy transfer (FRET) technology

A. I and II only

B. II, III and IV

C. I, II and IV

D. All are true

57. Which of the following is the main advantage of Nested Polymerase chain reaction?
A. Rapid amplification of the template can be achieved

B. Amplification of extremely small quantities of template is possible

C. Real time analysis of the amplified product can be performed

D. Amplification of the template is possible with only one set of primer

58. The fluorescence in situ hybridization (FISH) technique is used to detect the:
A. mRNA

B. proteins

C. DNA-protein interactions

D. Chromosomes

59. Dr. John is an expert in generating transgenic mice. Which of the following techniques, he might be using in his lab for gene transfer in mice embryos?

A. Microinjection of DNA in the Fertilized Egg Cell

B. Transfection of Early Embryonic Stages of Division with the Aid of Retroviruses

C. Transfer-Modified Embryonic Stem Cells in Blastocysts

D. All of the above

60. The brain region which is concerned with thermoregulation and regulating endocrine systems is:

A. Hippocampus

B. Medulla oblongata

C. Amygdala

D. Hypothalamus

61. Some of the major steps involved during the release of neurotransmitters are given below. Arrange these in sequential order.

I) Binding of neurotransmitters at the ligand gated ion-channels

II) Release of neurotransmitters in the synaptic gap

III) influx of Ca^{2+} through voltage-dependent calcium channels in pre-synaptic neuron

IV) Exocytosis from large dense-core vesicles

A. I-II-III-IV

B. III-IV-II-I

C. IV-III-II-I

D. I-III-IV-II

62. The main target of non-steroidal anti-inflammatory drugs is

A.   20 S proteasomes

B.   Cyclooxygenase

C.   DNA polymerase

D.   Lipase

Read the statement carefully and answer the following three question (Ques. No. 28-30). Suppose you have isolated the enzyme milleniase from the rare Y2K bug. This enzyme cleaves the first two numbers off of four-digit dates. You flex your skills as an enzymologist and come up with the following graph of initial velocity as a function of substrate concentration:
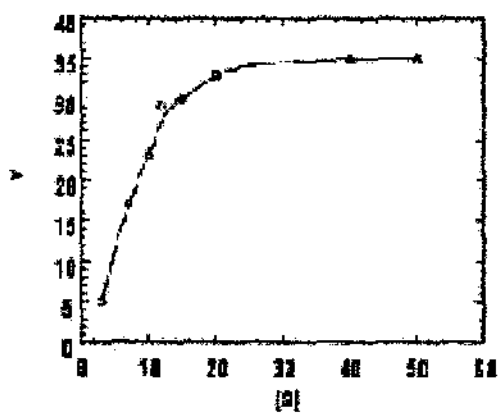
63. From the graph, estimate Km.

A. 5

B. 7

C. 17

D. 35

64. What is the approximate value of Vmax?

A. 5

B. 7

C. 17

D. 35

65. Is milleniase an allosteric enzyme?

    A. Yes, because allosteric enzymes don't follow Michaelis-Menten kinetics

    B. No, because allosteric enzymes don't follow Michaelis-Menten kinetics

    C. Yes, because the graph of Vi vs. [S] is a sigmoidal curve

    D. No, because the graph of Vi vs. [S] is a sigmoidal curve

66. Programmed cell death or apoptosis is:

    A. A genetically regulated process

    B. An allergic reaction

    C. An inflammatory response

    D. A result of multiple random events

67. Sickle cell anemia provides genetic resistance towards which of the following diseases?

    A. Diabetes mellitus

    B. Tuberculosis

    C. Malaria

    D. Coronary artery diseases

68. Which metal is present in haemoglobin?

    A. Copper

    B. Iron

    C. Calcium

    D. Aluminium

69. Incidence of beriberi is due to deficiency of which of the following?

    A. Cyanocobalamin

    B. Pyridoxine

C. Riboflavin

D. Thiamine

70. Which of the following statements is not true about point mutation?

A. Can be induced by chemicals

B. Can be detected easily by Southern blotting

C. Can be mapped by DNA sequencing

D. Can be responsible for a genetic disease