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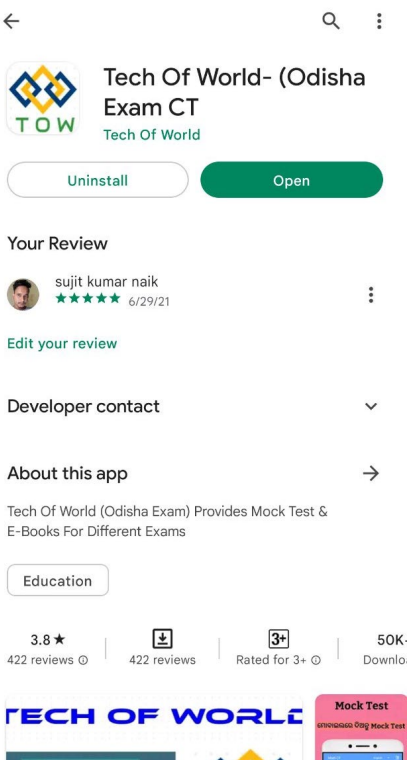

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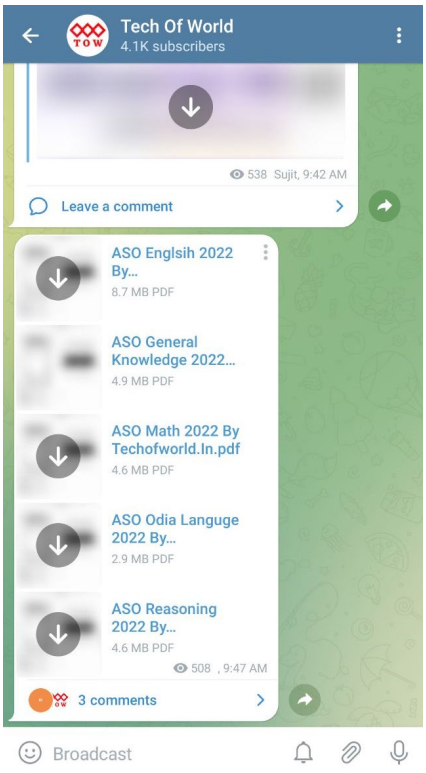

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Section 1 - PaperI-English Language

Passage Questions (1-5)

Read the passage and answer the questions that follow:

The eldila are very different from any planetary creatures. Their physical organism, if organism it can be called, is quite unlike either the human or the Martian. They do not eat, breed, breathe, or suffer natural death, and to that extent resemble thinking minerals more than they resemble anything we should recognise as an animal. Though they appear on planets and may even seem to our senses to be sometimes resident in them, the precise spatial location of an eldila at any moment presents great problems. They themselves regard space (or 'Deep Heaven') as their true habitat, and the planets are to them not closed worlds but merely moving points - perhaps even interruptions - in what we know as the Solar System and they as the Field of Arbol.

---

1) Whom do the eldila resemble?

A) Martians.
B) Humans.
C) Plants.
D) Thinking minerals.

---

2) What is the Solar system known as to the eldila?

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A) The Solar System.
B) Deep Heaven.
C) The Field of Arbol.
D) The Milky Way.

---

3) The eldila dislike planets because

A) planets are interruptions
B) planets are huge.
C) they are bigger than the planets.
D) they are smaller than the planets.

---

4) To our senses who seem to be residents on the planets?

A) Martians.
B) Humans.
C) Aliens.
D) The eldila.

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5) Which is the true habitat of the eldila?

A) Deep Heaven.
B) Planets.
C) The Sun.
D) Water.

---

6) Fill in the blank with the correct option:

We _____ across the lake in an hour. We _____ a bike up the hill.

A) rode, rowed
B) road, rode
C) rowed, rode
D) road, rowed

---

7) "Eat your words" means

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A) repeat what you have said
B) retract what you have said
C) rephrase what you have said
D) translate what you have said

---

8) Fill in the blank with correct prefix or suffix:

Revolutionary parties always try to _____vert the existing government.

A) pre
B) pro
C) inter
D) sub

---

9) Which of the following words is correctly spelt?

A) Loathsum
B) Loathsome
C) Lothsome
D) Loathsume

10) Which of the following is the meaning of the idiom "A double-edged sword"?

A) A sword of a powerful man having the power to slay devils
B) A course of action or situation having only positive effects
C) A course of action or situation having both positive and negative effects
D) A course of action or situation having only negative effects

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Section 2 - PaperI-Education and General Awareness

11) Which of the following arrangement of the fundamental forces of nature is according to their ascending magnitudes?

A) Electromagnetic force, strong nuclear force, weak nuclear force, and gravitational force
B) Strong nuclear force, electromagnetic force, weak nuclear force, and gravitational force
C) Weak nuclear force, gravitational force, strong nuclear force, and electromagnetic force
D) Gravitational force, weak nuclear force, electromagnetic force, and strong nuclear force

---

12) Besides having two sets of government, a federal system must have which of the following feature/s:

(a) A written constitution

(b) Division of powers between the central government and the state governments

(c) Independence of Judiciary

(d) Two heads of state - nominal and real

A) a only
B) a and b only
C) a, b, and c
D) a, c, and d

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13) An NIOS tutor must establish relationship with the learner by -

A) identifying the heterogeneity in learners background and their expectations
B) stressing on learners' responsibilities and their participation in group activities
C) stating the purpose and objectives of academic sessions
D) selecting appropriate teaching strategies during contact programme session

---

14) What was the report Scheme of Post-war Education in India also called?

A) The Hartog Report
B) Macaulay's Minutes
C) The Sargent Report
D) Wood's Dispatch

15) Section 13 of the RTE Act 2009, relates to which of the following options?

A) No screening and admission procedures
B) Definition of guardian
C) Punishments and discipline
D) Establishment of schools

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Section 3 - PaperI-Reasoning

16) C is 4 years older to D and 4 years younger to E while D and F are twins. How many years older is E with respect to F?

A) 8
B) 6
C) 10
D) 12

---

17) In a certain code language, if the word DRINK is coded as RDIKN, then how will the word CRACK be coded in that language?

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A) RAKCC
B) RCKAC
C) RKCCA
D) RCAKC

---

18) In the following questions, mark:

1, if statement I alone is sufficient to answer the problem.

2, if statement II alone is sufficient to answer the problem.

3, if statements I and II both taken together are sufficient to answer the problem.

4, if statements I and II taken together are NOT sufficient to answer the problem.

What is the perimeter of the triangle ABC?

I. One of the side AB measures 6 cms.

II. Triangle ABC is equilateral.

A) 1
B) 2
C) 3
D) 4

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19) In the following questions, mark:

1, if statement I alone is sufficient to answer the problem.

2, if statement II alone is sufficient to answer the problem.

3, if statements I and II both taken together are sufficient to answer the problem.

4, if statements I and II taken together are NOT sufficient to answer the problem.

On which date in March, did A leave for London?

I. A left for London on last saturday of the month.

II. There were 5 saturdays in that month.

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A) 1
B) 2
C) 3
D) 4

---

20) Badrinath walks 4 km East, then turns left and walks 4 km and then again turns left and walks 4 km. In which direction is he facing?

A) East
B) West
C) North
D) South

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Section 4 - PaperI-Teaching Aptitude

21) Which of the following commissions is responsible for bringing forth the 10+2+3 year structure of education?

A) Hunter Commission
B) National Policy on Education
C) University Education Commission
D) Kothari Commission

---

22) The teacher during the process of teaching tries to engage the learners through participation in activities and discussion. Which of the following approaches do you think the teacher is using?

A) Teacher centered approach
B) Learner centered approach
C) Classroom centered approach
D) Autocratic approach

---

23) Identify the private schools from the following characteristics.

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A) Government institutions recognized but not receiving grant-in-aid
B) Private institutions which are not registered
C) Institutions established by anti-social elements.
D) Private institutions recognized and receiving grant-in-aid

---

24) As per Bruner what is the main aim of the Iconic stages of cognitive representation?

A) Thinking only in terms of physical actions
B) Storing information in the form of a code or symbol
C) Related to visual summarization of images
D) Knowledge to be stores as words or mathematical symbols

---

25) What does NIEPA stand for?

A) National Institute of Environmental Planning and Administration
B) National Institute of Evaluational Planning Association
C) National Institute of Educational Planning and Administration
D) National Institute of Evaluational Planning and Administration

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26) There is a low wall in the school attic. Vimmy banged his head against the wall, twice in two days. On the third day he bent his head and went down. After that he never banged his head. This change in behaviour is called

A) Attitude
B) Instinctive Behaviour
C) Conditioning
D) Innate behaviour

---

27) Which of the following external factors should a teacher control in order to ensure that the class is attentive and is listening?

A) Needs of the student like water
B) Mood of the students to teach accordingly
C) Novelty in content and change in stimuli
D) Motive of the student and change the topic

---

28) Examine the teachers actions and match them with the theory they subscribe to.

1. Behaviourist	A. The teacher models the experiment, she helps children conduct the experiment by setting goals.
2. Constructivist	B. The teacher asks the children to learn spellings by heart. She tests and rewards the best.
3. Social Cognitive Theory	C. The teacher distributes tasks to the group and then observes the potential of each group and supports them to reach the goal.
4. Social Constructivist Theory	D. The teacher asks each child to bring leaves, observe and classify them.

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A) 1A, 2D, 3B, 4C
B) 1A, 2B, 3D, 4C
C) 1B, 2D, 3A, 4C
D) 1D, 2C, 3B, 4A

---

29) Which of the following is considered as the Magna Carta of English education in India?

A) Macaulay minutes
B) Basic education policy
C) Wood's Despatch
D) Indian education commission

30) The teacher wants the student to generalize the concept of four legged animals with the help of a picture image. She is using _____

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A) Verbal learning
B) Sensory learning
C) Cognition learning
D) Discrimination learning

Section 5 - PaperII-Physical Science

31) Which of the following is an expression of uncertainty principle?(Symbols/notations carry their usual meaning)

A) $\Delta E.\Delta t \geq h/4\pi$
B) $\Delta v.\ \Delta t \geq h/4\pi$
C) $\Delta E.\Delta d \geq h/\pi$
D) $\Delta x.\Delta t \geq h/2\pi$

---

32) Which among the following compound evolves as brown gas when copper nitrate is heated?

A) NO_2
B) O_2
C) N_2
D) NO

---

33) In series combination of electrical appliances, total electric power

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A) Increases
B) Decreases
C) May increase or decrease according to situation
D) No definite observation

---

34) The speed of sound in a medium depends on

A) the elastic property as well as the inertia property
B) the inertia property but not on the elastic property
C) neither the elastic property nor the inertia property
D) the elastic property but not on the inertia property

---

35) A bullet fired into a fixed target loses half of its velocity after penetrating 3 cm. How much further will it penetrate before coming to rest assuming that it faces constant resistance to motion ?

A) 1.5 cm
B) 1 cm
C) 3 cm
D) 0.5 cm

36) Which among the following will be the electronegativity (χ_{Fe}) of Fe using Allred-Rochow scale? Given: $r_{covalent}$ = 132 pm.

A) 1.27
B) 2.31
C) 3.24
D) 1.52

---

37) Which of the following is the acceptable characteristic of Ψ ?

A) It must be multiple valued and continuous
B) It must be single valued and continuous
C) It must be single valued and discontinuous
D) It must be infinite

---

38) When iron nail is dipped in copper sulphate, the colour of copper sulphate changes. The equation for this reaction can be given as,

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A) $Fe + CuSO_4 \rightarrow FeSO_4 + Cu$
B) $Fe + CuSO_4 \rightarrow Fe_2SO_4 + Cu$
C) $Fe + CuSO_4 \rightarrow Fe_2SO_3 + Cu$
D) $Fe + CuSO_4 \rightarrow Fe_3SO_4 + Cu_2$

---

39) When calcium hydroxide reacts with carbon dioxide it produces calcium carbonate, the equation for this reaction can be written as,

A) $Ca(OH)_2 + CO_2 \rightarrow CaCO_3 + H_2O$
B) $Ca_2(OH)_2 + CO_2 \rightarrow CaCO_3 + H_2O$
C) $Ca(OH)_2 + CO_2 \rightarrow Ca_2CO_3 + H_2O$
D) $Ca(OH)_2 + CO_3 \rightarrow CaCO_3 + H_2O$

---

40) In a potentiometer circuit to find the internal resistance r of the cell of emf E, when K is open the balance point is obtained at 60 cm. When K is closed the balance point is obtained at 50 cm. If the cell is shorted by 10 Ω resistor, the internal resistance of the cell will be

A) 2 Ω
B) 5 Ω
C) 1 Ω
D) 0 Ω

41) A battery of emf 1.4 V and internal resistance 2 Ω is connected to a resistor of 100 Ω. In order to measure the current through the resistance and the potential difference across its ends, an ammeter is connected in series with it and a voltmeter is connected across its ends. The resistance of the ammeter is 4/3 Ω and that of the voltmeter is 200 Ω. The readings of the two instruments are

A) 0.02 A, 1.33 V
B) 0.2 A, 13.3 V
C) 0.02 A, 2.2 V
D) 0.0137 A, 1.37 V

---

42) In YDSE, the two slits are separated by 0.1 mm and they are 0.5 m from the screen. The wavelength of light used is 5000 Å. The distance between the 7th maxima and 11th minima on the screen is (Young's Double Slit Experiment is written as YDSE)

A) 27.5 cm
B) 2.75 mm
C) 8.75 mm
D) 0.275 mm

---

43) Two identical conducting rods are first connected independently to two vessels, one containing water at 100 °C and the other containing ice at 0 °C. In the second case, the rods are joined end to end and connected to the same vessels. Let q_1 and q_2 gram per second be the rate of the melting of ice in the two cases respectively. The ratio q_1/q_2 is

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A) ½
B) 2
C) ¼
D) 4

---

44) A particle of mass 2 kg moves in the xy plane under the action of a constant force F, where F = i-j. Initially the velocity of the particle is 2i . The velocity of the particle at time t is

A) (t+4)i/2-jt/2
B) t(i-j)/2
C) t(i-j)
D) (t+4)j/2+ti/2

---

45) A particle has initial velocity, v = 3i + 4j and a constant force F = 4i - 3j acts on the particle. The path of the particle is :

A) Straight line
B) Parabolic
C) Elliptical
D) Circular

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46) Which among the following state symbols are possible for the element X with atomic number 5?

A) $^3P_1$, $^3P_2$ and $^3P_0$

B) $^2P_{3/2}$ and $^2P_{1/2}$

C) $^2S_{1/2}$ and $^2S_0$

D) $^3P_{1/2}$, $^3P_{3/2}$ and $^3P_{5/2}$

---

47) The correct reaction for the decomposition of the zinc carbonate is,

A) $ZnCO_3 \rightarrow Zn_2O + CO_2$
B) $ZnCO_3 \rightarrow ZnO + CO_3$
C) $ZnCO_3 \rightarrow ZnO_2 + CO_2$
D) $ZnCO_3 \rightarrow ZnO + CO_2$

---

48) A particle of mass 1 x 10^-26 kg and a charge of +1.6 x 10^-19 C travelling with a velocity of 1.28 x 10^6 m/s in the +x direction enter a region in which uniform electric field E and a uniform magnetic field of induction B are present such that Ex = Ey = 0 and Ez = -102.4 kV/m and Bx = Bz = 0, By = 8 x 10^-2. The particle enters this region at time t = 0. The location of the particle at t = 5 x 10^-6 s is

A) The particle is at a distance of 12.8 m from the origin
B) The particle is at a distance of 1.4 m from the origin
C) The particle is at a distance of 3.4 m from the origin
D) The particle is at a distance of 6.4 m from the origin

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49) A near sighted man uses glasses with power 2.5 D to read a paper 25 cm away. A few years later, he finds that he has to hold the same piece of paper 60 cm away to be able to read it with the same glass. What power must he use now?

A) - 2.16 D
B) - 3.16 D
C) + 2.16 D
D) + 3.16 D

---

50) A body of mass 100 g is attached to a hanging spring whose force constant is 10 N/m. The body is lifted until the spring is in its unstretched state and then released. Calculate the speed of the body, when it strikes the table 15 cm below the release point.

A) 1.5 m/s
B) 1 m/s
C) 0.225 m/s
D) 0.866 m/s

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Section 6 - PaperII-Biological Science

51) Dark reaction of photosynthesis occur in

A) Grana
B) Stroma
C) Thylakoid
D) Mitochondria

---

52) Which of the following proteins is the main constituent of microfilament?

A) Actin
B) Tubulin
C) Myosin
D) Keratin

---

53) Plants categorized under which of the following divisions are known as amphibians of plant kingdom?

A) Angiosperms
B) Bryophyta
C) Pteridophyta
D) Thallophyta

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54) Which among the following is the unit to measure the noise?

A) Pascal
B) Decibel
C) Watt
D) Coulomb

---

55) Which of the following options is specifically related to the forest management?

A) Olericulture
B) Silviculture
C) Sericulture
D) Apiculture

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56) The outer covering of endosperm separate the embryo by a protenous layer called

A) Aleurone
B) Scutellum
C) Seed Coat
D) Plumule

---

57) Absorption of calcium from distal nephron occurs due to presence of which of the following hormones?

A) Relaxin hormone
B) Parathyroid hormone
C) Antidiuretic hormone
D) Prolactin hormone

---

58) Which of the following options is a non-membrane bound cell organelle?

A) Plasma membrane
B) Cell wall
C) Endoplasmic reticulum
D) Mitochondria

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59) The flattened disc shaped structure in chloroplast, where the light reactions for photosynthesis takes place, is

A) Stroma
B) Thylakoid
C) Matrix
D) Inner membrane

---

60) Select the CORRECT sequence for the Hierarchy of taxonomic categories.

A) Genus-->Class-->Phylum ---->Order---> Family ------>Species--->> Kingdom
B) Species-->Class-->Phylum ---->Order---> Family ------>Genus--->> Kingdom
C) Kingdom -->Class-->Phylum ---->Genus---> Family ------>Order--->> Species
D) Kingdom -->Phylum--> Class---->Order---> Family ------>Genus--->> Species

61) Which of the following type of plants are regarded as cryptogams and possess vascular system as well as sporophylls?

A) Bryophyta
B) Pteridophytes
C) Angiosperms
D) Gymnosperms

---

62) Which among the following condition favours the rate of decomposition?

A) Warm and dry environment favour decomposition
B) Cold and dry environment favour decomposition
C) Warm and moist environment favour decomposition
D) Cold and moist environment favour decomposition

---

63) Select the INCORRECT statement from the following.

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A) Biomagnification to occur, the pollutant must be long lived
B) Biomagnification to occur, the pollutant must be immobile
C) Biomagnification to occur, the pollutant must be soluble in fats
D) Biomagnification to occur, the pollutant must be biologically active

---

64) Which of the following option is a CORRECT match between the organisms which are at lowest level of oceanic food chain with one of their examples?

A) Autotrophs-predators
B) Autotrophs-phytoplankton
C) Autotrophs-zooplankton
D) Heterotrophs-algae

---

65) Which of the following natural resources is an example of exhaustible renewable resource?

A) Coal
B) Petroleum
C) Water
D) Minerals

66) Total number of ATP generated in TCA cycle per Acetyl CoA is (Abbreviations carry their usual meaning)

A) 12
B) 14
C) 18
D) 24

---

67) Read the following statements regarding mitochondria:

a. Cristae are invagination in inner mitochondrial membrane which enhance surface area.

b. Glycolysis, TCA cycle and oxidative phosphorylation occur in mitochondria.

c. Usually Mitochondria of a cell cannot take part in converting light energy to chemical energy.

d. Mitochondria has its own circular DNA and 80 'S' ribosomes.

Choose the option with all CORRECT statements

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A) b and c are correct
B) a and c are correct
C) b and d are correct
D) only a is correct

---

68) Match the following organisms in List I with their respective organs meant for excretion in List II.

List I	List II
(a) Annelida	(i) Malpighian tubule
(b) Arthropoda	(ii) Proboscis gland
(c) Hemichordata	(iii) Nephridia

A) (a)-(iii), (b)-(ii), (c)-(i)
B) (a)-(i), (b)-(i), (c)-(iii)
C) (a)-(iii), (b)-(i), (c)-(ii)
D) (a)-(ii), (b)-(i), (c)-(iii)

69) How body compensate the low oxygen availability at higher altitudes?

A) Decrease the RBC
B) Decrease the Binding affinity of haemoglobin
C) Decrease the breathing rate
D) No change occur in body

---

70) Below are some statements related to biodiversity loss and its conservation:

a. Pollution and disturbance is not a threat to biodiversity.

b. Habitat loss and fragmentation is a threat to biodiversity.

c. Introduction of exotic species has nothing to do with biodiversity loss.

d. Cryopreservation is an example of in situ conservation strategy of biodiversity.

Choose the option with all CORRECT statement/s:

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A) only b is correct
B) b and c are correct
C) b, c and d are correct
D) All a, b, c and d are correct

Section 7 - PaperII-Mathematics

71) What is the radius of the incircle of a triangle with sides 18, 24 and 30 units?

A) 4
B) 6
C) 8
D) 10

---

72) What is the sum of the roots of the equation $2x^2 - 12x + 16 = 0$?

A) 12
B) 8
C) -10
D) 6

---

73) For the given the polynomial $p(x) = a_0 + a_1x + \ldots + a_mx^m$, its degree is m if

A) $a_m = 0$
B) $a_m \neq 0$
C) $a_{m-1} = 0$
D) $a_{m-1} \neq 0$

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74) If n(A) = 5 then how many elements will be there in the power set of A?

A) 5
B) 10
C) 20
D) 32

---

75) $\log_2 16 = ?$

A) 1/2
B) 2
C) 4
D) 8

76) The top of a 15 m tall tower makes an angle of depression of 60 degrees with the bottom of an electronic pole and angle of elevation of 30 degrees with the top of the pole. What is the height of the electric pole?

A) 5 m
B) 10 m
C) 12 m
D) 20 m

---

77) A garden in the shape of a right angled triangle has an area of 600 sq. metre. It is bounded by fence on two sides and a walkway on the longest side. If the entire length of the fence is 70 metre, then what is the length of the walkway?

A) 30 metre
B) 40 metre
C) 50 metre
D) 60 metre

---

78) What is the highest polynomial which divides $x^3 - 3x^2 + 3x - 1$ *and* $x^4 - 3x^2 + 3x - 1$ without leaving any remainder?

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A) (x-1)
B) (x+1)(x-1)
C) (x-2)
D) (x+2)

---

79) The greatest common divisor of 1071 and 462 is

A) 19
B) 21
C) 23
D) 25

---

80) If n(A)=12, n(B)=24, n(C)=24, n(A U B U C)=50, n(A ∩ B ∩ C)=15, then what is the value of n(A ∩ B) + n(B ∩ C) + n(A ∩ C)?

A) 10
B) 12
C) 16
D) 25

81) If $\log 2 = 0.30103$, then the number of digits in the expansion of 2^{64} is

A) 18
B) 20
C) 22
D) 28

---

82) What is the value of log 512 if it is given that log 2 = 0.3010 ?

A) 2.709
B) 3.901
C) 2.907
D) 2.701

---

83) What is the angle of elevation of the sun, if the shadow of a pole of 18 m height is 6 √3 m?

A) 30 degrees
B) 45 degrees
C) 60 degrees
D) 90 degrees

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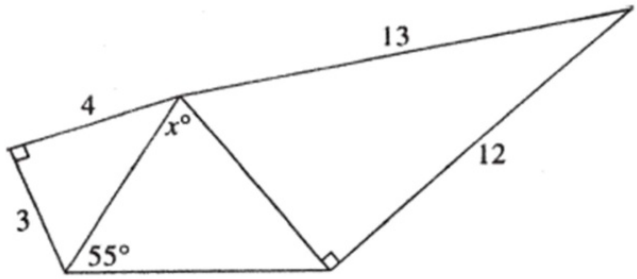
84) The angles of depression and elevation of the top of a wall of height 11 m from top and bottom of a tree are 60 degrees and 30 degrees respectively. What is the height of the tree?

A) 22 m
B) 33 m
C) 44 m
D) 55 m

85) In the given figure, what is the value of x?



A) 55°
B) 60°
C) 65°
D) 70°

---

86) If α and β are the roots of the quadratic equation $3x^2 + 5x - 12 = 0$ then $\alpha^2 + \beta^2 =$

A) 97/9
B) 81/9
C) 87/9
D) 93/9

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87) What is the remainder when 655^{758} divided by 7?

A) 3
B) 1
C) 2
D) 7

---

88) A total of 55 athletes participated in an athletic meet. 24 won bronze medals, 36 won silver medals and 12 won gold medals. 10 won gold and silver, 15 won silver and bronze, 8 won gold and bronze. If 6 athletes won all the three medals, then how many of them won only silver medals?

A) 7
B) 9
C) 15
D) 17

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89) What is the number of digits in the expansion of 15^{100} given that log 3 = 0.4771 and log 5 = 0.699?

A) 117
B) 118
C) 121
D) 120

---

90) A man, who is at the top of a tower is watching a boat which is moving away from the tower. The angle of depression of the boat from the man's eye is 45 degrees when the boat is at a distance of 100 metres from the tower. After 10 seconds, the angle of depression becomes 30 degrees. What is the approximate speed of the boat, assuming that it is running in still water? (Assume √3=1.732)

A) 7.32 m/s
B) 6.02 m/s
C) 3.66 m/s
D) 2.32 m/s

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Question Paper No:	62222_25
Answer Key	

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1	D	31	A	61	B
2	C	32	A	62	C
3	A	33	A	63	B
4	D	34	A	64	B
5	A	35	B	65	C
6	C	36	D	66	A
7	B	37	B	67	B
8	D	38	A	68	C
9	B	39	A	69	B
10	C	40	A	70	A
11	D	41	A	71	B
12	C	42	C	72	D
13	A	43	D	73	B
14	C	44	A	74	D
15	A	45	D	75	C
16	A	46	B	76	D
17	D	47	D	77	C
18	C	48	D	78	A
19	D	49	D	79	B
20	B	50	D	80	D
21	D	51	B	81	B
22	B	52	A	82	A
23	D	53	B	83	C
24	C	54	B	84	C
25	C	55	B	85	D
26	C	56	A	86	A
27	C	57	A	87	C
28	C	58	B	88	D
29	C	59	B	89	B
30	C	60	D	90	A

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