

ALLEN® DIBRUGARH

In association with

Bikoxito Jibon Porikolpona Scheme

By Assam State Youth Commission, Govt. of Assam

TEST PAPER

CLASS X

CLASS X MOVING TO XI



NEET (UG) | JEE (Main + Advanced) | OLYMPIADS | BOARDS | CLASS 8th TO 10th

ALLEN DIBRUGARH Center: 1st floor Commercial Complex, Phool Bagan, Dibrugarh - 786001

Helpline: +91-6001229847, +91-9773368891 | www.allen.ac.in/dibrugarh

Regd. & Corporate Office: ALLEN Career Institute Pvt. Ltd. "SANKALP", CP-6, Indra Vihar, Kota (Raj.)-324005 Web.: www.allen.ac.in © 0744- 3556677, 2757575 © 0744-2757700



SPACE FOR ROUGH WORK





HAVE CONTROL \longrightarrow HAVE PATIENCE \longrightarrow HAVE CONFIDENCE \Rightarrow 100% SUCCESS SECTION - A : PHYSICS

This section contains 15 Multiple Choice Questions. Each question has four choices (1), (2), (3) and (4) out of which ONLY ONE is correct.

- 1. A copper wire is of length 3 m and cross section of 2 cm². The resistivity of copper is $1.7 \times 10^{-8} \Omega m$. The resistance of the wire is R m Ω . The value of R is :
 - (1) 2.55
- (2) 0.255
- (3) 25.5
- (4) 255

- 2. The lens used as a magnifying glass is a
 - (1) concave lens

(2) bifocal lens

(3) convex lens

- (4) plano concave lens
- 3. The magnetic effects of an electric current flowing through a conductor was discovered by
 - (1) Maxwell

(2) Faraday

(3) Flemming

- (4) None of these
- 4. Which of the following does not take place during the formation of a rainbow?
 - (1) Reflection

(2) Refraction

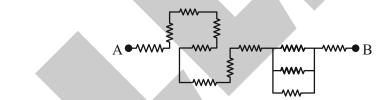
(3) Dispersion

- (4) None of these
- 5. The diameter of eye-ball in a human eye is about
 - (1) 2.3 inches

(2) 1 inch

(3) 2.3 mm

- (4) 3.2 cm
- 6. The value of R_{AB} in the given circuit will be : (Each resistor is of 1Ω)



(1) 28 Ω

 $(2) \ \frac{28}{3} \Omega$

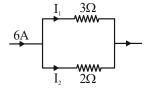
(3) 12 Ω

- (4) $\frac{12}{5}\Omega$
- 7. Magnetic field lines are always
 - (1) straight lines

(2) hyperbola

(3) zig-zag lines

- (4) closed loops
- **8.** The value of I, in the given circuit will be:



(1) 2.4 A

(2) 2.0 A

(3) 3.6 A

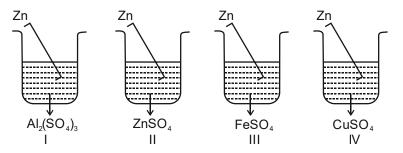
(4) 4.0 A



9.	A point object is placed at a distance of 15 cm in front of a concave spherical mirror of radius of curvature 20 cm. The distance between the object and its image would be			
	(1)45 cm	(2) 30 cm		
	(3) 60 cm	(4) 15 cm		
10.	Which of the following mirrors can't form a virtu	al image ?		
	(1) plane mirror	(2) concave mirror		
	(3) convex mirror	(4) none of these		
11.	If you observe the spectrum obtained after dispersee fifth from the bottom would be	ou observe the spectrum obtained after dispersion of white light though a prism, the colour you fifth from the bottom would be		
	(1)Blue	(2) Green		
	(3) Indigo	(4) Yellow		
12.	In electric fittings in a house			
	(1) the live wire goes through the switch	(2) the neutral wire goes through the switch		
	(3) the earth wire goes through the switch	(4) no wire goes through the switch		
13.	The resultant resistance of two resistors when connected in parallel is 24 Ω and is 100 Ω when connected in series. The value of larger resistor would be:			
	$(1) 40 \Omega$	$(2) 60 \Omega$		
	$(3) 20 \Omega$	$(4)~80~\Omega$		
14.	One ray travels a distance x in vacuum and other travels the same distance in a medium of refracti			
	index $\mu = \frac{3}{2}$. The ratio of time taken by the two rays will be:			
	(1) µ:1	(2) 1 : μ		
	$(3) 1 : (\mu + 1)$	(4) $1:\sqrt{\mu}$		
15.	A convex mirror of focal length f (in air) is immersed in water $\left(\mu = \frac{4}{3}\right)$. The focal length of the mirror			
7	in water will be –			
	(1) f	$(2) \left(\frac{4}{3}\right) f$ $(4) \left(\frac{7}{3}\right) f$		
	$(3)\left(\frac{3}{4}\right)f$	$(4)\left(\frac{7}{3}\right)f$		
	SECTION - B : C ection contains 15 Multiple Choice Questions. Each ONLY ONE is correct.			
16.	6. Which of the following are exothermic processes?			
	i. Reaction of water with quick lime	ii. Dilution of an acid		
	iii. Evaporation of water	iv. Sublimation of camphor (crystals)		
	(1) i & ii	(2) ii & iii		
	(3) i & iv	(4) i & iii		



17.



In which of the beakers, reddish brown substance will be formed at the end of the reaction?

(1) I

(2) II

(3) III

(4) IV

18. Match the column

	Column – I		Column – II
(A)	H_2CO_3	(p)	Weak and triacidic base
(B)	CH₃COOH	(q)	Weak and monobasic acid
(C)	NH ₄ OH	(r)	Weak and dibasic acid
(D)	Fe(OH) ₃	(s)	Weak and monoacidic base

Option A matches with

(1) p

(2) q

(3) r

(4) s

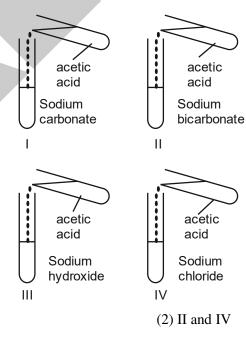
- 19. When lead nitrate is heated then a brown colour gas is evolved. What is the formula for gas?
 - (1) N_2O_3

(2) NO₂

(3) N₂O

(4) NO

20. A student added acetic acid to test tubes I, II, III and IV and then introduced a burning candle near the mouth of each test tube. The candle would not be extinguished near the mouth of test tubes:



(3) I and III

(4) III and IV



21.	An element X reacts with hydrogen, when heated, to form a covalent hydride H ₂ X. If H ₂ X has a smel
	of rotten eggs, the element X is likely to be:

(1) carbon

(2) sulphur

(3) chlorine

(4) phosphorus

22. Match the column for the following:

	Column – I		Column – II
(a)	Malachite	(i)	PbS
(b)	Zinc blende	(ii)	HgS
(c)	Cinnabar	(iii)	CuCO ₃ .Cu(OH) ₂
(d)	Galena	(iv)	ZnS

$$(1)$$
 $(a) - (i)$, $(b) - (ii)$, $(c) - (iii)$, $(d - (iv))$

$$(2)$$
 $(a) - (iii), (b) - (iv), (c) - (ii), d - (i)$

$$(3)$$
 $(a) - (ii), (b) - (iii), (c) - (i), d - (iv)$

$$(4)$$
 $(a) - (iv)$, $(b) - (ii)$, $(c) - (iii)$, $(d - (i))$

- 23. When heated, solid X gives off a gas, this gas is bubbled through lime water, a white precipitate is formed. The solid X contains an amphoteric metal then X is
 - (1) Copper (II) Carbonate

(2) Magnesium carbonate

(3) Sodium carbonate

- (4) Zinc carbonate
- **24.** X is a metal which can displace Y and Z both from their salt solution. Y can displace Z but not W. W can displace both Z and Y but not X. What is the correct order of reactivity?

(1)
$$W < X < Y < Z$$

- 25. Ritika wants to whitewash her room's wall. She take X solid substance. Her mother suggested her to soak the X substance in water and stay away from the bucket in which she soaked the X, as it is an exothermic process. She soaked substance X till night and in next morning she found solution 'Y'. She applied 'Y' solution on walls but then she found there is no shine on the walls. Her mother told her that after two or three days you will find shining on walls. She found that walls reacted with some gas 'P' present in air which gave shine on walls. Identify 'X'.
 - (1) Ca(OH),

(2) CaCO₃

(3) Ca

(4) CaO

26. Identify the correct oxidant and reductant in the following equation:

$$PbS + 4H_2O_2 \rightarrow PbSO_4 + 4H_2O_3$$

(1) PbS – Oxidant, H₂O₂ – Reductant

(2) PbS – Reductant, H₂O₂ – Oxidant

(3) PbS – Reductant, PbSO₄ – Oxidant

(4) H_2O_2 – Oxidant, H_2O_2 – Reductant

27. $aMg_3N_2 + bH_2O \longrightarrow cMg(OH)_2 + dNH_3$.

When the equation is balanced, the coefficients a, b, c, d respectively are.

(1) 1, 3, 3, 2

(2) 1, 6, 3, 2

(3) 1, 2, 3, 2

(4) 2, 3, 6, 2



$$\begin{array}{c} C_{2}H_{s} \\ \\ | \\ \\ \mathbf{28.} \quad C_{2}H_{s} - C - C_{2}H_{s} \\ \\ | \\ C_{2}H_{s} \end{array}$$

What is the IUPAC name of the above compound?

(1) 3, 3-diethyl pentane

(2) 2, 2-diethyl propane

(3) 1, 1, 1, 1-tetraethylmethane

(4) 3, 3-dimethylbutane

29. The set that represents the pair of neutral oxides of nitrogen is :

(1) NO and N₂O

(2) N₂O and N₂O₃

(3) N₂O and NO₂

(4) NO and NO,

N₂O and NO are neutral oxides of nitrogen NO₂ and N₂O₃ are acidic oxides.

30. Which of the following is the correct representation of electron dot structure of nitrogen molecule?

(1) :N:N:

(2):N::N:

(3):N:N:

(4) N:N

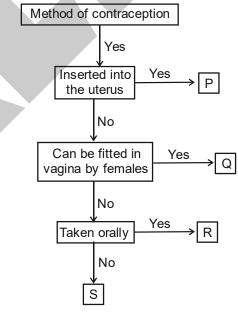
SECTION - C: BIOLOGY

This section contains 15 Multiple Choice Questions. Each question has four choices (1), (2), (3) and (4) out of which ONLY ONE is correct.

31. Assertion(A): The accumulation of lactic acid in the muscles causes muscle cramps.

Reason(R): During vigorous physical exercise muscles respire anaerobically.

- (1) If both assertion and reason are true and reason is the correct explanation of assertion.
- (2) If both assertion and reason are true but reason is not the correct explanation of assertion.
- (3) If assertion is true but reason is false.
- (4) If both assertion and reason are false.
- 32. Identify P, Q, R and S in the given flow chart and select the correct option regarding them.



- (1) 'P'could be copper T that prevents ovulation and implantation in the uterus
- (2) 'Q' could be diaphragm which is used by females just before coitus.
- (3) 'R' could be oral pill that contain LH and FSH to prevent ovulation.
- (4) 'S' could be tubectomy that involves removal of spermduct surgically.



- **33.** Linkage is an exception of which mendel's law?
 - (1) Law of segregation

(2) Law of independent assortment

(3) Law of dominance

- (4) None
- **34.** If a person cannot walk in a straight line or cannot balance a ride on bicycle, probably which part of his brain is not working properly?
 - (1) Cerebrum

(2) Cerebellum

(3) Hypothalamus

- (4) Pons
- 35. In higher Plants, the growing apical bud inhibits growth of lateral bud. This phenomena is due to
 - (1) Cytokinin

(2) Gibberellins

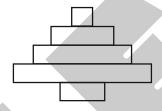
(3) Ethylene

- (4) Auxins
- **36.** The number of chromosomes in radicle is 16. What will be the number of chromosomes in tube nucleus, antipodal cells, definitive nucleus and endosperm respectively?
 - (1) 8, 8, 16 and 24

(2) 8, 8, 16 and 16

(3) 8, 16, 16 and 24

- (4) 16, 8, 16 and 24
- 37. Which of the following options shows a likely food chain represented by the given pyramid of number?

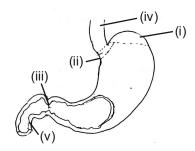


- (1) Phytoplankton \rightarrow Zooplankton \rightarrow Shellfish \rightarrow Fish \rightarrow Shark
- (2) Maize \rightarrow Rat \rightarrow Snake \rightarrow Meerkat \rightarrow Lion
- (3) Tree \rightarrow Aphid \rightarrow Ladybug \rightarrow Bird \rightarrow Hawk
- (4) Cyanobacteria \rightarrow Shrimp \rightarrow Fish \rightarrow King fisher \rightarrow Snake.
- **38.** Pulmonary veins carry
 - (1) Oxygenated blood from heart to lungs.
- (2) Oxygenated blood from lungs to heart
- (3) deoxygenated blood from heart to lungs.
- (4) deoxygenated blood from lungs to heart.
- **39.** If a cross between two individuals produce offspring with 50% dominant character(A) and 50% recessive character(a), the genotype of parents are
 - (1) Aa \times Aa

(2) Aa \times aa

(3) AA \times aa

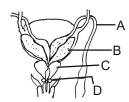
- (4) AA \times Aa
- **40.** What is the correct labelling of diagram given below?



- (1) i Fundus, ii Cardiac region, iii Pyloric region, iv Food pipe, v wind pipe
- (2) i Fundus, ii Pyloric region, iii Cardiac region, iv Oesophagus, v Duodenum
- (3) i Fundus, ii Cardiac region, iii Pyloric region, iv Oesophagus, v Duodenum
- (4) i Cardiac region, ii Pyloric region, iii Fundus, iv Oesophagus, v Duodenum



41. Given below is a diagrammatic sketch of a portion of human male reproductive system. Select the correct set of the names of the parts labelled A, B, C, D



	A	В	С	D
(1)	Vas deferens	Seminal vesicle	Bulbourethral gland	Prostate
(2)	Ureter	Seminal vesicle	Prostate	Bulbourethral gland
(3)	Vas deferens	Prostate	Seminal vesicle	Bulbourethral gland
(4)	Vas deferens	Seminal vesicle	Prostate	Bulbourethral gland

42. R is dominant red flower trait, while r is recessive white flower trait. Heterozygous Rr(red)is crossed with homozygous red flowered plant. 64 offspring are produced. Number of white flowered plant is

(1) 64

(2)32

(3) 16

(4) 0

43. In man, urea is mainly produced in

(1) Liver

(2) Spleen

(3) Kidneys

(4) Gall bladder

44. Study the following table

	Gland	Hormone	Deficiency disorder
1.	Neurohypophysis	Vasopressin	Diabetes insipidus
2.	Adrenal cortex	Corticosteroids	Addison's disease
3.	Pancreas	Glucagon	Myxoedema
4.	Thyroid	Calcitonin	Acromegaly

The correct set is

(1) 2 and 3

(2) 1 and 2

(3) 3 and 4

(4) 1 and 4

45. The accumulation of non – biodegradable substances in a food chain in increasing amount at each higher trophic level is known as:

(1) Accumulation

(2) Eutrophication

(3) Pollution

(4) Biomagnification

SECTION - D: MATHEMATICS

This section contains 15 Multiple Choice Questions. Each question has four choices (1), (2), (3) and (4) out of which ONLY ONE is correct.

46. Find the value of $\frac{1}{\sqrt{9} + \sqrt{10}} + \frac{1}{\sqrt{10} + \sqrt{11}} + \frac{1}{\sqrt{11} + \sqrt{12}} + \dots$ up to 91 terms.

(1) 1

(2) 3

(3) 0

(4)7



- 47. The sum of the maximum value of $-3x^2 + 3x + k$ and the minimum value of $2x^2 + 2x + k$ is equal to 9/4, then find the value of k.
 - (1) 0

(2) 1

(3) -1

- (4) None of these
- **48.** The angles of a pentagon are in arithmetic progression. The sum of the smallest and the largest angle is:
 - (1) 172°

(2) 108°

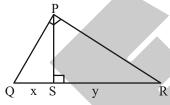
 $(3) 180^{\circ}$

- $(4)\ 216^{\circ}$
- **49.** Two circles with radii r_1 and r_2 touch externally. The length of their direct common tangent is ______.
 - $(1) 2r_1r_2$

(2) $2\sqrt{r_1r_2}$

 $(3) \ 2(r_1 + r_2)$

- (4) None of these
- **50.** In the following figure, QS = x, SR = y, \angle QPR = 90° and \angle PSR = 90°, then find (PQ)² (PR)² interms of x and y.

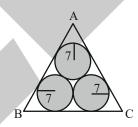


(1) xy

(2) $x^2 + y^2$

 $(3) x^2 - y^2$

- $(4) (x + y)^2$
- 51. Find the area of the shaded portion enclosed by the three circles in the figure given below, where ABC is an equilateral triangle and the radius of each circle is 7 cm. (use $\sqrt{3} = 1.732$)



- $(1) 7.87 \text{ cm}^2$
- (2) 7.13 cm²
- (3) 8.37 cm²
- (4) 9.61 cm²
- **52.** If A(at², 2at), B(a/t², -2a/t) and S(a, 0) are three points, then $\frac{1}{SA} + \frac{1}{SB}$ is independent of
 - (1) a

(2) t

- (3) both a and t
- (4) None of these
- 53. If $\sin \theta + \csc \theta = 2$, then find the value of the expression $\sin^{10}\theta + \csc^{10}\theta$.
 - (1) 2

- $(2) 2^{10}$
- $(3) 2^9$
- (4) 10
- **54.** If each α , β , γ are positive acute angles such that $\sin(\alpha + \beta \gamma) = 1/\sqrt{2}$, cosec $(\beta + \gamma \alpha) = 2/\sqrt{3}$ and $\tan(\gamma + \alpha \beta) = 1/\sqrt{3}$, then the values of α , β , γ are respectively
 - (1) $\left(37\frac{1}{2}^{\circ}, 52\frac{1}{2}^{\circ}, 45^{\circ}\right)$

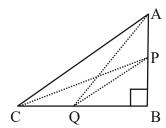
(2) (37°, 53°, 45°)

(3) $\left(45^{\circ}, 37\frac{1}{2}^{\circ}, 52\frac{1}{2}^{\circ}\right)$

(4) $\left(34\frac{1}{2}^{\circ}, 55\frac{1}{2}^{\circ}, 45^{\circ}\right)$



55. In right angled $\triangle ABC$, $\angle ABC = 90^{\circ}$, if P and Q are points on the sides AB and BC respectively, then



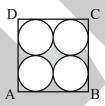
(1) $AQ^2 + CP^2 = 2(AC^2 + PQ^2)$

- (2) $AQ^2 + CP^2 = AC^2 + PQ^2$
- (3) $AQ^2 + CP^2 = \frac{1}{2}(AC^2 + PQ^2)$
- (4) AQ + CP = $\frac{1}{2}$ (AC + PQ)
- **56.** A three digit number abc is 459 more than the sum of its digits. What is the sum of the 2 digit number ab and the 1 digit number a ?
 - (1)71

(2)61

(3)51

- (4) Cannot be determine
- 57. ABCD is a square, inside which 4 circles with radius 1 cm each are touching each other. What is the area of the shaded region ?



(1) $(2\pi - 3)$ cm²

(2) $(4 - \pi)$ cm²

 $(3) (16 - 4\pi) \text{cm}^2$

- (4) None of these
- **58.** The sum of length, breadth and height of a room is 19 m. The length of the diagonal is 11 m. The cost of painting the total surface area of the room at the rate of ₹ 10 per m^2 is
 - (1) ₹ 240

(2) ₹ 2400

(3) ₹ 420

- (4) ₹ 4200
- **59.** If a cone and a sphere have equal radii and have equal volumes, then ratio between the height of the cone and the diameter of the sphere is
 - (1) 1:1

(2) 1 : 2

(3) 2:1

- (4) 3 : 2
- **60.** If the mean of x and $\frac{1}{x}$ is M, the mean of x^3 and $\frac{1}{x^3}$ is:
 - (1) $\frac{(M^2-3)}{2}$

(2) $M(4M^2 - 3)$

 $(3) M^3$

 $(4) M^3 + 3$



61.

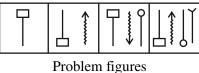
SECTION - E: MENTAL ABILITY

This section contains 15 Multiple Choice Questions. Each question has four choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

61.	If the first and second letters in the word 'CONCESSION' where interchanged, also the third and the fourth letters, the fifth and sixth letters and so on, which of the following would be the seventh letter from the right?					
	(1) R	(2) O	(3) S	(4) N		
62. In a certain language 'IMPHAL' is coded as 'JLRFDI'. How will 'MYSURU' be code language?			ill 'MYSURU' be coded in the same			
	(1) NXUSUR		(2) RUSUX	N		
	(3) NXSUUR		(4) NXTTU	R		
63. What will be the number in the blank box ?						
			1 3 4 6 7 9 2 14 5 77 8			
	(1) 98	(2) 128	(3) 189	(4) 194		
64.	Count the number of to	riangles and squa	ares in the given figure			
	(1) 36 triagnles, 7 squa	ares	(2) 38 triagr	(2) 38 triagnles, 9 squares		
	(3) 40 triagnles, 7 squa	ares	(4) 42 triagr	iles, 7 squares		
65.	In which of the follow	ing figures, Fig.	(X) is exactly embedded	ly embedded as one of its parts?		
			Fig. (X)			
	(1)	(2)	(3)	(4)		
66.	If the 5th day of month	falls two days at	fter Monday, what day o	f week will be the 19th of the month?		
	(1) Tuesday		(2) Monday			
	(3) Thursday		(4) Wedneso	lay		
67. Six families A, B, C, D, E and F are living in houses in a row. and C as neighbours. A doest not live next to either F or D, C do door neighbours?		_				
	(1) B & E		(2) B & D			
	(3) B & C		(4) Only B			
E-10/	′12 ———					



68. Select a figure from the options which will continue the same series as established by the problem figures.



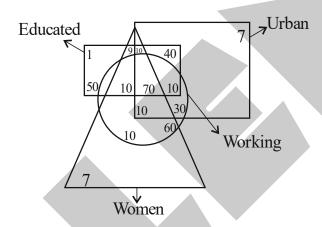








69. In the given venn diagram, sample data of a small town having total population of 500, the square represents persons from urban areas, the triangle represents women, the circle represents persons who are working and the rectangle represents the persons who are educated. Number given are number of persons.



Find out the urban males who are educated but not working.

- (1) 110
- (2) 40
- $(3)\ 30$
- (4)7
- 70. 'P + Q' means, 'P' is the father of 'Q';
 - 'P Q' means, 'P' is the wife of 'Q';
 - $P \times Q$ means, P is the brother of Q;

Which of the following means 'A' is the materal uncle of 'D'?

 $(1) A \times B - C + D$

(2) $D \times C - B \times A$

 $(3) A \times C + B - D$

- $(4) A C \times B + D$
- 71. Choose the alternative which is closely resembles the mirror image of the given combination.

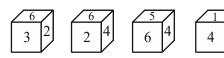
1965INDOPAK

1d65INDOPAK (1)

56910DNIKAb (2)

1P651NDOPAK (g)

- 1965INDOPAK (4)
- **72.** Which number is on the face opposite to 6?





(2) 1

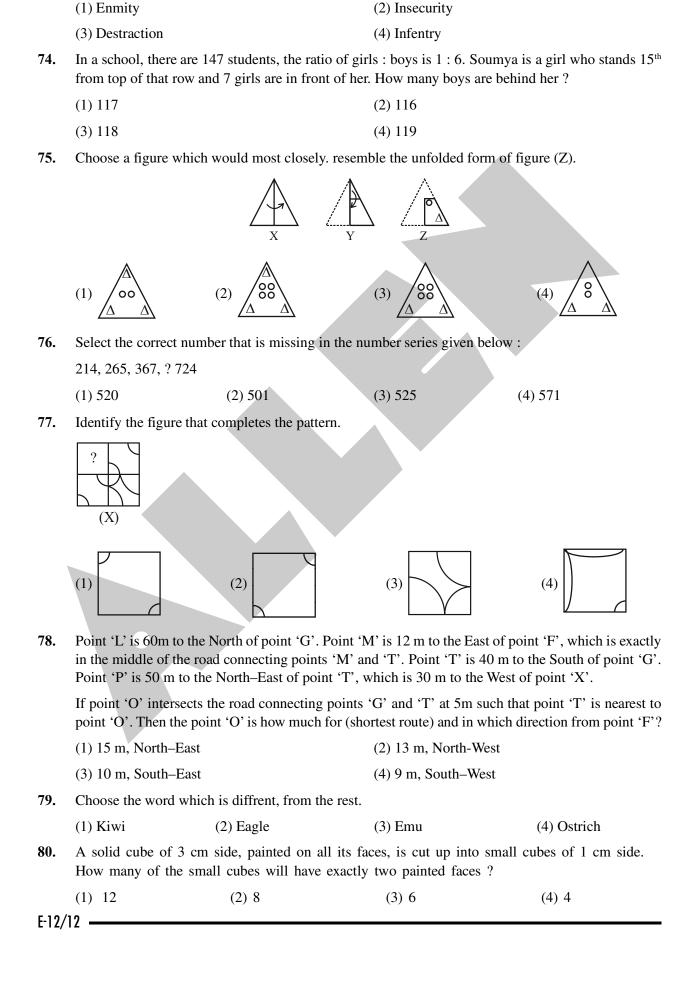
(3)2

(4) 3



Famine: Hunger:: War:?

73.



In this question find out the afternative which will replace the question mark (?).



SPACE FOR ROUGH WORK





ALLEN® DIBRUGARH

In association with

Bikoxito Jibon Porikolpona Scheme

By Assam State Youth Commission, Govt. of Assam

Time: 2 Hrs. Maximum Marks: 320

Please read the instructions carefully. You are allotted 5 minutes specifically for this purpose.

INSTRUCTIONS

- 1. The booklet is your Question Paper. **Do not** break seal of booklet until the invigilator instructs to do so.
- 2. Fill your form No. in the space provided on optical response sheet (ORS).
- 3. Total Questions to be Attempted 80.
 - **Section-A** (Physics) 15 Questions, **Section-B** (Chemistry) 15 Questions, **Section-C** (Biology) 15 Questions. **Section-D** (Mathematics) 15 Questions & **Section-E** (Menial Ability) 20 Questions.
- 4. Marking Scheme:
 - a. RIGHT answer: 4 Marks
 - b. WRONG answer: -1 Mark (Minus One Mark)
 - c. If no bubble is darkened in any question: No Mark.
- 5. If you are found involved in cheating or disturbing others, then your ORS will be cancelled.
- 6. Do not put any stain on ORS and hand it over back properly to the invigilator.