MAI BHAGO ARMED FORCES PREPARATORY INSTITUTE FOR GIRLS, MOHALI
NDA PREPARATORY WING ENTRANCE EXAM

Marks : 500 **Jan 2024** **Time : 2 hrs & 30 minutes**

ROLL NO._____	**SIGNATURE**_____
NAME_____	**DATE/TIME**_____

INSTRUCTIONS FOR CANDIDATES

i.	Before attempting the paper, carefully read all the Instructions & Examples given on Side 1 of Answer Sheet (OMR Sheet) supplied separately.
ii.	An OMR Answer Sheet is being provided separately along with this Test Booklet. Please fill up all relevant entries like Roll Number, Test Booklet Code etc in the spaces provided on the OMR Answer Sheet and put your signature in the box provided for this purpose.
iii.	Make sure to fill the correct Booklet Code on Side 2 of the OMR Answer Sheet. If the space for the Booklet Code is left blank or more than one Booklet Codes are indicated, it will deem to be incorrect Booklet Code and thus, the Answer Sheet will not be evaluated. The Candidate herself will be solely responsible for all the consequences arising out of any error or omission in writing the Test Booklet Code.
iv.	At the start of the examination, please ensure that all pages of your Test Booklet are properly printed; your Test Booklet is not damaged in any manner and contains **125 questions**. In case of any discrepancy, the candidate should immediately report the matter to the Invigilator for replacement of the Test Booklet. No claim in this regard will be entertained at a later stage.
v.	This Test Booklet comprises 12 pages containing **125 questions** in two Sections. **Section I** consists of **70 question** and **Section II** of **55 questions**. **Section I** includes questions on General English, General Science and Awareness and **Section II** includes questions on Mathematics. A total of **2 hrs & 30 minutes** will be given to solve the Test Paper. No separate indication will be given with respect to any Section. Against each question, four alternatives (1), (2), (3), (4) are given, out of which only one is correct. Indicate your choice of answer by darkening the circle with **BLACK/BLUE** pen in the OMR Answer Sheet supplied to you separately. Use of pencil is **NOT ALLOWED**. More than one answers indicated against a question will be deemed as incorrect response.
vi.	The maximum marks are **500**. Each question carries **FOUR** marks. Each right answer will carry four marks. There will be **NEGATIVE MARKING. One mark** will be deducted for every wrong answer.
vii.	Do not fold or make any stray marks on the OMR Answer Sheet. Any stray marking or smudge on the OMR Sheet will be taken as wrong answer. Any damage to OMR Answer Sheet may result in disqualification of the candidate.
viii.	On completion of the test, the candidate must hand over the OMR Answer Sheet, Test Booklet Paper and Admit Card to the invigilator on duty in the examination hall.
ix.	Use of Mobile phone or any other similar electronic gadget is not permitted.
x.	All belongings must be kept outside the Examination Hall. Other than the Admit Card, no other paper of any kind can be retained while taking the Test.

SECTION I: GENERAL ENGLISH, GENERAL SCIENCE & AWARENESS

(70 Questions – 280 Marks; Minimum 70 Marks to Qualify**; Minus 1** Mark for every wrong Answer**)**

Directions (Questions 1-4): In these questions, out of the four alternatives, choose the one which best expresses the meaning of the word in bold.	
1.	As she was very **articulate**, she cleared the job interview with flying colors. (1) cheerful (2) clear (3) garrulous (4) confident
2.	I cannot believe in the **veracity** of his statement. (1) truth (2) usefulness (3) sincerity (4) falsity
3.	Their position is so utterly **preposterous** it could be construed as libel. (1) absurd (2) practical (3) praiseworthy (4) forlorn
4.	Typically, his argument was **cogent**, well put and very persuasive. (1) unpleasant (2) convincing (3) brief (4) confusing
Directions (Questions 5-9): Four alternatives are given for the idiom/phrase. Choose the one which best expresses its meaning.	
5.	You must deal with the problem **fair and square**. (1) in a critical way (3) neither very good nor very bad (2) in a foolish way (4) in an honest way
6.	It's **a moot point** whether the chicken or the egg came first. (1) A useless question (3) An absurd question (2) A debatable question, an issue open to argument (4) A thoughtful question
7.	Naresh has the **gift of the gab** and the ability to fire out a quick response without thinking too much about it. (1) The ability to spoil something (3) The ability to sell things (2) Gift from a sacred institution (4) The ability to speak easily and confidently
8.	I expected that big company to try to take advantage of us, but so far all of their dealings with us have been **above board**. (1) legitimate, honest, or legal (3) an essential fact (2) controversial (4) a source of continual trouble
9.	If they find out what you did, you're **dead meat**. (1) be killed (3) be in serious trouble (2) be taken prisoner (4) bringing bad omen
Directions (Questions 10-13): Each item in this section has four possible substitutions for the underlined part. Choose the one that can correctly replace the underlined words/phrases.	
10.	**From** thirty years he devoted himself to public affairs without taking a holiday. (1) since (2) over (3) for (4) in
11.	No sooner had I opened the door **when** the rain, heavy and stormy, rushed in making us shiver from head to foot. (1) for (2) but (3) than (4) with
12.	Rabindranath Tagore, a Nobel laureate and the author of the National Anthem, **found** Shantiniketan. (1) was founding (3) was finding (2) founded (4) had founded

13. If Ramesh **<u>will be promoted</u>** he will get a higher salary.

(1) was promoted (3) is being promoted
(2) is promoted (4) would be promoted

Directions (Questions 14-17): You have one brief passage with four questions following the passage. Read the passage carefully and choose the best answer to each question out of the four alternatives.

It is no doubt true that we cannot go through life without sorrow. There can be no sunshine without shadow, we must not complain that roses have thorns but rather be grateful that thorns bear flowers. Our existence here is so complex that we must expect much sorrow and suffering. Yet, it is certain that no man was ever discontented with the world who did his duty in it. The world is like a looking glass; if you smile, it smiles; if you frown, it frowns back. Always try, then, to look at the bright side of things. There are some persons whose very presence seems like a ray of sunshine and brightens the whole room. Life has been described as a comedy to those who think and a tragedy to those who feel.

14. The author says, "There are some persons whose very presence seems like a ray of sunshine and brightens the whole room". The reason for this is that, they _____

(1) have the capacity to love. (3) talk more of roses and less of thorns.
(2) are happy and spread happiness. (4) look good and behave well.

15. What is the author's message in this passage?

(1) Look at the bright side of things. (3) Our existence is very complex.
(2) The world is a looking glass. (4) Expect much sorrow and suffering.

16. The author says that we cannot go through life without sorrow because _____

(1) it is our fate. (3) we are always discontented.
(2) life is a tragedy. (4) human life is very complex.

17. The expression 'Life is a tragedy to those who feel' means that it is a tragedy to those who _____

(1) think about the world. (3) believe in fate.
(2) do not understand the world. (4) are sensitive and emotional.

Directions (Questions 18-22): In following questions, there are four alternatives for each of the given words. Choose the one which is opposite in meaning to it.

18. **ADULATION**

(1) back-biting (2) condemnation (3) flattery (4) praise

19. **DUBIOUS**

(1) shady (2) suspicious (3) trustworthy (4) doubtful

20. **COAX**

(1) convince (2) persuade (3) caution (4) dissuade

21. **MAGNANIMOUS**.

(1) small (2) petty (3) kind (4) majestic

22. **MITIGATE**

(1) intensify (2) enhance (3) convince (4) falsify

DIRECTIONS (Questions 23-26): Each of the following items in this section consists of a sentence the parts of which have been jumbled. These parts have been labelled P, Q, R and S. Given below each sentence are four sequences namely (1), (2), (3) and (4). You are required to re-arrange the jumbled parts of the sentence and mark your response accordingly.

23. <u>to give a definition</u> <u>if I were</u> <u>I would begin</u> <u>like this</u>
P Q R S

(1) QPRS (2) PQRS (3) SRQP (4) RSPO

24.	The Prime Minister declared that those states/will get all help and aid/where family planning/ is implemented very efficiently P Q R S			
	(1) PRSQ	(2) PQRS	(3) RSPQ	(4) QPSR
25.	Is often worse than / to make him sad / to hurt a person's heart / breaking his head P Q R S			
	(1) PSQR	(2) SRQP	(3) QPRS	(4) RQPS
26.	while some live / to eat and drink / many do not have enough / in luxury, P Q R S			
	(1) PSRQ	(2) PRSQ	(3) SPQR	(4) RQSP
DIRECTIONS (Questions 27-30): Each of the following sentences in this section has a blank space and four words or group of words given after the sentence. Select the word or group of words you consider the most appropriate for the blank space and indicate your response on the Answer Sheet accordingly.				
27.	After the marathon, some of the competitors felt completely _____.			
	(1) cut up	(2) done in	(3) done out	(4) run out
28.	Hundreds of workers are _____ a protest against the decision of the management.			
	(1) performing	(2) staging	(3) sitting	(4) standing
29.	Creative people are often _____ with their own uniqueness.			
	(1) obsessed	(2) deranged	(3) unbalanced	(4) dissatisfied
30.	In the face of the overwhelming mass of evidence against him, we cannot_____ him of the crime.			
	(1) punish	(2) absolve	(3) release	(4) ignore
DIRECTIONS: (Questions. 31-35) In each of the questions given below are words spelt in four different ways. Choose the option that gives the correct spelling of the word.				
31.	(1) accquaintance	(2) acquiantance	(3) acquaintance	(4) acquaintence
32.	(1) chauffur	(2) chouffeur	(3) chauffeur	(4) chhaufeur
33.	(1) sanctuaries	(2) sancturies	(3) santuaries	(4) sanchuries
34.	(1) diarhhiea	(2) diarhhoea	(3) diarrhoea	(4) dairrhoea
35.	(1) acclimatise	(2) acclamatise	(3) acllamatise	(4) acclematise
36.	The chemical reaction in which energy is absorbed is known as: (1) Endothermic Reaction (2) Redox Reaction		(3) Exothermic Reaction (4) Displacement Reaction	
37.	Which organ is the longest part of the Alimentary Canal?			
	(1) Large Intestine	(2) Small Intestine	(3) Oesophagus	(4) Stomach
38.	Consider the following statements: 1. The magnitude of the magnetic field produced at a given point increases as the current through the straight conductor increases. 2. The magnetic field produced by a given current in the conductor decreases as the distance from it increases. Which of the statement(s) given above is/are correct?			
	(1) 1 only	(2) 2 only	(3) Both 1 and 2	(4) Neither 1 nor 2

39.	If an object is placed at infinity from a convex mirror, then the image will be: (1) Virtual and Erect (3) Real and Inverted (2) Virtual and Inverted (4) Real and Erect
40.	Reaction between an acid and a base to give a salt and water is known as: (1) Neutralisation (2) Acidification (3) Oxidation (4) Reduction
41.	What is the function of the Pituitary Gland? (1) To regulate sugar and salt levels in the body. (2) To initiate metabolism in the body. (3) To develop sex organs in males. (4) To stimulate growth in all organs.
42.	Which hormone does females menstrual cycle depends upon? (1) Growth Hormone (2) Oestrogen (3) Testosterone (4) Adrenalin
43.	An age-related condition caused due to the weakening of ciliary muscles, hardening of the lens and reduced lens flexibility is called: (1) Hypernatremia (2) Cataract (3) Myopia (4) Presbyopia
44.	The non-metals are either solids or gases except: (1) Bromine (2) Iodine (3) Carbon (4) Oxygen
45.	Carbohydrates which are not used immediately by plants are stored in the form of: (1) Protein (2) Starch (3) Carbohydrate (4) None of the above
46.	The reproductive parts of a flower are: (1) Sepals and Petals (2) Stamens and Pistil (3) Sepals and Pistil (4) Stamens and Petals
47.	Electric fuse in a circuit prevents damage to: (1) Appliances only (3) Circuit only (2) Both appliances and circuit (4) None of the above
48.	Which gas is filled in the packets to prevent the potato chips from getting oxidised? (1) Oxygen (2) Nitrogen (3) Carbon dioxide (4) Hydrogen
49.	The enzyme in saliva that breaks down starch to give simple sugar is known as: (1) Salivary Amylase (2) Starch (3) Lipids (4) Bile Juice
50.	Consider the following statements: 1. The twinkling effect of stars is due to the atmospheric refraction of starlight. 2. Sun is visible to us before the actual sunrise, and after the actual sunset because of atmospheric reflection. Which of the statement(s) given above is/are correct (1) 1 only (2) 2 only (3) Both 1 and 2 (4) Neither 1 nor 2
51.	Which among the following Indian states has the largest area? (1) Maharashtra (2) Madhya Pradesh (3) Rajasthan (4) Uttar Pradesh
52.	Which is the most widely spread soil in northern plains of India? (1) Black Soil (2) Alluvial Soil (3) Red Soil (4) Laterite Soil
53.	For centuries, silk and spices flowed into Europe through the silk route from which country? (1) India (2) China (3) Japan (4) Korea
54.	Which country will hold the G-20 Presidency in the year 2024? (1) Germany (2) Japan (3) Brazil (4) France
55.	Who was the Chairman of the Drafting Committee to prepare a draft Constitution of India? (1) Jawaharlal Nehru (2) Sarojini Naidu (3) BR Ambedkar (4) Rajendra Prasad

56.	Select the country from the following through which Prime Meridian does not pass through. (1) Morocco (2) Spain (3) Algeria (4) Republic of Mali
57.	To which one of the following types of vegetation does rubber belong to? (1) Tundra (2) Himalayan (3) Tidal (4) Tropical Evergreen
58.	Booker Prize for 2023, leading literary award in the English speaking world to the best sustained work of fiction written in English and published in the UK and Ireland awarded to which author? (1) Jumpa Lahiri (2) Vikram Seth (3) Paul Lynch (4) William Dalrymple
59.	Which is the largest peninsular river in India : (1) Narmada (2) Krishna (3) Tapi (4) Godavari
60.	The Mughal Emperor_____ granted 'Diwani Rights' of Bengal, Bihar and Orissa to East India Company after being defeated in Battle of Buxar in year 1765. (1) Shuja-Ud-Daulah (2) Shah Alam II (3) Bahadur Shah II (4) Shah Jahan II
61.	Which mode of transportation reduces trans-shipment losses and delays? (1) Railways (2) Pipeline (3) Roadways (4) Waterways
62.	Who was awarded Dada Sahib Phalke India's highest award in the field of cinema for the year 2021 at the 69th National Film Awards ceremony, exemplifying 'strength of Bharatiya Nari'? (1) Asha Parikh (3) Waheeda Rehman (2) Lata Mangeshkar (4) Rekha
63.	The southern stretch of the western coast of India sandwiched between Arabian sea and Western Ghats is referred as: (1) Konkan (2) Malabar (3) Coromandel (4) Kannad
64.	Spring Tides are the tides which occur after a new moon or full moon, when (1) Only Sun in line with earth. (3) Only Moon in line with earth. (2) Moon and Sun in line with Earth. (4) None of the above.
65.	Asiatic Cheetah is a: (1) Normal Species (2) Extinct Species (3) Endemic Species (4) Rare Species
66.	What was the purpose of Khilafat Movement? (1) To seek financial aid for the Caliph. (2) To improve Hindu-Muslim relationship. (3) To create awareness about a separate nation for Muslims. (4) To restore the prestige and the power of the Caliph.
67.	Which one is a Rabi crop? (1) Wheat (2) Bajra (3) Maize (4) Rice
68.	Which gas is most abundant in air? (1) Oxygen (2) Argon (3) Nitrogen (4) Carbon Dioxide
69.	Under which of the following type of resources can tidal energy be put: (1) Renewal (2) Flow (3) Biotic (4) Non-renewable
70.	Mahatma Gandhi returned to India from South Africa in which Year? (1) 1910 (2) 1915 (3) 1917 (4) 1921

----------End of Section–I----------

SECTION II: MATHEMATICS

(55 Questions – 220 Marks; Minimum 55 Marks to Qualify**; Minus 1** Mark for every wrong Answer**)**

71.	The areas of two similar triangles are 121 cm^2 and 64 cm^2 respectively. If the median of the first triangle is 12.1 cm , then corresponding median of the other triangle is : (1) 11 cm (2) 8.8 cm (3) 11.1 cm (4) 8.1 cm
72.	Gita and Geetika visit particular office in the same week (Monday to Friday). Each is equally likely to visit the office on any one day as on another. The probability that they both visit the office on two consecutive days is : (1) $\frac{11}{25}$ (2) $\frac{8}{25}$ (3) $\frac{7}{25}$ (4) $\frac{9}{25}$
73.	If points A (a^2 , 0), B (0 , b^2) and C (1 , 1) are collinear , then : (1) $(1/a^2) + (1/b^2) = 1$ (2) $(1/a) + (1/b) = 1$ (3) $a^2 + b^2 = 1$ (4) $(1/a^2) + (1/b^2) = 2$
74.	The diameter of a sphere is 6 cm. It is melted and drawn into wire of diameter 2 mm. The length of the wire is : (1) 36 m (2) 32 m (3) 38 m (4) 34 m
75.	The positive value of k for which the equation $x^2 + kx + 64 = 0$ and $x^2 - 8x + k = 0$ will both have real roots , is : (1) 4 (2) 8 (3) 12 (4) 16
76.	If $\sin\theta + \cos\theta = \sqrt{2}$, then $\tan\theta + \cot\theta =$ (1) 1 (2) 2 (3) 3 (4) 4
77.	The decimal expansion of $\frac{63}{72 \times 175}$ is : (1) Terminating (3) Non-terminating (2) Non-terminating and repeating (4) None of these
78.	In a right angle $\triangle$ ABC, right angled at B, BC = 12 cm and AB = 5 cm. The radius of the circle inscribed in the triangle (in cm) is : (1) 4 cm (2) 3 cm (3) 2 cm (4) 1 cm
79.	If the mean of first n natural numbers is $\frac{5n}{9}$, then n = (1) 5 (2) 4 (3) 9 (4) 10
80.	If the coordinates of one end of a diameter of a circle are (2 ,3) and the coordinates of its centre are (-2 , 5) , then the coordinates of the other end of the diameter are : (1) (-6 , 7) (2) (6 , -7) (3) (6 , 7) (4) (-6 , -7)
81.	The mean weight of 9 students is 25 kg. If one more student joins the group, the mean weight of the group changes to 27 kg. The weight of the 10^{th} student is : (1) 25 kg (2) 35 kg (3) 45 kg (4) 55 kg
82.	The sum of first 24 terms of the A.P. sequence whose n^{th} term is given by $a_n = 3 + \frac{2}{3}n$ is : (1) 270 (2) 272 (3) 382 (4) 384
83.	Mode is : (1) least frequent value (3) middle most value (2) most frequent value (4) none of these
84.	Two A.P.'s have the same common difference. The first term of one these is 8 and that of the other is 3. The difference between their 30^{th} term is :- (1) 11 (2) 3 (3) 8 (4) 5

85.	The perimeter of a triangle is 30 π cm and the circumference of its incircle is 88 cm. The area of the triangle is :			
	(1) 70 cm²	(2) 140 cm²	(3) 660 cm²	(4) 420 cm²
86.	If the sum of the ages of a father and his son in years is 65 and twice the difference of their ages in years is 50, then the age of the father is :			
	(1) 40 years	(2) 45 years	(3) 55 years	(4) 65 years
87.	In Δ ABC , right angled at C , if tan A = 1, then value of 2 sin A cos A is:			
	(1) 1	(2) $\frac{1}{2}$	(3) 2	(4) $\frac{\sqrt{3}}{2}$
88.	A box contains 90 discs, numbered 1 to 90. If one disc is drawn at random from their box, the probability that it bears a prime number less than 23 , is :			
	(1) $\frac{7}{90}$	(2) $\frac{10}{90}$	(3) $\frac{4}{45}$	(4) $\frac{8}{89}$
89.	The coordinates of the point P dividing the line segment joining the points A (1, 3) and B (4 , 6) in the ratio 2 : 1 are :			
	(1) (2 ,4)	(2) (3 , 5)	(3) (4 , 2)	(4) (5 , 3)
90.	A metallic solid cone is melted to form a solid cylinder of equal radius. If the height of the cylinder is 6 cm, then the height of the cone was :			
	(1) 10 cm	(2) 12 cm	(3) 18 cm	(4) 24 cm
91.	The first three terms of an A.P. respectively are $3y - 1$, $3y + 5$ and $5y + 1$. Then , y equals:			
	(1) - 3	(2) 4	(3) 5	(4) 2
92.	One ticket is drawn from a bag containing 70 tickets numbered 1 to 70. The probability that the drawn ticket bears a number which is a multiple of 5 or 7 , is :			
	(1) $\frac{1}{10}$	(2) $\frac{1}{70}$	(3) $\frac{6}{70}$	(4) $\frac{11}{35}$
93.	If the equation $x^2 - ax + 1 = 0$ has two distinct roots , then :			
	(1) $\lvert a \rvert = 2$	(2) $\lvert a \rvert < 2$	(3) $\lvert a \rvert > 2$	(4) None of these
94.	If the area of the sector of a circle is $\frac{5}{18}$ of the area of the circle, then the sector angle is equal to :			
	(1) 60°	(2) 90°	(3) 100°	(4) 120°
95.	If $\sin\alpha$ and $\cos\alpha$ are the roots of the equation $ax^2 + bx + c = 0$, then b^2 =			
	(1) $a^2 - 2ac$	(2) $a^2 + 2ac$	(3) $a^2 - ac$	(4) $a^2 + ac$
96.	$\frac{\tan\theta}{\sec\theta - 1} + \frac{\tan\theta}{\sec\theta + 1}$ is equal to :			
	(1) 2 tan θ	(2) 2 sec θ	(3) 2 cosec θ	(4) 2 tan θ sec θ
97.	The smallest irrational number by which $\sqrt{18}$ should be multiplied so as to get a rational number is :			
	(1) $\sqrt{18}$	(2) $\sqrt{2}$	(3) $2\sqrt{2}$	(4) 2
98.	The length of the tangent from a point A at a circle, of radius 3 cm , is 4 cm. The distance of A from the centre of the circle is:			
	(1) $\sqrt{7}$ cm	(2) 7 cm	(3) 5 cm	(4) 25 cm
99.	If 35 is removed from the data : 30 , 34 , 35 , 36 , 37 , 38 , 39 , 40 , then the median increases by :			
	(1) 2	(2) 1.5	(3) 1	(4) 0.5
100.	The sum of n terms of a series $\sqrt{2} + \sqrt{8} + \sqrt{18} + \sqrt{32}$ +.....is :			
	(1) $\frac{n(n+1)}{2}$	(2) 2n (n+1)	(3) $\frac{n(n+1)}{\sqrt{2}}$	(4) 1

101.	The angle of depression of a car parked on the road from the top of a 150 m high tower is 30^{o}. The distance of the car from the tower (in meters) is :			
	(1) $50\sqrt{3}$	(2) $150\sqrt{3}$	(3) $150\sqrt{2}$	(4) 75
102.	If $-\frac{1}{2}$ is a root of the equation $x^2 - kx - \frac{5}{4}$ then the value of k is :			
	(1) - 2	(2) 2	(3) $\frac{1}{4}$	(4) $\frac{1}{2}$
103.	Water flows at the rate of 10 meter per minute from a cylindrical pipe 5 mm in diameter. How long it will take to fill up a conical vessel whose diameter at the base is 40 cm and depth 24 cm?			
	(1) 48 min 15 sec	(2) 51 min 12 sec	(3) 52 min 1 sec	(4) 55 min
104.	Aruna has only ₹ 1 and ₹ 2 coins with her. If the total number of coins that she has is 50 and the amount of money with her is ₹ 75, then the number of ₹ 1 and ₹ 2 coins are respectively :			
	(1) 35 and 15	(2) 35 and 20	(3) 15 and 35	(4) 25 and 25
105.	$9\sec^2 A - 9\tan^2 A$ is equal to :			
	(1) 1	(2) 9	(3) 8	(4) 0
106.	The sum of the digits of two-digit number is 9. If 27 is added to it, the digits of the number get reversed. The number is :			
	(1) 25	(2) 72	(3) 63	(4) 36
107.	Given that $\sin\theta = \frac{a}{b}$, then $\tan\theta$ is equal to :			
	(1) $\frac{b}{\sqrt{a^2+b^2}}$	(2) $\frac{b}{\sqrt{b^2-a^2}}$	(3) $\frac{a}{\sqrt{a^2-b^2}}$	(4) $\frac{a}{\sqrt{b^2-a^2}}$
108.	Aarushi sold 100 lottery tickets in which 5 tickets carry prize. If Priya purchased a ticket, what is the probability of Priya winning a prize?			
	(1) $\frac{19}{20}$	(2) $\frac{1}{25}$	(3) $\frac{1}{20}$	(4) $\frac{17}{20}$
109.	If the distance between the points $(4, p)$ and $(1, 0)$ is 5, then p =			
	(1) ± 4	(2) 4	(3) - 4	(4) 0
110.	A solid is hemispherical at the bottom and conical above. If the surface area of the two parts are equal, then the ratio of its radius and height of its conical part is :			
	(1) $1:\sqrt{2}$	(2) $\sqrt{2}:1$	(3) $1:\sqrt{3}$	(4) $\sqrt{3}:1$
111.	If the sum and product of the roots of the equation $kx^2 + 6x + 4k = 0$ are equal, then k is :			
	(1) $-\frac{3}{2}$	(2) $\frac{3}{2}$	(3) $\frac{2}{3}$	(4) $-\frac{2}{3}$
112.	The value of the expression $\frac{\sec^2 54^\circ - \cot^2 36^\circ}{\operatorname{cosec}^2 57^\circ - \tan^2 33^\circ} + 2\sin^2 38^\circ \sec^2 52^\circ - \sin^2 45^\circ$ is :			
	(1) $\frac{5}{2}$	(2) $\frac{3}{2}$	(3) 2	(4) $\frac{7}{2}$
113.	If one zero of the quadratic polynomial $x^2 + 3x + k$ is 2, then the value of k is :			
	(1) 10	(2) -10	(3) 5	(4) -5
114.	If $\cos A + \cos^2 A = 1$, then $\sin^2 A + \sin^4 A$ is equal to :			
	(1) - 1	(2) 0	(3) 1	(4) None of these
115.	For any natural numbers, $25^{2n} - 9^{2n}$ is always divisible by :			
	(1) 16	(2) 34	(3) Both 16 and 34	(4) None of these
116.	The value of $\frac{\tan 55^\circ}{\cot 35^\circ} + \cot 1^\circ \cot 2^\circ \cot 3^\circ \ldots\ldots\ldots \cot 90^\circ$, is :			
	(1) -2	(2) 2	(3) 1	(4) 0

117.	Three bells ring at intervals of 4, 7 and 14 minutes. All the three rang at 6 AM. When will they ring together again?			
	(1) 6 : 07 AM	(2) 6 : 14 AM	(3) 6 : 28 AM	(4) 6 : 25 AM
118.	A vertical stick 20 m long casts a shadow 10 m long on the ground. At the same time , a tower casts a shadow 50 m long on the ground . The height of the tower is :			
	(1) 100m	(2) 120m	(3) 25m	(4) 200m
119.	The median of the data : 6 , 7 , x - 2 , x , 17 , 20 , written in ascending order is 16. Then x =			
	(1) 15	(2) 16	(3) 17	(4) 18
120.	The 9^{th} term of an A.P. is 449 and 449^{th} term is 9. The term which is equal to zero is :			
	(1) 501^{th}	(2) 502^{th}	(3) 458^{th}	(4) None of these
121.	Two poles are 'a' meters apart and the height of one is double of the other. If from the middle point of the line joining their feet an observer finds the angular elevations of their tops to be complementary, then the height of the smaller is :			
	(1) $\sqrt{2}$a meter	(2) $\frac{a}{2\sqrt{2}}$ meter	(3) $\frac{a}{\sqrt{2}}$ meter	(4) 2a meter
122.	8 chairs and 5 tables cost ₹ 10,500/-, while 5 chairs and 3 tables cost ₹ 6,450. The cost of each chair will be :			
	(1) ₹ 750	(2) ₹ 600	(3) ₹ 850	(4) ₹ 900
123.	The area of four walls of a room is 330 m^2 and length is twice the width, height being 11 m. Find area of ceiling?			
	(1) 50 m^2	(2) 65 m^2	(3) 70 m^2	(4) 100 m^2
124.	In a family of 3 children, the probability having at least one boy is :			
	(1) $\frac{7}{8}$	(2) $\frac{1}{8}$	(3) $\frac{5}{8}$	(4) $\frac{3}{4}$
125.	If $\sin\theta - \cos\theta = 0$, then the value of $\sin^6\theta + \cos^6\theta$ is :			
	(1) $\frac{2}{3}$	(2) $\frac{1}{3}$	(3) $\frac{3}{4}$	(4) $\frac{1}{4}$

----------**End of Section–II**----------

Space for Rough Work

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