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

Marks: 400   **JUN 2023**   Time 150 minutes

ROLL NO:-------------------------------	SIGNATURE:---------------------------
NAME:------------------------------------	DATE/TIME:------------------------------

INSTRUCTIONS FOR CANDIDATES

1.	Before attempting the paper, carefully read all the Instructions & Examples given on Side 1 of Answer Sheet (OMR Sheet) supplied separately.
2.	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 100 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.
3.	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.
4.	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 deemed 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.
5.	This Test Booklet comprises 10 pages containing 100 questions in two Sections of 50 questions each. Section I includes questions on General English, General Science and Awareness and Section II includes questions on Mathematics. A total of 150 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.
6.	The maximum marks are 400. 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*.**
7.	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.
8.	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.
9.	Use of Mobile phone or any other similar electronic gadget is not permitted.
10.	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.

	Directions (Q. Nos. 1-4) You have one brief passage with five questions following the passage. Read the passage carefully and choose the best answer to each question out of the four alternatives. My most interesting visitor comes at night, when the lights are still burning - a tiny bat who prefers to fly in through the open door and will use the window only if there is no alternative. His object in entering the house is to snap up the moths that cluster around the lamps. All the bats I have seen fly fairly high, keeping near the ceiling; but this particular bat flies in low, like a dive-bomber, zooming in and out of chair legs and under tables. Once, he passed straight between my legs. Has his radar gone wrong, I wondered, or is he just plain crazy?
1.	Consider the following statements: 1. The tiny bat flew in low like a dive bomber. 2. The tiny bat, like all bats, keeps near the ceiling 3. It has lost its direction because its radar has gone wrong. 4. It wants to entertain the author with its skill in flying. Which of the above statements may be assumed to be true from the information given in the passage? 1. Only 1 2. 1 and 3 3. 2 and 4 4. 3 and 4
2.	After comparing the habits of the tiny bat with those of other bats, the author was _____ 1. sure that this bat had lost its direction. 2. not sure of its preferences. 3. surprised to find that it was an expert flier. 4. unable to give the correct explanation for its behavior.
3.	The author calls the tiny bat 'an interesting visitor'. This means _____ 1. the bat visits him at night. 2. the bat is interested in the moths. 3. this bat has peculiar qualities. 4. this bat surprises him by zooming in and out like a dive-bomber.
4.	What, according to you, can be the most suitable title for the passage? 1. Someone visits me 2. Night of Mysteries 3. A Funny Visitor 4. My Nocturnal Visitor
	Directions (Q. Nos. 5-7) You have one brief passage with five questions following the passage. Read the passage carefully and choose the best answer to each question out of the four alternatives. Gandhi was not born great. He was a blundering boy, a mediocre student, a poor lawyer, an ordinary individual until he remade himself. He was a self-made man. He had faith in himself. But above all, he had a deep, touching faith in the peasants, miners, labourers, and young unformed men and women whom he drew into his work. He fed them all an elixir of growth which often transformed nameless, uneducated people into leonine heroes. The elixir was fearlessness.
5.	Consider the following assumptions: 1. Gandhi was a great man throughout his life. 2. Men are not born great, but they are made great by self effort. 3. Gandhi liked the ordinary people and neglected the rich. 4. Gandhi transformed the ordinary masses into great heroes. Which of the above assumptions can be drawn from the above passage? 1. 2 and 4 2. 1 and 2 3. 3 and 4 4. none of the above
6.	Gandhi's attitude to the labour class was one of 1. generosity 2. pity 3. compassion 4. fearlessness
7.	The world 'leonine' in the passage means 1. lean 2. courageous 3. timid 4. learning

	Directions (Questions 8 to 11). In these questions, out of the four alternatives, choose the one which best expresses the meaning of the word in bold.
8.	Ravi loves **seclusion**. Therefore, he lives in the mountain. 1. nature 2. scripture 3. seafaring 4. solitariness
9.	His language is political and **vitriolic.** 1. imaginative 2. sprightly 3. vivacious 4. abusive
10.	The convocation address was very **edifying**. 1. tedious 2. in need of editing 3. Exciting 4. instructive
11.	He was **enamoured** of his own golden voice. 1. very fond of 2. obsessed with 3. concerned with 4. imbued with
	Directions (Questions 12 to 15). Fill in the blanks with a word from amongst the choices given for each.
12.	The football match had to be _____ because of the rain. 1. put off 2. called off 3. turned off 4. switched off
13.	My house is insured _____ fire and theft. 1. for 2. against 3. in 4. towards
14.	You are lucky _____ in the twentieth century. 1. by being born 2. to have been born 3. for being born 4. to have born
15.	When the brakes, of the bus running at full speed, failed, an accident was _____. 1. fatal 2. undeniable 3. inevitable 4. miserable
	Directions (Questions 16 to 18). Find the correctly spelt word out of the four alternatives given below.
16.	1. Busisness 2. Business 3. Buisiness 4. Bussiness
17.	1. Farenhiet 2. Fahrenheit 3. Farenheit 4. Fahrenhiet
18.	1. Commettee 2. Committea 3. Committee 4. Commetee
	Directions (Questions 19 to 22). Four alternatives are given for the idiom/phrase. Choose the one which best expresses its meaning.
19.	A jack of all trades 1. A confident and not very serious young man. 2. Someone who has many skills 3. Someone who has hit the jackpot 4. a great businessman
20.	Fight tooth and nail 1. To quarrel with someone 2. To attack someone with a lot of force 3. Try hard to prevent something from happening 4. To try very hard to achieve something
21.	The gift of the gab 1. The ability to spoil something 2. The ability to sell things 3. Gift from a sacred institution 4. The ability to speak easily and confidently
22.	Walk a tightrope 1. To be forced to leave your job 2. To be ready to fall 3. To act very carefully 4. To invite danger

	Directions (Questions 23 to 25). In these questions, there are four alternatives for each of the given words. Choose the one which is opposite in meaning to it.
23.	Serene 1. placid 2. pleasing 3. turbulent 4. tranquil
24.	Dubious 1. shady 2. suspicious 3. trustworthy 4. doubtful
25.	Engrossed 1. occupied 2. engaged 3. absent 4. inattentive
	Directions (Questions 26 to 28). A part in the following sentences is underlined, which may or may not be correct. Improve the sentence by choosing one of the options. If no improvement is possible choose the option accordingly.
26.	It is high time that the company **revised** its policies. 1. had revised 2. should revise 3. would revise 4. no improvement
27.	**The more they earn, more they save.** 1. The more they earn, the more they save. 2. More they earn, more they save. 3. More they earn, the more they save. 4. No improvement
28.	Only when you left, **I did sleep**. 1. did I sleep 2. I slept 3. had I slept 4. no improvement
	Directions (Questions 29 to 30). Reorder P, Q, R, S to make meaningful sentences.
29.	For an hour (P) / because it had to wait (Q) / due to dense fog (R) / the plane couldn't take off (S) 1. PQRS 2. RQPS 3. QPRS 4. SPQR
30.	His uncle for success in life (P) / always advised his son (Q) / who was a self-made man (R) / to depend on his own efforts. (S) 1. SQPR 2. RQSP 3. PRSQ 4. QPSR
31.	Where should an object be placed in front of a convex lens to get a real image of the same size of the object? 1. At the principle focus of the lens 2. At twice the focal length 3. Between the optical centre of the lens and its principal focus 4. At infinity
32.	An electrical bulb is rated 220V and 100W. When it is operated on 110V, the power consumed will be 1. 100W 2. 75W 3. 50W 4. 25W
33.	Sound travels fastest in – 1. Steel 2. Air 3. Water 4. Vacuum
34.	Kinetic Energy refers to : 1. The energy of the body because of its position 2. The energy of the body because of its motion 3. The energy of the body because of its formation 4. None of the above
35.	Which one of the following types of medicines is used for treating indigestion ? 1. Antibiotic 2. Analgesic 3. Antacid 4. Antiseptic

36.	An element reacts with oxygen to give a compound with a high melting point. This compound is also soluble in water. The element is likely to be :
	1. Calcium 2. Carbon 3. Silicon 4. Iron
37.	Ethane, with the molecular formula C2H6 has
	1. 6 covalent bonds 2. 7 covalent bonds 3. 8 covalent bonds 4. 9 covalent bonds
38.	The kidneys in human beings are a part of the system for
	1. Nutrition 2. Excretion 3. Respiration 4. Transportation
39.	Which of the following is a plant hormone
	1. Insulin 2. Thyroxin 3. Oestrogen 4. Cytokinin
40.	Which of the following is not part of the female reproductive system in human beings
	1. Ovary 2. Uterus 3. Vas Deferens 4. Fallopian Tube
41.	Fossil fuel is an example of
	1. Non-renewable resource 2. Biotic resource 3. Renewable resource 4. National resource
42.	The demand of PurnaSwaraj (complete independence) was formalized during which session of the Indian National Congress –
	1. Belgaum session of 1924 2. Calcutta Session of 1928 3. Lahore Session of 1929 4. Karachi session of 1931
43.	The Salt March (Dandi March) marked the beginning of the –
	1. Attack on traders of British Goods 2. Boycott of civil services by Indians 3. Agitation of the farmers of the United Province 4. Civil Disobedience movement
44.	What is the main source of income of banks –
	1. Difference between the interests charged on borrowers and depositor 2. Interest on loans 3. Selling of collaterals of the loan defaulters 4. Interest earned on investments
45.	Which one of the following is INCORRECT about the Parliament of India?
	1. Parliament consists of President, Lok Sabha & Rajya Sabha 2. All bills originate in the Rajya Sabha 3. Rajya Sabha cannot be dissolved 4. Parliament controls all the money that governments have
46.	Gurudwara Hemkund Sahib is located in
	1. Sikkim 2. Himachal Pradesh 3. Punjab 4. Uttarakhand
47.	Palk Straits are between
	1. India and Sri Lanka 2. India and Bangladesh 3. India and Pakistan 4. India and Maldives
48.	Kaziranga National Park is located in –
	1. Assam 2. Arunachal Pradesh 3. Manipur 4. Mizoram
49.	Which of the following countries has the longest international boundary with India?
	1. Bangladesh 2. Bhutan 3. China 4. Pakistan
50.	Tulsidas wrote Ramcharitra Manas during the reign of –
	1. Jahangir 2. Rama Raya 3. Akbar 4. Krishna Dev Raya

SECTION II: MATHEMATICS

(50 Questions – 200 Marks; Minimum 50 Marks to Qualify; Minus 1 Mark for wrong every Answer)

51.	Two dice are thrown together. The probability of getting the difference of numbers on the upper face is equal to 2 is : 1. $\dfrac{5}{9}$ 2. $\dfrac{4}{9}$ 3. $\dfrac{1}{3}$ 4. $\dfrac{2}{9}$
52.	If the difference of mode and median of a data is 24, then the difference of median and mean is : 1. 12 2. 24 3. 8 4. 36
53.	If α and β are the zeroes of the polynomial $f(x) = px^2 - 2x + 3p$ and $\alpha + \beta = \alpha\beta$, then the value of p is : 1. $\dfrac{-2}{3}$ 2. $\dfrac{2}{3}$ 3. $\dfrac{1}{3}$ 4. $\dfrac{-1}{3}$
54.	If $\cos A = \dfrac{3}{5}$, then the value of $9 + 9\tan^2 A$ is : 1. 9 2. 16 3. 25 4. 34
55.	If for some angle θ, $\cot 2\theta = \dfrac{1}{\sqrt{3}}$, then value of $\sin 3\theta$, where $3\theta \leq 90°$, is : 1. $\dfrac{1}{\sqrt{2}}$ 2. 1 3. 0 4. $\dfrac{\sqrt{3}}{2}$
56.	In $\triangle ABC$ and $\triangle PQR$, we have AB = 4.5 cm, BC = 5 cm, CA = $6\sqrt{2}$ cm, PQ 10 cm, QR = 9 cm, PR = $12\sqrt{2}$cm. If $\angle A = 75°$, $\angle B = 55°$, then $\angle P =$ 1. 75° 2. 55° 3. 50° 4. 130°
57.	If the angles of elevation of a tower from two points **a** and **b** (a>b) from its foot and in the same straight line from it are 30° and 60°, then the height of the tower is : 1. ab 2. $\sqrt{ab}$ 3. $\dfrac{a}{b}$ 4. $\sqrt{\dfrac{a}{b}}$
58.	The price of an edible oil is increased by 25%. To maintain the budget, Ramanpreet reduces the consumption of this oil by 20%. The percentage increase in the expenditure due to this edible oil is:- 1. 0 2. 5 3. 2 4. 1
59.	The first term of an A.P. is p and the common difference is q, then its 10th term is : 1. q + 9p 2. p − 9q 3. p+ 9q 4. 2p + 9q
60.	The hour hand of a clock is 6 cm long. The area swept by it between 11.20 am and 11.55 am is: 1. 2.75 cm² 2. 5.5 cm² 3. 11 cm² 4. 10cm²
61.	The distance between the points ($a\cos\theta + b\sin\theta$, 0) and (0 , $a\sin\theta - b\cos\theta$) is : 1. a² + b² 2. a + b 3. a² − b² 4. $\sqrt{a2 + b2}$
62.	A girl calculates that the probability of her winning the first prize in a lottery is 0.06. If 8000 tickets were sold, then how many tickets she bought? 1. 420 2. 480 3. 840 4. 48
63.	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. $\dfrac{1}{10}$ 2. $\dfrac{1}{70}$ 3. $\dfrac{6}{10}$ 4. $\dfrac{11}{35}$
64.	The value of k for which the systems of equations $kx + y = k^2$ and $x + ky = 1$ has infinite many solutions is : 1. 1 2. 2 3. -1 4. 3

65.	If $\dfrac{\cos^2 20° + \cos^2 7\cdot 0}{(\sin^2 59° + \sin^2 51°)*2} = \dfrac{2}{k}$, then k is equal to						
	1. 3	2.	1	3.	2	4.	4
66.	A man goes 24 m due west and then 7 m due north. How far is he from the starting point:						
	1. 31 m	2.	17 m	3.	25 m	4.	26 m
67.	From a point Q , the length of the tangent to a circle is 24 cm and the distance of Q from the centre is 25 cm. the radius of the circle is :						
	1. 7 cm	2.	12 cm	3.	15 cm	4.	24.5 cm
68.	A fraction becomes 2/3 if 1 is added to both its numerator and denominator. Same fraction become 1/2 if 1 is subtracted both from its numerator; and denominator. The fraction is:-						
	1. 4/7	2.	¾	3.	3/5	4.	8/9
69.	If a sum of ₹ 275 is to be divided between Simran and Ravneet so that Simran gets ¾[th] more of what Ravneet gets, then the share of Simran will be ?						
	1. 100	2.	160	3.	175	4.	200
70.	The next term in an A.P. : $\sqrt{18}$, $\sqrt{50}$, $\sqrt{98}$, … , is :						
	1. $\sqrt{146}$,	2.	$\sqrt{128}$,	3.	$\sqrt{162}$	4.	200
71.	The number of solids spheres , each of diameter 6 cm that can be made by melting a solid metal cylinder of height 45 cm and radius 4 cm is :						
	1. 3	2.	5	3.	4	4.	6
72.	The probability of guessing the correct answer to a certain question is $\dfrac{a}{b}$. If the probability of not guessing the correct answer to this question is $\dfrac{2}{3}$, then						
	1. b=4a	2.	b=3a	3.	b=2a	4.	b=a
73.	If n is a natural number , then $9^{2n} - 4^{2n}$ is always divisible by						
	1. 5	2.	13	3.	both 5 and 13	4.	none of these
74.	The sum of ages of a daughter and her father is 56 years. After four years, the age of father will be three times that of the daughter. At present their ages are:						
	1. 10 years and 46 years		2.	12 years and 44 years			
	3. 11 years and 44 years		4.	13 years and 43 years			
75.	tan5°x tan30° x 4 tan 85° is equal to:						
	1. $\dfrac{4}{\sqrt{3}}$	2.	$4\sqrt{3}$	3.	1	4.	4
76.	The length of the hypotenuse of an isosceles right triangle whose one side is $4\sqrt{2}$ cm is:						
	1. 12 cm	2.	8 cm	3.	$8\sqrt{2}$ cm	4.	$12\sqrt{2}$ cm
77.	At one end A of a diameter AB of a circle of radius 5 cm, tangent XAY is drawn to the circle. The length of the cord CD parallel to XY at a distance of 8 cm from A is :						
	1. 4 cm	2.	5 cm	3.	6 cm	4.	8 cm
78.	The area of four walls of a room is 660 m2 and length is twice the width, height being 11 m. Find area of ceiling?:-						
	1. 200	2.	190	3.	220	4.	210
79.	The cost of 21 tables and 35 chairs is ₹ 41825. What is the cost of 9 tables and 15 chairs?						
	1. 17775	2.	17925	3.	18725	4.	18075

80.	If the difference between the circumference and radius of a circle is 37 cm , then using $\pi = \frac{22}{7}$, the circumference (in cm) of the circle is :
	1. 154 2. 44 3. 14 4. 7
81.	A solid consists of a circular cylinder surmounted by a right circular cone . The height of the cone is **h** . If the total volume of the solid is 3 times the volume of the cone , then the height of the cylinder is :
	1. $2h$ 2. $\frac{3h}{2}$ 3. $\frac{h}{2}$ 4. $\frac{2h}{3}$
82.	The mean of **n** observations is X. If the first term is increased by by 1, second by 2 and so on, then the new mean is :
	1. X+**n** 2. X+**n**/2 3. X +(**n+1**)/2 4. none of these
83.	A boy saves Rs 4.65 every day. The least number of days in which he will be able to save an exact number of rupees (whole number) is:
	1. 20 2. 24 3. 28 4. 30
84.	The value of $\sin^2 29° + \sin^2 61°$ is :
	1. 1 2. 0 3. $2\sin^2 29°$ 4. $2\cos^2 61°$
85.	If tan (A+B) = $\sqrt{3}$ and tan (A-B) = $\frac{1}{\sqrt{3}}$, A>B, then the value of A is:
	1. 30° 2. 45° 3. 60° 4. 90°
86.	Two poles of height 6 m and 11 m stand vertically upright on a plane ground. If the difference between their foot is 12 m , the distance between their tops is :
	1. 12 m 2. 14 m 3. 13 m 4. 11m
87.	The quadratic equation $2x^2 - \sqrt{5} x = 1 = 0$ has
	1. two distinct roots 2. two equal roots
	3. no real roots 4. more than 2 real roots
88.	A sum of ₹ 1250 is divided among A , B , C, so that A gets 2/9 of B' share and C gets ¾ of A'share. The share of C is :-
	1. ₹90 2. ₹75 3. ₹ 135 4. ₹150
89.	The ratio of income and expenditure of a person is 11 : 10. If he spares ₹ 9000 per annum, his monthly income is :-
	1. 9000 2. 8550 3. 8500 4. 8250
90.	If the perimeter of a square is equal to the perimeter of a circle , then the ratio of their areas is :
	1. 11 : 14 2. 22 : 13 3. 14 : 11 4. 13 : 22
91.	If the radius of the base of a right circular cylinder is halved , keeping the height the same , then the ratio of the volume of the cylinder thus obtained to the volume of the original cylinder is :
	1. 1 : 2 2. 2 : 1 3. 1 4 4. 4 : 1
92.	The decimal expansion of the natural number $\frac{1458\,7}{1250}$ will terminate after :
	1. one decimal place 2. two decimal place
	3. three decimal place 4. four decimal place
93.	$\frac{\sin\theta}{1-\cot\theta} + \frac{\cos\theta}{1-\tan\theta}$ is equal to :
	1. 0 2. 1 3. $\sin\theta + \cos\theta$ 4. $\sin\theta - \cos\theta$
94.	If **A** is an acute angle in a right triangle ABC, right angled at **B**, then the value of sinA + cosA is:
	1. Equal to 1 2. Greater than 1 3. Less than 1 4. 2

95.	If AM and PN are altitudes of $\triangle ABC$ and $\triangle PQR$ respectively. If $\triangle ABC \sim \triangle PQR$ and $AB^2 : PQ^2 = 4 : 9$, then AM : PN =
	1. 16 : 81 2. 4 : 9 3. 3 : 2 4. 2 : 3
96.	If $x = 0.2$ is a root of the equation $x^2 - 0.4k = 0$, then k =
	1. 1 2. 10 3. 0.1 4. 100
97.	A merchant blends two varieties of tea – one costing ₹ 160 per Kg and other costing ₹ 200 per Kg in the ratio 5 : 4 . He sells the blended variety at ₹ 192 per Kg. His profit percent is ?
	1. 8% 2. 12% 3. 9% 4. 10%
98.	The sum of first 16 terms of the A.P. : 10 , 6 , 2, …. , is
	1. -320 2. 320 3. -352 4. -400
99.	It is proposed to build a singular circular park equal in area to the sum of areas of two circular parks of diameter 16 m and 12 m in a locality. The radius of the new park would be :
	1. 10 m 2. 15 m 3. 20 m 4. 24 m
100.	The points A(9 , 0) , B (9 , 6) , C (-9 , 6) and D (-9 , 0) are the vertices of a :
	1. Square 2. Rectangle 3. Rhombus 4. Trapezium

(For Rough Work)

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