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

Marks : 500   **Jan 2025**   **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 **65 question** and **Section II** of **60 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

*(65 Questions – 260 Marks; Minimum **65 Marks** to Qualify; **Minus1 Mark** for every **wrong Answer**)*

Directions (Questions 1-5) : In these questions, out of the four alternatives, choose the one which best expresses the meaning of the word in bold.

1.	The eastern part of the country has always had a rather **lackadaisical** approach to development.
	(1) weak (2) listless (3) irrational (4) cautious

2.	His speeches were models of **brevity**.
	(1) lengthiness (2) crispness (3) permanence (4) exemplary

3.	They successfully **defused** the situation.
	(1) mitigated (2) mediated (3) activated (4) narrated

4.	He first **convulsed** and then collapsed on the floor.
	(1) shivered (2) crouched (3) shouted (4) cried

5.	He treats with **disdain** anyone who goes to him for help.
	(1) disgust (2) contempt (3) displeasure (4) insolence

Directions (Questions 6-10) : Four alternatives are given for the idiom/phrase. Choose the one which best expresses its meaning.

6.	Since he stumbled and fell against the cupboard, Armaan has been **walking on eggshells**.
	(1) Careful not to offend or upset others (3) Making a noisy entry
	(2) Walking with great care (4) Undertaking an uncomfortable journey

7.	The tension between the two political parties was the **elephant in the room** during the debate.
	(1) The important topic (3) The obvious problem that is being avoided
	(2) The unavoidable mind-set (4) The prized possession in the room

8.	I was hoping to get the job, but when I called, unfortunately **the ship had sailed**.
	(1) The matter was carried over. (3) The opportunity had passed.
	(2) The matter was decided. (4) There was another opportunity.

9.	I always **get the jitters** before I go on stage.
	(1) Feeling anxious (2) Stammering (3) Feeling happy (4) Feeling exposed

10.	I **take with a grain of salt** their arguments with regards to the freedom of the working classes.
	(1) To take with some reservation (3) To take with total disbelief
	(2) To take whole heartedly (4) To take seriously

Directions (Questions 11-15) : Each item in this section has four possible substitutions for the underlined part. Choose the one that can correctly replace the underlined words/phrases.

11.	He ought not to **tell** me your secret, but he did.
	(1) telling (2) having told (3) have told (4)had told

12.	He preferred death **rather than** imprisonment
	(1) for (2) to (3) than (4) then

13.	I would like **to avail** a fifteen days' holiday this summer.
	(1) to avail of (2) to avail myself of (3) to avail myself (4) avail myself with

14.	Swathi's mother died **because of** heart stroke.
	(1) due to (2) of (3) by (4) with

15.	Bananas are usually sold **in the dozen**.
	(1) by dozen (2) by the dozen (3) in dozen (4) to dozen

Directions (Questions 16-19) : 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 sad that in country after country, progress should become synonymous with an assault on nature. We, who are a part of nature and dependent on her for every need, speak constantly about 'exploiting' nature. When the highest mountain in the world was climbed in 1953, Jawaharlal Nehru objected to the phrase 'conquest of Everest' which he thought was arrogant. Is it surprising that this lack of consideration and the constant need to prove one's superiority should be projected on to our treatment of our fellowmen? I remember Edward Thompson, a British writer and a good friend of India, once telling Mahatama Gandhi that wildlife was fast disappearing. Remarked Mahatama Gandhi: 'It is decreasing in the jungles but it is increasing in the towns'.

On the one hand the rich look askance at our continuing poverty; on the other they warn us against their own methods. We do not wish to impoverish the environment any further and yet we cannot forget the grim poverty of large numbers of people. Are not poverty and need the great polluters? For instance, unless we are in a position to provide employment and purchasing power for the daily necessities of the tribal people and those who live in and around our jungles, we cannot prevent them from combing the forest for food and livelihood, from poaching and from despoiling the vegetation.

16.	At the beginning of the passage, the writer expresses her opinion that in many countries progress is synonymous with _____
	(1) development. (3) a balanced treatment of nature.
	(2) utmost care for nature. (4) utmost cruelty to nature.
17.	Nehru objected to the phrase 'conquest of Everest' since
	(1) it carries a war-like connotation. (3) it depicts Everest as a victim.
	(2) it sounds pompous and boastful. (4) Everest is unconquerable.
18.	Gandhi's statement 'It is decreasing in the jungles but it is increasing in the towns." refers to____
	(1) regretfulness. (3) destructive nature of man.
	(2) sarcasm. (4) greed of man.
19.	The writer is of the opinion that tribal people can be prevented from combing forest for food by
	(1) providing employment.
	(2) increasing purchasing power.
	(3) deterring them from poaching and despoiling vegetation.
	(4) providing employment and purchasing power for daily necessities.

Directions (Questions 20-23) : In following questions, there are four alternatives for each of the given words. Choose the one which is opposite in meaning to it.

20.	**IMPECCABLE**			
	(1) faulty	(2) tedious	(3) flashy	(4) boring
21.	**AFFINITY**			
	(1) empathy	(2) attraction	(3) preference	(4) aversion
22.	**ACQUIT**			
	(1) avoid	(2) escape	(3) condemn	(4) neglect
23.	**STARVATION**			
	(1) yielding	(2) fertile	(3) sustenance	(4) weakness

DIRECTIONS (Questions 24-27) : 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.

24.	outside of the United States / that is home to the biggest Microsoft research and development centre /
	P Q
	Nadella grew up in Hyderabad / a technology hub in India.
	R S
	(1) PQSR (2) RSQP (3) QSRP (4) PRSQ

25.	increasingly delayed / to be stuck in a departure lounge / while our flight is / why is it so boring
	P Q R S
	(1) PRSQ (2) RPQS (3) QPSR (4) SQRP
26.	All religions are to advance the cause of peace / in a holy partnership / justice and freedom / bound together
	P Q R S
	(1) PQRS (2) PRQS (3) SPQR (4) SQPR
27.	can express a view on / in which the electorate / a particular issue of public policy / a referendum is a vote
	P Q R S
	(1) SQPR (2) RPQS (3) QRSP (4) PQRS

DIRECTIONS (Questions 28-31) : 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.

28.	His actions had _____ pain and suffering on thousands of people.
	(1) affected (2) imposed (3) inflicted (4) deplored
29.	I'm playing tennis tomorrow unless _____ .
	(1) it rains (2) it doesn't rain (3) it rained (4) it may rain
30.	_____ sincere he would have got the prize.
	(1) Had he been (2) Has he been (3) He is (4) Would he have been
31.	The fire brigade fought for four hours to _____ the fire in the building.
	(1) put in (2) put out (3) put on (4) put off

DIRECTIONS: (Questions. 32-35) 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.

32.	(1) allegaince (2) alegiance (3) allegience (4) allegiance
33.	(1) camoflage (2) camoflague (3) camouflage (4) camouflag
34.	(1) hygene (2) hygiene (3) hygine (4) hygeine
35.	(1) questionaire (2) questionnaire (3) questionnair (4) questionniare
36.	The image formed by a concave mirror is observed to be virtual, erect and larger than the object, where should be the position of the object?
	(1) Between the principal focus and the centre of curvature (3) At the centre of curvature.
	(2) Between the pole of the mirror and its principal focus. (4) Beyond the centre of curvature.
37.	The change in focal length of an eye lens is caused by the action of the
	(1) Pupil (2) Retina (3) Ciliary muscles (4) Iris
38.	$Fe_2O_3 + 2Al \longrightarrow Al_2O_3 + 2Fe$
	The above reaction is an example of a
	(1) Combination reaction (3) Double displacement reaction
	(2) Decomposition reaction (4) Displacement reaction
39.	What happens when diluted hydrochloric acid is added to iron fillings? Tick the correct answer?
	(1) Hydrogen gas and iron chloride are produced (3) Chlorine gas and iron hydroxide are produced
	(2) No reaction takes place (4) Iron salt and water are produced
40.	A solution turns red litmus blue, its pH is likely to be
	(1) 1 (2) 4 (3) 5 (4) 10

41.	The xylem in plants are responsible for
	(1) Transport of water (3) Transport of food
	(2) Transport of Amino acids (4) Transports of oxygen
42.	The breakdown of pyruvate to give carbon dioxide, water and energy takes place in
	(1) Cytoplasm (2) Mitochondria (3) Chloroplast (4) Nucleus
43.	The kidneys in human beings are a part of the system for
	(1) Nutrition (2) Excretion (3) Respiration (4) Transportation
44.	Which of the following pairs will give displacement reactions?
	(1) NaCl solution and copper metal (3) $MgCl_2$ solution and aluminum metal
	(2) $FeSO_4$ solution and silver metal (4) $AgNO_3$ solution and copper metal
45.	Which of the following methods is suitable for preventing an iron frying pan from rusting?
	(1) Applying grease (3) Applying paint
	(2) Applying a coating of zinc (4) All of the above
46.	Food cans are coated with tin and not with zinc because?
	(1) Zinc is costlier than tin. (3) Zinc has a higher melting point than tin.
	(2) Zinc is more reactive than tin. (4) Zinc is less reactive than tin.
47.	Which of the following correctly describes the magnetic field near a long straight wire?
	(1) The field consists of straight lines perpendicular to the wire.
	(2) The field consists of straight lines parallel to the wire.
	(3) The field consists of radial lines originating from the wire.
	(4) The field consists of concentric circles centred on the wire.
48.	A piece of wire of resistance R is cut into five equal parts. These parts are then connected in parallel. If the equivalent resistance of this combination is R, then the ration R/R is –
	(1) 1/25 (2) 1/5 (3) 5 (4) 25
49.	The audible frequency range of hearing for an average human being is from about
	(1) 20 Hz to 2000 Hz (2) 0 Hz to 20 kHz (3) 20 Hz to 20 kHz (4) 0 Hz to 20 Hz
50.	In SONAR, we use :
	(1) Ultrasonic waves (2) Radio waves (3) Infrasonic waves (4) Audible sound waves
51.	Which one of the following is the main cause of land degradation in Punjab?
	(1) Intensive cultivation (2) Over irrigation (3) De-forestation (4) Overgrazing
52.	Which amongst the following is not a Tiger Reserve?
	(1) Corbett National Park (3) Sunderbans National Park
	(2) Bandhavgarh National Park (4) Kaziranga National Park
53.	Which one of the following is a Rabi Crop ?
	(1) Rice (2) Gram (3) Millet (4) Cotton
54.	Minerals are deposited and accumulated in the strata of which of the following rocks
	(1) Sedimentary Rocks (2) Metamorphic Rocks (3) Igneous rocks (4) None of the above
55.	Which of the following is **NOT** a characteristic of a federal system?
	(1) There are two distinct levels of government.
	(2) There is no separation of powers between the legislative and executive branches of government
	(3) The responsibilities and powers of each level of government are clearly defined in the written constitution
	(4) The Supreme Court is entrusted with the responsibility of interpreting these provisions and arbitrating in matters of dispute

56.	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
57.	Which among the following is **NOT** a basic structure of the Constitution of India?
	(1) Independence of Judiciary (3) Fundamental Rights
	(2) Federalism (4) Right of the Parliament to amend any part of the Constitution
58.	India has how many Union Territories?
	(1) 8 (2) 9 (3) 7 (4) 5
59.	The 33rd edition of the Summer Olympics was held in which city?
	(1) Paris (2) Moscow (3) New York (4) London
60.	The RTI Act of _____ is a landmark legislation passed by our Parliament. Under this Act, citizens can seek information from Government offices pertaining to different activities?
	(1) 2001 (2) 2005 (3) 2007 (4) 2000
61.	_____ is the first state in India which has made rooftop rainwater harvesting structures compulsory for all houses across the state.
	(1) Karnataka (2) Tamil Nadu (3) Maharashtra (4) Andhra Pradesh
62.	Which one of the following types of medicines is used for treating indigestion?
	(1) Antibiotic (2) Iris Analgesic (3) Antacid (4) Antiseptic
63.	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
64.	Identify the correct chronological sequence of the following:
	(1) Round Table Conferences (2) Quit India Movement
	(3) Formation of India National Congress (4) Nu Simon Commission
	Select the correct answer from the codes given below:
	(1) (iii), (ii), (iv), (i) (3) (iii), (iv), (i), (ii)
	(2) (iii), (iv), (ii), (i) (4) (i), (iv), (ii), (iii)
65.	Which one of the following in **NOT** correctly matched?
	(1) Prime Meridian 0°
	(2) Arctic Circle 66½°N
	(3) International Date Line 180°
	(4) Tropic of Cancer 23½°S

…………………………………….. **End of Section-1**……………………………..

SECTION II : MATHEMATICS

*(60 Questions – 240 Marks; Minimum **60 Marks** to Qualify; **Minus 1 Mark** for every **wrong Answer**)*

66.	Hundred cards marked with numbers 1 to 100 are placed in a box. If a card is selected randomly from the box, then the probability that the number on the card selected is perfect square is :
	(1) $\dfrac{1}{100}$ (2) $\dfrac{1}{25}$ (3) $\dfrac{1}{10}$ (4) $\dfrac{9}{10}$
67.	The mean and median of the data a, b, and c are 50 and 35 respectively, where $a < b < c$. If $c - a = 55$, then $b - a =$
	(1) 8 (2) 7 (3) 3 (4) 5
68.	If the perimeters of the bases of two right circular cones are in the ratio 3 : 4 and their volumes are in the ratio 9 : 32, then the ratio of their heights is :
	(1) 1 : 3 (2) 2 : 1 (3) 1 : 2 (4) 1 : 3
69.	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
70.	From a light house the angle of depression of two ships on opposite sides of the light house are observed to be 30° and 45°. If the height of the light house is h meters, the distance between the ships is :
	(1) $\left(\sqrt{3} + 1\right) h$ m (3) $\sqrt{3}\, h$ m
	(2) $\left(\sqrt{3} - 1\right) h$ m (4) $1 + \left(1 + \frac{1}{\sqrt{3}}\right) h\, m$
71.	If $\sqrt{3} \cot^2 \theta - 4 \cot \theta + \sqrt{3} = 0$, then value of $3\left(\cot^2 \theta + \tan^2 \theta\right)$ is :
	(1) 15 (2) 7 (3) 10 (4) 4
72.	There is a circular path around a sports field. Sonia takes 18 mins to drive one round of the field, while Ravi takes 12 mins for the same. Suppose they both start at the same point and at the same time and go in the same direction, after how many minutes will they meet again at the starting point?
	(1) 18 (2) 36 (3) 24 (4) 15
73.	Rani and Maya are very close friends. They decided to go to Amritsar with their families in separate cars. Rani's car travels x km/hr while Maya's car travels *5km/hr* faster than Rani's car. Rani took 4 hours more than Maya to complete journey of 400 km. The speed of Maya's car is (in Km/hr) :
	(1) 25 (2) 20 (3) 30 (4) 15
74.	Kiran wants to participate in a 200 m race. She can currently run that distance in 51 seconds and with each practice session it takes her 2 seconds less. She wants to do it in 31 seconds. The minimum number of days she needs to practice to achieve the goal is :
	(1) 10 (2) 12 (3) 11 (4) 9
75.	If the point (k, 0) divides the line segment joining the points A (2, -2) and B (-7, 4) is in the ratio 1 : 2, then the value of k is :
	(1) 1 (2) 2 (3) -2 (4) -1
76.	The average marks of 42 students in an examination are 69. The ratio between the boys and girls is 10 : 11 The average marks of boys are 20% more than that of girls . Find the average marks of boy.
	(1) 75.6 (2) 73.5 (3) 82.8 (4) 75.2
77.	A bag contains 5 red balls and n green balls. If the probability of drawing a green ball is three times that of a red ball, then the value of n is :
	(1) 18 (2) 15 (3) 10 (4) 20

78.	If for a data, Mean : Median = 9 : 8, then Median : Mode =			
	(1) 8 : 9	(2) 4 : 3	(3) 7 : 6	(4) 5 : 4
79.	If a solid sphere with total surface area 48 cm^2 is bisected into two hemispheres, then the total surface area of any one of the hemisphere is :			
	(1) 48 cm^2	(2) 60 cm^2	(3) 24 cm^2	(4) 36 cm^2
80.	The circumference of a circle is 100 cm. The side of square inscribed in the circle in cm is :			
	(1) $50\sqrt{2}$	(2) $\dfrac{100}{\pi}$	(3) $\dfrac{50\sqrt{2}}{\pi}$	(4) $\dfrac{100\sqrt{2}}{\pi}$
81.	If $1 + \sin^2\theta = 3\sin\theta\cos\theta$, then $\tan\theta$ can take values :			
	(1) $1, \dfrac{1}{2}$	(2) 1, 2	(3) $\dfrac{1}{2}, 2$	(4) None of these
82.	Mira on her birthday decides to serve fruits to her friends. She had 60 bananas, 36 apples and 42 mangoes which are to be distributed equally among all. How many maximum friends she can invite?			
	(1) 12	(2) 6	(3) 8	(4) 180
83.	The speed of a motorboat is 20 km/hr. For covering the distance of 15 km the boat took 1 hour more for upstream than downstream. The speed of water current is :			
	(1) 20 km/hr	(2) 10 km/hr	(3) 25 km/hr	(4) 25 km/hr
84.	Reetika wants to buy a car and plans to take loan from a bank to buy the car. She pays her total loan of ₹ 1,180,000/- by paying every month starting with the first instalment of ₹ 10,000/-. If she increases the instalment by ₹ 1000/- every month, the amount paid by Reetika in 30 instalments is :			
	(1) ₹ 370,000	(2) ₹ 735,000	(3) ₹ 753,000	(4) ₹ 750,000
85.	A man spends $\dfrac{2}{5}$ of his salary on house rent, $\dfrac{3}{10}$ of his salary on food and $\dfrac{1}{8}$ of his salary on conveyance. If he has ₹ 1400/- left with him, then his expenditure on food is :			
	(1) ₹ 2800/-	(2) ₹ 3200/-	(3) ₹ 2400/-	(4) ₹ 2500/-
86.	Father is nine times as old as his son and the mother is eight times as old as the son. The sum of father's age and mother's age is 51 years. What is the age of the son?			
	(1) 7 years	(2) 5 years	(3) 3 years	(4) 4 years
87.	The probability of selecting a bad apple in a box of 500 apples is 0.03. The total number of bad apples are :			
	(1) 10	(2) 30	(3) 15	(4) 45
88.	The mean of n observations is $\bar{x}$. If the first observation is increased by 1, the second by 2 the third by 3, and so on, then the new mean is :			
	(1) $\bar{x} + \dfrac{(n+1)}{2}$	(2) $\bar{x} + (2n+1)$	(3) $\bar{x} + (n+1)$	(4) $\bar{x} - \dfrac{(n+1)}{2}$
89.	If the diameter of a sphere is 6 cm. It is melted and drawn into a wire of diameter 2 mm. The length of the wire is :			
	(1) 36 m	(2) 32 m	(3) 38 m	(4) 34 m
90.	It is proposed to build a single circular park equal in area to 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
91.	If for some angle θ, $\cot 2\theta = \dfrac{1}{\sqrt{3}}$, then the value of $\sin 3\theta$, where $3\theta \le 90^\circ$, is :			
	(1) $\dfrac{1}{\sqrt{2}}$	(2) 1	(3) 0	(4) $\dfrac{\sqrt{3}}{2}$

92.	The value of expression $\dfrac{(\cos^2(45°-\theta)+\cos^2(45°+\theta))}{(\tan^2(30°-\theta)\cot^2(60°+\theta))}$ is equal to :
	(1) 1 (2) $\sqrt{3}$ (3) $\dfrac{1}{\sqrt{3}}$ (4) 2
93.	The number of real roots of the equation $x^2 - 3\,|\,x\,|\,+ 2 = 0$, is :
	(1) 4 (2) 3 (3) 2 (4) 1
94.	A and B can together complete a piece of work in 6 days. A takes 5 days less than B to finish the work alone. Then the number of days taken by B to complete the work alone is :
	(1) 20 (2) 15 (3) 5 (4) 10
95.	Deepika decided to donate 5% of her salary. On day of the donation, she changed her mind and donated ₹ 1687.50, which was 75% of what she had decided earlier. How much is Deepika's salary?
	(1) ₹ 33,750/- (2) ₹ 37,500/- (3) ₹ 45,000/- (4) ₹ 47,500/-
96.	A number was chosen at random from first 300 three-digit natural numbers. The probability that the selected number has zero at unit's place is :
	(1) $\dfrac{1}{15}$ (2) $\dfrac{1}{25}$ (3) $\dfrac{1}{10}$ (4) $\dfrac{1}{20}$
97.	The mean of first n odd natural numbers is $\dfrac{n^2}{81}$, then n is :
	(1) 9 (2) 81 (3) 27 (4) 18
98.	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 circular cylinder is :
	(1) $2h$ (2) $\dfrac{3}{2}h$ (3) $\dfrac{h}{2}$ (4) $\dfrac{2h}{3}$
99.	It is found that on walking x meters towards a chimney in a horizontal line through it's base, the elevation of the top changes from 30° to 60° . The height of the chimney is :
	(1) $3\sqrt{2}\,x$ (2) $2\sqrt{3}\,x$ (3) $\dfrac{\sqrt{3}}{2}\,x$ (4) $\dfrac{2}{\sqrt{3}}\,x$
100.	If $\tan\theta = \dfrac{4}{5}$, then the value of $\dfrac{5\sin\theta - 2\cos\theta}{5\sin\theta + 2\cos\theta}$ is :
	(1) $\dfrac{1}{3}$ (2) $\dfrac{2}{5}$ (3) $\dfrac{3}{5}$ (4) 6
101.	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
102.	If α and β are the zeroes of the polynomial $x^2 - (k+6)x + 2(2k-1)$ such that $\alpha + \beta = \dfrac{\alpha\beta}{2}$, then the value of the k is :
	(1) 6 (2) 2 (3) 14 (4) 7
103.	If the ratio of 18th term to 11th term of an A.P. is 3 : 2 , then the ratio of the 21st term to 5th term is :
	(1) 3 : 2 (2) 3 : 1 (3) 1 : 3 (4) 2 : 3
104.	The distance between the points $(a\cos\theta + b\sin\theta , 0)$ and $(0, a\sin\theta - b\cos\theta)$ is :
	(1) $a^2 + b^2$ (2) $a + b$ (3) $a^2 - b^2$ (4) $\sqrt{a^2 + b^2}$
105.	A shopkeeper purchased 80 kg of sugar at ₹ 13.50 per kg and mixed it with 120 kg sugar at ₹ 16.0 per kg. At what rate should he sell the mixture to gain of 16%?
	(1) ₹ 15.40 per kg (2) ₹ 20 per kg (3) ₹ 17.40 per kg (4) ₹ 13.40 per kg

106.	A trader purchases a watch and a wall clock for ₹ 390/-. He sells them making a profit of 10% on the watch and 15% on wall clock. He earns a profit of ₹ 51.50. The difference between the original price of wall clock and the watch is equal to :
	(1) ₹ 80/- (2) ₹ 100/- (3) ₹ 110/- (4) ₹ 120/-
107.	Two dices are thrown together. The probability of getting the difference of numbers on their upper faces equal to 2, is :
	(1) $\frac{5}{9}$ (2) $\frac{4}{9}$ (3) $\frac{1}{3}$ (4) $\frac{2}{9}$
108.	Mean of certain number of observations is $\bar{x}$. if each observation is divided by m *(m not equal to zero)* and increased by n, the mean of new observation is :
	(1) $\frac{\bar{x}}{m} + n$ (2) $\frac{\bar{x}}{n} + m$ (3) $\bar{x} + \frac{n}{m}$ (4) $\bar{x} + \frac{m}{n}$
109.	The number of solid spheres, each of diameter 6 cm that can be made by melting a solid metal cylinder of height 45 cm and diameter 4 cm is :
	(1) 3 (2) 5 (3) 4 (4) 6
110.	The tops of two poles of height 20 m and 14 m are connected by a wire. If the wire makes an angle of 30° with the horizontal, then the length of the wire is :
	(1) $12\,m$ (2) $10\,m$ (3) $8\,m$ (4) $6\,m$
111.	sin 2A = 2 sin A is true when A =
	(1) $0\,°$ (2) $30\,°$ (3) $45\,°$ (4) $60\,°$
112.	The decimal expansion of a rational number $\frac{327}{8 \times 5}$ terminates after k decimal places , then value of k is :
	(1) $k = 1$ (2) $k = 2$ (3) $k = 3$ (4) $k > 3$
113.	If the polynomial $f(x) = 2x^3 - kx^2 + 5x + 9,$ is exactly division by $x + 2,$ then k :
	(1) $\frac{17}{4}$ (2) $-\frac{17}{4}$ (3) $-\frac{15}{4}$ (4) $\frac{15}{4}$
114.	The sum of n terms of the series $\sqrt{3} + \sqrt{12} + \sqrt{27} + \sqrt{48} +$…….is :
	(1) $\frac{2n(n+1)}{\sqrt{3}}$ (2) $\frac{\sqrt{3}\,n(n-1)}{2}$ (3) $\frac{\sqrt{3}\,n(n+1)}{2}$ (4) $\frac{2n(n-1)}{\sqrt{3}}$
115.	If A (x,2), B (-3,-4) and C (7, -5) are collinear , then the value of x is :
	(1) -63 (2) 63 (3) 60 (4) -60
116.	If $\frac{4}{5}$ of an estate is worth ₹ 16,800/-, then the value of $\frac{3}{7}$ of the estate is :
	(1) ₹ 9000/- (2) ₹ 21,000/- (3) ₹ 72,000/- (4) ₹ 90,000/-
117.	The length of a rectangular classroom is 8 m more than its breadth. If the length is increased by 7m and its breadth is increased by 4m, its area remains unchanged. The length and breadth of the rectangular blackboard is :
	(1) 24m, 16m (2) 20m, 24m (3) 28m, 16m (4) 28m, 20m
118.	The probability of selecting a consonant from the letters of the word "**TRIANGLE**" is :
	(1) $\frac{2}{7}$ (2) $\frac{3}{8}$ (3) $\frac{5}{8}$ (4) $\frac{1}{8}$
119.	The edge of a cube whose volume is equal to that of a cuboid of dimensions 8 cm x 4 cm x 2 cm is :
	(1) 6 cm (2) 4 cm (3) 2 cm (4) 6 cm

120.	If a 1.5 m tall girl stands at a distance of 3 m from a lamp post and casts a shadow of length 4.5 m on the ground, then the height of the lamp post is :
	(1) 1.5 m (2) 2 m (3) 2.5 m (4) 2.8 m
121.	If cos A = $\frac{3}{5}$, then the value of $9 + 9\tan^2 A$ is :
	(1) 9 (2) 16 (3) 25 (4) 34
122.	$\sqrt{5} + \sqrt{3} + 2$ is :
	(1) A natural number (3) A rational number
	(2) An integer (4) An irrational number
123.	If a_p be the pth term of A.P. 3, 15, 27, …., such that $a_p - a_{50} = 180$, then p :
	(1) 68 (2) 65 (3) 66 (4) 67
124.	If the coordinates of one end of a diameter of a circle are (2, 3) and the coordinates of the 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)
125.	At Shimla, starting at 8.00 AM on a certain day, snow began to fall at a rate 1¼ inches every two hours until 2.00 PM. If there was already 2¼ inches of snow on ground at 9.00 AM, how many inches of snow was on the ground at 2.00 PM that day?
	(1) 3¼ (2) 6 (3) 7 (4) 6½

…………………………….. End of Section-II……………………………..

Space for Rough Work

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