MAHARAJA RANJIT SINGH AFPI

Marks: 400   **Time: 2 hours**

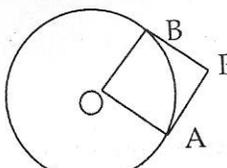|	
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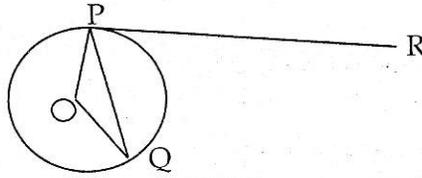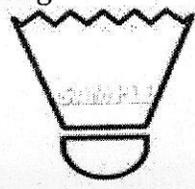## INSTRUCTIONS FOR THE CANDIDATES

1	Before attempting the paper carefully read out 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 [Section-I Mathematics (1-50); Section –II English (51–100)].** In case of any discrepancy the candidate should immediately report the matter to the invigilator for replacement of Test Booklet. No claim in this regard will be entertained at the 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 Test 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 code is indicated therein, it will be deemed to be an incorrect booklet code & Answer Sheet will not be evaluated. The candidate himself 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 consists of 8 pages containing 100 questions.** Against each question four alternative choices (1), (2), (3), (4) are given, out of which one is correct. Indicate your choice of answer by darkening the suitable circle with **BLACK/BLUE pen** in the OMR Answer Sheet supplied to you separately. **Note:** In case you feel there is more than one correct answer, choose the best one.
6	The maximum marks are **100.** Each question carries 4 mark. Candidate will be awarded 4 marks each for correct answer and 1 mark each will be deducted for incorrect answer. No deduction will be made if no answer is indicated. More than one answer indicated against a question will be deemed as incorrect response and will be negatively marked.
7	Do not fold or make any stray marks on the OMR Answer Sheet. Any stray mark or smudge on the OMR Answer Sheet may be taken as wrong answer. Any damage to OMR Answer Sheet may result in disqualification of the candidate.
8	On completion of the test, candidate must hand over the OMR Answer Sheet to the invigilator on duty in the room/hall.
9	Use of Mobile phones and calculators etc. are not allowed.
10	Keep all your belongings outside the Examination hall. Do not retain any paper except the ADMIT CARD.

Section I: Mathematics

1	The value of y which satisfies $\frac{x}{a} = \frac{y}{b}$ and $ax+by = a^2+b^2$ is:-
	(1) b (2) a (3) ab (4) $\frac{b}{a}$
2	if $x=1-\sqrt{2}$ then the value of $x - \left(\frac{1}{x}\right)$ will be
	(1) 2 (2) $2\sqrt{2}$ (3) 3 (4) $3\sqrt{2}$
3	If the diameter of a protractor is 17 then its perimeter is
	(1) 306/7 (2) 300/7 (3) 392/7 (4) 300
4	The value of $(\sqrt[6]{27} - \sqrt{6\frac{3}{4}})^2$ is
	(1) $\frac{3}{4}$ (2) $\frac{3}{2}$ (3) $\sqrt{3}/4$ (4) $\sqrt{3}/2$
5	Write whether $\dfrac{2\sqrt{45} + 3\sqrt{20}}{2\sqrt{5}}$ on simplification gives :-
	(1) None of these (2) Two decimal place
	(3) Three decimal place (4) Four decimal place
6	The distance between the points $(a \cos 25^\circ, 0)$ and $(0, a\cos65^\circ)$ is :-
	(1) 2a (2) a (3) 3a (4) 5a
7	If $\frac{37}{13} = 2 + \cfrac{1}{x + \cfrac{1}{y + \frac{1}{z}}}$ where x,y,z are natural numbers, then x,y,z are
	(1) 3,7,1 (2) 1,5,2 (3) 3,7,5 (4) 2,7,5.
8	The diameter of the driving wheel of a bus is 140cm. How many revolutions per min. must the wheel make in order to keep a speed of 66km per hour?
	(1) 200 (2) 250 (3) 210 (4) 240
9	*Solve the following equation*
	$\frac{x}{a}\cos\theta + \frac{y}{b}\sin\theta = 1$, $\frac{x}{a}\sin\theta - \frac{y}{b}\cos\theta = 1$
	(1) $x^2+y^2=a^2+b^2$ (2) $x^2/a^2+y^2/b^2=2$
	(3) $a^2x^2+b^2y^2=1$ (4) $x^2 - y^2=a^2 - b^2$
10	Study the following carefully
	N5@D2K%1PMA9F7E1©W3$16#USTH4*J
	How many such numbers are there in the above arrangement each of which is immediately preceding by a consonant and immediately followed by a symbol?
	(1) None (2) three (3) two (4) one
11	Without actually calculating the cubes find the value of $55^3 - 25^3 - 30^3$
	(1) 12340 (2) 124750 (3) 123750 (4) 12345
12	If the width of the rectangle is increased by 25% while the length remains constant, the resulting area is what % of original area?
	(1) 35% (2) 65% (3) 125% (4) 175%
13	Sachin rent a car for "d" days. He pays Rs.r/day for each of the first 7 days and half the rate for each additional day. Find the total charges if d>7?
	(1) r+2r(d-7) (2) r+r (d-7) (3) 7r+(r/2) (d-7) (4) 7r-r (d-7)
14	How many times between 3 & 6 o'clock will the hands of a clock coincide?
	(1) Five times (2) two times (3) three times (4) four times
15	The distance between the points $(0,0)$ and $(a \cos\theta + b \sin\theta, a\sin\theta - b\cos\theta)$ is
	(1) $\sqrt{a-b}$ (2) $\sqrt{a^2 - b^2}$ (3) $\sqrt{a^2 + b^2}$ (4) none

16	On what dates of Dec 1994 did Wednesday fall?
	(1) 8th,15th,22nd,29th (2) 7th,14th,21st,28th
	(3) 6th,13th,20nd,29th (4) 1st,8th,15th,22nd
17	If α,s are the zeroes of $p(x)=2x^2 - 5x+7$, Write a polynomial with zeroes $2\alpha+3s$ and $3\alpha+2s$.
	(1) $k(x^2+\frac{25}{2}x -41)$ (2) $k(x^2-\frac{25}{2}x-47)$
	(3) $k(-x^2-\frac{25}{2}x - 41)$ (4) $k(x^2-\frac{25}{2}x +41)$
18	If a right triangle has hypotenuse "p"cm and one side "q"cm and if p-q=1, find the length of third side.
	(1) $\sqrt{2p+1}$ (2) $\sqrt{p-2}$ (3) $\sqrt{p+2}$ (4) $\sqrt{2p-1}$
19	If "A" is the area of a right traingle and "b" is one of the side containing one of the right angle then the length of the altitude on the hypotenuse is
	(1) $\frac{Ab}{\sqrt{b^4+4A^2}}$ (2) $\frac{2Ab}{\sqrt{b^4+A^2}}$ (3) $\frac{2Ab}{\sqrt{b^4+2A^2}}$ (4) $\frac{2Ab}{\sqrt{b^4+4A^2}}$
20	ABCD is a trapezium in which AB||CD. AB=15cm, BC=6cm, CD=7cm and AD=4cm. Find 2cosA+3cosB.
	(1) 0 (2) 1 (3) 2 (4) 4.
21	Using the formula A= p + p r t, find A, when p=500, r=0.04 and t = 5/2
	(1) 550 (2) 600 (3) 650 (4) 700
22	If a number x is selected at random from the numbers -3, -2,-1, 0,1,2,3. What is the probability that $x^2 < 4$?
	(1) 1/7 (2) 3/7 (3)2/7 (4) 4/7
23	Which set of the three letters can be added to the following to form the word? BL, REMA, TAMAR, BEH, GR, K
	(1) OCK (2) AST (3) IND (4) UEF
24	How many meaningful words can be formed by replacing only the consonants in the word "BREAK" by the next letter in the English alphabet and keeping the vowel unchanged.
	(1) One (2) Four (3) Three (4) Two
25	Sam walked 30mts towards west took a left turn and walked 20mts. He again took a left turn and walked 30mts. He then took a right turn and stopped. Toward which direction was he facing when he stopped?
	(1) South (2) North (3) East (4) None above these
26	Pointing to a man in a photograph Reeta said, "Her mother's only daughter is my mother". How is Reeta related to that man?
	(1) Niece (2) Granddaughter (3)Wife (4) Sister
27	If the operation ▫ is defined by x▫y=$\sqrt{xy}$ for all positive numbers x and y then (5 ▫ 45) ▫ 60 is equal to
	(1) 30 (2) 45 (3) 60 (4) $30\sqrt{15}$
28	A number is increased by 25% and then decreased by 20%, the result is what percent of original number?
	(1) 75% (2)100% (3) 110% (4) 125%
29	3 1 4 5 4 7 2 8 A 38 81 74 Find the value of A?
	(1) 3 (2) 6 (3) 9 (4) 7
30	The equation $\sqrt{(x+1)} - \sqrt{(x-1)} = \sqrt{(4x-1)}$ has
	(1) one solution (2) No solution (3) two solutions (4) more than two solution

31	Find the sum of n terms of the series $(1 - 1/n) + (1 - 2/n) + (1 - 3/n) + \text{-----}$
	(1) $\frac{n+1}{2}$ (2) $\frac{n}{2}$ (3) $\frac{n-1}{2}$ (4) $\frac{n}{2} - 1$
32	Find the relation between a,b and c. such that one root of the quadratic equation $ax^2 + bx + c = 0$ is double the other.
	(1) $2a^2 = 9bc$ (2) $b^2 = 9ac$ (3) $2c^2 = 9ab$ (4) $2b^2 = 9ac$
33	Find the value of the expression $\dfrac{\sec^2\theta - \sin^2\theta - 2\sin^4\theta}{2\cos^4\theta - \cos^2\theta}$,
	(1) $\sec^2\theta$ (2) 1 (3) $\cos^2\theta$ (4) 0
34	In $\triangle ABC$, BC = 6cm, AB = 8cm, angle ABC = 90°, the radius of the incircle of triangle is
	(1) 1 cm (2) 2cm (3) 3cm (4) 4cm
35	π is _____
	(1) Ratio of circumference and radius (2) Ratio of circumference and diameter
	(3) Ratio of area and diameter (4) Ratio of area and radius
36	The value of A,B,C,D,E,F,G,H and I for (A B C) × (D E F) = GHI will be
	(1) (6,5,7 × 8,2,6 = 1,8,4) (2) (1,2,3 × 4,5,6 = 7,8,9)
	(3) (4,6, 7 ×8, 5, 7 = 0,8,9) (4) (1,0,3 × 7,8,4 = 2,1,0)
37	If the H.C.F of 200 and 50 can be expressed in the form 200x50+50Z then find Z
	(1) 200 (2) -199 (3) 199 (4) 210
38	If two perpendicular tangents are drawn from one external point to a circle of radius 3cm, angle P = 90° then find the length of tangents.
	(1) 1 (2) 2 (3) 3 (4) 4
39	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
40	If the product of zero of the polynomial $P(x) = ax^3 - 6x^2 + 11x - 6$ is 4 then a=
	(1) $\frac{2}{3}$ (2) $-\frac{3}{2}$ (3) $\frac{3}{2}$ (4) $-\frac{2}{3}$
41	The value of K, for which the system of equations x+2y-3=0 and 5x+Ky+7=0 has no solution.
	(1) 3 (2) 6 (3) 10 (4) 1
42	If A,B,C are the interior of a triangle ABC prove that $\tan\frac{B+C}{2} =$ _____
	(1) $\sin\frac{A}{2}$ (2) $\tan\frac{A}{2}$ (3) $\cot\frac{A}{2}$ (4) $\cos\frac{A}{2}$
43	The mean of "n" observation is x. If the first observation is increased by 1, the second by 2 and third by 3 and so on then the new mean is
	(1) x+ (2n +1) (2) $x - \frac{n+1}{2}$ (3) x + (x+1) (4) $x + \frac{n+1}{2}$
44	If one root of the equation $4x^2 - 2x + (\lambda - 4) = 0$, then the reciprocal of the other than λ is
	(1) -4 (2) -8 (3) 4 (4) 8
45	The first and last terms of an AP are 1 and 11. If the sum of its term is 36 then the number of term will be
	(1) 5 (2) 8 (3) 7 (4) 6
46	If four numbers in AP are such that their sum is 50 and the greatest number is 4 time the least, then the numbers are
	(1) none of these (2) 4,10, 16, 22 (3) 3,7,11,15 (4) 5,10, 15, 20

47	In figure, if PR is tangent to the circle at P, O is the center and angle RPQ=60°. Find angle POQ?
	(1) 110° (2) 100° (3) 120° (4) 90°
48	From the well shuffled pack of cards find the probability of getting red clubs.
	(1) $\frac{3}{52}$ (2) $\frac{26}{52}$ (3) $\frac{0}{52}$ (4) $\frac{13}{52}$
49	The shuttle cock used for playing badminton has the shape of a frustum of a cone mounted on a hemisphere as shown in the fig. The external diameter of the frustum are 5cm and 2cm, the height of the entire shuttle cock is 7cm, find its slant height.
	(1) 6.2 cm (2) 6.0 cm (3) 6.18 cm (4) 6.34 cm
50	If $a\cos\theta - b\sin\theta = c$, $a\sin\theta + b\cos\theta = A$, find value of A.
	(1) $\pm\sqrt{(a^2 + b^2 + c^2)}$ (2) $\pm\sqrt{(a^2 - b^2 - c^2)}$
	(3) $\pm\sqrt{(a^2 + b^2 - c^2)}$ (4) none of these

Section II: English

51	Choose the word closest in meaning for
	Inebriated
	(1) Inexperienced (2) tired (3) befuddled (4) intoxicated
52	Choose the word closest in meaning for
	Heinous
	(1) unlawful (2) extremely wicked (3) punishable (4) uncountable
53	Choose the word closest in meaning for
	Delineate
	(1) Expand (2) portray (3) explain (4) review
54	Choose the word farthest in meaning for
	Admonition
	(1) warning (2) threat (3) fear (4) request
55	Choose the word farthest in meaning for
	Turbulent
	(1) boiling (2) tranquil (3) disturbing (4) comfortable
56	Choose the word farthest in meaning for
	Fledgling
	(1) young (2) expert (3) fleeing (4) internal
57	**Choose the misspelt word**
	(1) episodic (2) gaiety (3) harbingar (4) intellectual
58	**Choose the misspelt word**
	(1) soulfull (2) melodic (3) contemporary (4) applause
59	**Choose the misspelt word**
	(1) cosmonaut (2) heightened (3) peperred (4) catapult
60	**Choose the most suitable word**
	A person who hates mankind
	(1) iconoclast (2) misanthrope (3) miser (4) bigot
61	**Choose the most suitable word**
	Talking disrespectfully of sacred things is called
	(1) blasphemy (2) heresy (3) atheism (4) apostasy

62	**Choose the most suitable word**
	Fear of being enclosed in a small closed space
	(1) agoraphobia (2) claustrophobia (3) xenophobia (4) paranoia
63	**Choose the most appropriate word**
	A _____ maze of tunnels and trenches provided shelter during the bombardments
	(1) sevile (2) senile (3) sedentary (4) serpentine
64	**Choose the most appropriate word**
	The school alumini gathering put us in a _____ mood
	(1) remniscent (2) reminisent (3) reminiscent (4) reminiscent
65	**Choose the most appropriate word**
	Do women _____ leadership differently than men do?
	(1) undertake (2) impose (3) exercise (4) authorize
66	**Choose the meaning of the idiom**
	To have eyes at the back of head
	(1) be double faced (2) have a pair of specs (3) very wise (4) very alert
67	**Choose the meaning of the idiom**
	To give a wide berth to
	(1) publicity to (2) publicly condemn (3) keep away from (4) not sympathise with
68	**Choose the meaning of the idiom**
	Talk a mile a minute
	(1) talk a lot (2) chatter continuously & quickly (3) talk nonsense (4) chatter anyway
69	**Complete the sentence using a suitable choice**
	Millionaire is related to wealth in the same way as genius is related to
	(1) capability (2) smartness (3) intelligence (4) awareness
70	**Complete the sentence using a suitable choice**
	Fan is related to the air in the same way as stove is related to
	(1) cook (2) kerosene (3) heat (4) boil
71	**Complete the sentence using a suitable choice**
	Storey is related to building in the same way as rung is related to
	(1) ladder (2) floor (3) elevator (4) steps
72	**Complete the sentence using the correct phrasal verb**
	He was not called for the interview as his application had been ___
	(1) turned out (2) turned down (3) turned off (4) turned away
73	**Complete the sentence using the correct phrasal verb**
	This photo clearly ___ the difference between the two sisters
	(1) brings about (2) brings in (3) brings up (4) brings out
74	**Complete the sentence using the correct phrasal verb**
	_____ expectations , it did not rain at all during October this year
	(1) according to (2) agreeing with (3) contrary to (4) prior to
75	**Complete the sentence using the correct connector**
	We would be inclined to welcome the policy changes, _____ they are made with careful deliberation.
	(1) since (2) nevertheless (3) if (4) then
76	**Complete the sentence using the correct connector**
	We judge ourselves by our thoughts, _____ others judge us by our actions.
	(1) when (2) because (3) whereas (4) lest
77	**Complete the sentence using the correct connector**
	I doubt whether the accommodation in that place is adequate _____ our needs.
	(1) According to (2) with (3) against (4) for
78	**Choose the option which completes the meaning of the sentence**
	The white walls create the_____ that the room is very large.
	(1) Illusion (2) allusion (3) elusion (4) exclusion
79	**Choose the option which completes the meaning of the sentence**
	He predicted the earthquake was_____
	(1) eminent (2) imminent (3) prominent (4) pertinent
80	**Choose the option which completes the meaning of the sentence**
	Do you have _____ to the library?
	(1) access (2) excess (3) axis (4) permit

81	**The following sentence is divided into four parts (1,2,3,4) one of which might contain an error. Spot the error and mark that part of sentence as answer.** In order to (1)/ conserve valuable petrol, motorists had aught (2)/ check their speedometers while (3)/ driving along the highway (4)
82	**The following sentence is divided into four parts (1,2,3,4) one of which might contain an error. Spot the error and mark that part of sentence as answer.** There have been little (1)/ change in the patient's condition since (2)/ he was moved (3)/ to the intensive care unit (4)/
83	**The following sentence is divided into four parts (1,2,3,4) one of which might contain an error. Spot the error and mark that part of sentence as answer.** He told the members (1)/ of the staff that (2)/ each one should carry out (3)/ his task oneself (4)
84	**The following sentence is divided into four parts (1,2,3,4) one of which might contain an error. Spot the error and mark that part of sentence as answer.** He laid (1)/ for an hour (2)/ in an unconscious state until (3)/ a police man picked him up (4)
	Read the passage and answer the questions 85 to 89 that follow *The first and decisive step in the expansion of Europe overseas was the conquest of the Atlantic Ocean. That the nation to achieve this should be Portugal was the logical outcome of her geographical position and her history. Placed on the extreme margin of the old classical Mediterranean world and facing the untraversed ocean, Portugal could adapt and develop the knowledge and experience of the past to meet the challenge of the unknown. From the seamen of Genoa and Venice, they had learned the organization and conduct of a mercantile marine and from Jewish astronomers and mapmakers the rudiments of navigation. Largely excluded from the share in Mediterranean commerce, at a time when her population was making heavy demands on her resources, Portugal turned southward and westwards for opportunities of trade and commerce. But ocean navigation was not the same as navigating the land-locked Mediterranean. The earliest of the band had neither the benefit of sailing direction nor traditional lore. Even the familiar heavenly constellation had been left behind. The challenge was formidable.*
85	**According to the passage, the most important step in the expansion of European power was** (1) The emergence of Portugal as a power (2) The growth of Mediterranean commerce (3) The contact of Europeans with Jewish astronomers (4) The conquest of the Atlantic ocean
86	**The most important advantage that Portugal had, was its** (1) geographical location (2) contact with the Arabs (3) contact with Genoa and Venice (4) cultural history
87	**The Portuguese sailors were ready to explore the world by sea because they** (1) knew about many countries (2) had rich patrons to finance them (3) were prepared for the hazards of sea voyage (4) were in touch with Seamen from Genoa and Venice
88	**Portugal was motivated to pioneer ocean navigation because** (1) It was encouraged by other European powers (2) It faced strong rivals in land-based trade (3) It collaborated with Venetian merchants (4) Its limited resources could not support its growing population
89	**The earliest group of Portuguese navigators going across the Atlantic did not find the venture** (1) different from land-locked navigation (2) more difficult than coastal navigation (3) easy and comfortable (4) challenging and demanding
	Read the passage and answer the questions 90 to 94 that follow *One of the most mysterious, best preserved, least known and most remarkable archaeological spectacles in the world is the immense complex of geometrical symbols, giant ground-drawings of birds and animals and hundreds of long, ruler-straight lines, some right across mountains, which stretch over 1200 square miles of the table-lands of Nazca . It was first revealed to modern eyes in 1926 when three explorers looked down*

	on the desert from a hillside at dusk and briefly saw a Nazca line highlighted by the low slanting rays of the sun. It was not until the Peruvian Air Force took aerial photographs in the 1940s that the full magnificence of the panorama was apparent. It was as if a dozen deserted airports were spread out across the plains. Hundreds of what looked like 'landing strips' for aircraft were revealed. Among the many abstract patterns were a giant spider, a monkey, a shark, reptiles and flowers, all drawn on the ground on a huge scale.
90	**The 'remarkable archaeological spectacles' described in the passage are** (1) geometrical symbols (2) huge ground drawings (3) Nazca tablelands (4) deserted airports
91	**The initial view of the spectacles was not clear because** (1) It was seen from a hillside (2) It was seen from aircrafts (3) It was seen in the evening (4) It was offset by rays of the sun
92	**The aerial photographs** (1) failed to reveal anything significant about the spectacle (2) revealed a distorted view of the spectacle (3) revealed as much as was all ready known about the spectale (4) revealed the full magnificence of the spectacle
93	**In the passage, the spectacle has been compared with** (1) out of use airports (2) animals and flowers (3) tablelands (4) hills and mountains
94	**The spectacle presented abstract images of** (1) human beings (2) hills and mountains (3) landing strips (4) birds, animals and flowers
95	**Complete the sentence using the correct modal** We _____ finish the science project before the summer break. (1) might (2) should (3) ought to (4) can
96	**Complete the sentence using the correct modal** The director_____ be in his room as his fan is on. (1) will (2) might (3) must (4) can
97	**Complete the sentence using the correct verb form** I _____ you for the last ten years. (1) know (2) was (3) have known (4) known
98	**Complete the sentence using the correct verb form** By 4 'o' clock I _____ all my assignments. (1) had written (2) will be written (3) will be writing (4) would be writing
99	**In this sentence the underlined word is used in four different ways. Choose the option in which the usage of the word is incorrect or inappropriate.** **Issue** (1) His article appeared in the August issue of the magazine. (2) The Government issued a special stamp on World Health Day. (3) The problem came to a successful issue. (4) There were problems of property as he died without an issue.
100	**In this sentence the underlined word is used in four different ways. Choose the option in which the usage of the word is incorrect or inappropriate.** **Save** (1) He is saving his strength for the heavy work he will have to do this afternoon. (2) Malti saved the little boy from drowning. (3) We know nothing about him save that he was in the army. (4) I have saved myself of the truth of the report.