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20 JANUARY 2019

Marks: 400   **Time: 120 minutes**

ROLL NO.:   _____   NAME: _____

SIGNATURE:_____   DATE / TIME:_____

	INSTRUCTIONS FOR THE CANDIDATES
1.	The question booklet contains English section (Q 1-40) and Mathematics Section (Q 41-100).
2.	Before attempting the paper carefully read all the Instructions & Examples given on Side 1 of Answer Sheet (OMR Sheet) supplied separately.
3.	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 Test Booklet. No claim in this regard will be entertained at the later stage.
4.	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.
5.	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.
6.	**This Test Booklet consists of 08 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. Use of Pencil is strictly prohibited. More than one answer indicated against a question will be deemed as incorrect response.
7.	The maximum marks are 400. Each question carries four marks. **There will be negative marking of minus one (-1) for each incorrect answer.**
8.	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.
9.	**On completion of the test, candidate must hand over the OMR Answer Sheet to the invigilator on duty in the room/hall. You may retain the Question Booklet.**
10.	**Use of Mobile phones, wrist watches and calculators etc. are not allowed.**
11.	**Keep all your belongings outside the Examination hall. Do not retain any paper except the ADMIT CARD.**

SECTION – ENGLISH

Directions (Question 1 to 7). In these questions, out of the four alternatives, choose the one which best expresses the meaning of the given word.

1	Discipline (1) dictator (2) rigid (3) obedience (4) sincere
2	Honour (1) important (2) rich (3) respect (4) mighty
3	Courage (1) mystery (2) brave (3) strong (4) powerful
4	Swift (1) quick (2) car (3) noise (4) hasty
5	Terse (1) sullen (2) brief (3) verbose (4) crying
6	Apprise (1) winner (2) trophy (3) curious (4) inform
7	Instill (1) lessen (2) induct (3) understand (4) introduce

Directions (Question 8 to 12). From the four options given, choose a word / phrase which is similar in meaning to the under lined word in each sentence.

8	He is quite *meticulous* in his dealings with others. (1) indifferent (2) haughty (3) very careful (4) reserved
9	We didn't believe his statements, but *subsequent* events proved that he was right. (1) earlier (2) many (3) few (4) later
10	A bone got stuck in his *gullet*. (1) teeth (2) stomach (3) throat (4) chest
11	The treaty was *ratified* by the heads of state. (1) annulled (2) discussed (3) set aside (4) agreed to
12	He has suspended his secretary on *flimsy* grounds. (1) strong (2) fussy (3) funny (4) very weak

Directions (Question 13 to 16). In these questions, out of the four alternatives, choose the one which can be substituted for the given words/sentences.

13	A ruler who has absolute authority. (1) aristocratic (2) leader (3) dictator (4) president
14	A person who is a good speaker. (1) witty (2) orator (3) wise man (4) politician
15	A person who is interested in and good at many different things. (1) versatile (2) specialist (3) student (4) cadet
16	A person who believes that war should be abolished (1) war mongerer (2) pacifist (3) abolitionist (4) activist

Directions (Question 17 to 18). Find the correctly spelt word out of the four words given

17	(1) tomorow (2) tommorrow (3) tommorow (4) tomorrow
18	(1) believe (2) belive (3) beleive (4) beeleve

Directions (Question 19 to 23). Four alternatives are given for the idiom/phrase / word in italics in the sentence. Choose the one which best expresses the meaning of the idiom/phrase

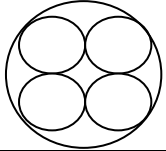|	
19	The disgruntled man *threw a spanner in the works* (1) hit with a spanner (2) used his spanner with force (3) prevented the plan from succeeding (4) stopped working
20	With his rash action he really *upset the apple cart* (1) threw the apples away (2) broke the cart (3) spoil carefully laid plans (4) executed the plan immediately
21	The Louvre is **a** world's largest museum. (1) grand (2) one (3) only (4) the
22	To forgive *the* injury is often considered a sign of weakness.

	(1) this (2) an (3) thus (4) only
23	Science and Technology *is* enriched man's life. (1) have (2) has (3) are (4) does

Directions (Question 24 to 27).   Sentences are given with blanks to be filled in with an appropriate word(s). Choose the correct alternative out of the four.

24	Effective speaking _____ on effective listening. (1) depend (2) depends (3) depended (4) depending
25	They believe that logic _____ no place in faith. (1) have (2) had (3) having (4) has
26	Concentration is _____ by alertness. (1) helped (2) help (3) will help (4) helps
27	Don't let setbacks _____ your determination to succeed. (1) effect (2) effected (3) affected (4) affect

Directions (Question 28 to 29). Some of the sentences have errors and some have none. Find out which part (1), (2) or (3) of a sentence has an error. If there is no error mark your answer (4)

28	(1) A hungry man becomes desperate (2) and his despair turns (3) in anger (4) no error
29	(1) Complaints usually come (2) from those which are (3) inefficient or unhappy (4) no error

Directions (Question 30 to 32). Reorder P,Q,R,S to make a meaningful sentence.

30	P: detective story Q: go R: through the S: written below (1) RPSQ (2) SQRP (3) QRPS (4) SPRQ
31	P: real murderer Q: who the R: is S: find out (1) PQRS (2) SQPR (3) QRPS (4) PSRQ
32	P: many clues Q: there are R: pointing to S: the real culprit (1) QPRS (2) PSQR (3) QSPR (4) SPRQ

Directions (Question 33 to 40).   In these questions, you have two brief passages with 4 questions following each passage. Read the passage carefully and choose the best answer out of the four alternatives.

PASSAGE – 1

The price of rudeness was more than Alice could bear. She got up in great disgust and walked off. The Dormouse fell asleep instantly and neither of the other took any notice of her going. She looked back once or twice half hoping that they would call after her but they didn't. The last time she saw them, they were trying to put the Dormouse into the tea pot.

33	What did Alice do when she couldn't bear the price of rudeness? (1) she quarreled with others (2) she took up the matter with them (3) she left the place in great disgust (4) she stayed put and did nothing
34	What was Dormouses response to Alice's walk out? (1) he instantly fell asleep (2) he pleaded Alice not to leave (3) he too left with Alice (4) he went into the tea pot
35	What were they doing when Alice last saw them? (1) they fell asleep (2) they were trying to put the Dormouse into the tea pot (3) they left the place (4) they were taking tea
36	The word 'disgust' means (1) revulsion (2) strong wind (3) hurry (4) anger

PASSAGE – 2

Robin Hood, surprised at the stranger's courage, started fighting in earnest, using his stick with great skill. He was very quick on his feet, and hit the giant with many quick blows. But the giant proved to be equally skillful, though he was not as quick as Robin Hood. The two men, each trying to knock the other down into the stream, fought hard and long. At last Robin Hood gave such a blow on the giant's knees that he fell into the stream. But before his fall, the stranger succeeded in giving Robin Hood a blow on his head. Robin Hood reeled and fell into the stream too. With great difficulty both the men reached the bank. The stranger was limping and he was in great pain. But he did not lose courage. He once again got ready to fight.

37	On being surprised at the stranger's courage, Robin Hood:

	(1) started fighting vigorously (2) tried to make friends with the stranger (3) killed the stranger (4) gave up the idea of fighting
38	The giant fell into the stream as (1) he was lifted and thrown into the stream (2) he lost balance (3) he wanted to end the fight (4)Robin Hood gave a decisive blow on the giants knees
39	Robin Hood too fell into the stream because (1) the stranger gave a blow on Robin Hoods head (2) he wanted to run away (3) the giant pushed him (4) he wanted to save himself
40	Which of the statements is true (1) Robin Hood was scared of the giant (2) the giant was scared of Robin Hood (3) the stranger lost courage (4) the giant was as skillful as Robin Hood

	SECTION – MATHEMATICS
41	CANCELLED
42	Among five friends, Lata, Alka, Rani, Asha and Sadhna, Lata is older than only three of her friends. Alka is younger to Asha & Lata. Rani is older than only Sadhna. Who amongst them is eldest? 1) Asha 2) Lata 3) Alka 4) Sadhna
43	In ΔPQT, PQ=PT. The points R & S are on QT such that PR=PS. If $\angle PTS = 62^\circ$, $\angle RPS = 34^\circ$ then the measure of $\angle QPR$ is? 1) 17° 2) 13° 3) 15° 4) 11°
44	The point at which the two coordinates meet is called? 1) Abscissa 2) Ordinate 3) Co-ordinate 4) Origin
45	If length of the rectangle is increased by 50% and breadth is decreased by 20%. Then, what is the percentage change in the area? 1) 20% decrease 2) 20% increase 3) 80% increase 4) None of the above
46	Two candles are of different lengths and thickness. The short and long ones can burn respectively for 3.5 hours and 5 hours. After burning for 2 hours, the lengths of candles become equal in length. What fraction of the long candle's height was the short candle initially? 1) $\frac{2}{7}$ 2) $\frac{5}{7}$ 3) $\frac{3}{5}$ 4) $\frac{4}{5}$
47	Mean of 11 observations is 17.50. If one observation 15 is deleted, find the mean of remaining observations. 1) 17.5 2) 17.25 3) 17.75 4) None of these
48	A number when divided by 143 leaves 31 as remainder. What will be the remainder when the same number is divided by 13? 1) 0 2) 1 3) 3 4) 5
49	Three equal circles of unit radius touch each other. Then, the area of the circle circumscribing the three circles is 1) $\frac{\pi}{3}(2+\sqrt{3})^2$ 2) $\frac{2\pi}{3}(2+\sqrt{3})^2$ 3) $6\pi(2+\sqrt{3})^2$ 4) $\frac{1\pi}{6}(2+\sqrt{3})^2$
50	In ΔDEF and ΔPQR, it is given that $\angle D=\angle Q$; $\angle R=\angle E$, then which of the following is NOT true? 1) $\frac{EF}{PR}=\frac{DF}{PQ}$ 2) $\frac{DE}{PQ}=\frac{EF}{RP}$ 3) $\frac{DE}{QR}=\frac{DF}{PQ}$ 4) $\frac{EF}{RP}=\frac{DE}{QR}$
51	ΔABC is an equilateral triangle of each side $2\sqrt{3}$ cm. P is any point in the interior of ΔABC. If x, y, z are the distances of P from sides of triangles, then x+y+z= 1) $2+\sqrt{3}$ 2) 5 cm 3) 3 cm 4) 4 cm
52	The coordinates of the points P and Q are respectively (4, -3) and (-1, 7). Find the abscissa of a point R on the line segment PQ such that $\frac{PR}{PQ}=\frac{3}{5}$

	1) 1	2) 0	3) -1	4) 2

53	The arithmetic mean of five numbers is -5. If the sum of two of them is 50. What is the average of other three 1) 25 2) 10 3) -10 4) -25

54	A solid metal sphere of surface area S_1 is melted and recast into a number of smaller spheres of same radius. S_2 is the sum of the surface areas of all the smaller spheres. Then 1) $S_1 > S_2$ 2) $S_2 > S_1$ 3) $S_1 = S_2$ 4) Data is insufficient

55	If the equation $(1 + m^2) x^2 + 2mcx + (c^2 - a^2) = 0$ has equal roots then $c^2 = ?$ 1) $a(1 + m^2)$ 2) $a(1 - m^2)$ 3) $a^2(1 + m^2)$ 4) $a^2(1 - m^2)$

56	If P denotes "multiplied by", T denotes "Subtracted from", M denotes "added to" and B denotes "divided by" then 28B7P8T6M4=? 1) - 3/2 2) 30 3) 32 4) 34

57	Excluding stoppages, the speed of a bus is 54 Kmph and including stoppages, it is 45 Kmph. For how many minutes does the bus stop per hour? 1) 9 2) 10 3) 12 4) 20

58	ABCD is a square with side x. With centres A, B, C, and D four circles are drawn such that each circle touches externally two of the remaining three circles. Let S be the area of the region in the interiors of the square and exterior of the circles. Then maximum value of S is 1) $x^2(1 - \pi)$ 2) $x^2\left(\dfrac{4-\pi}{4}\right)$ 3) $x^2(\pi - 1)$ 4) $\dfrac{\pi}{4} x^2$

59	A natural number when increased by 12, equal to 160 times its reciprocal. Find the number 1) 8 2) 6 3) 10 4) 9

60	The LCM of the two numbers is (x+y) and HCF is p(x-y). if one of the number is 'p' then the number is 1) $p\dfrac{x}{y}$ 2) $x^2 - y^2$ 3) pxy 4) $\dfrac{px + y}{px - y}$

61	A right angled triangle has hypotenuse of length p cm and one side of length q cm. if $p - q = 1$; find the length of third side of triangle 1) $\sqrt{2q^2 + 1}$ 2) $\sqrt{2q + 1}$ 3) $\sqrt{2q^2 - 1}$ 4) $\sqrt{2q - 1}$

62	The mean and mode of frequency distribution are 28 and 16 respectively. The median is 1) 22 2) 23.5 3) 24 4) 24.5

63	Lalit takes twice as long to row a distance against the stream as to row the same distance in favour of the stream. The ratio of the speed of boat (in still water) and the stream is 1) 2:1 2) 3:1 3) 3:2 4) 4:3

64	A bus starts from city X. The number of women in the bus is half of the number of men. In city Y, 10 men leave the bus and five women enter. Now, number of men and women is equal. In the beginning, how many passengers entered the bus? 1) 15 2) 30 3) 36 4) 45

65	If the roots of the equation $ax^2+bx+c=0$ are equal then c=? 1) $-\dfrac{b}{2a}$ 2) $\dfrac{b}{2a}$ 3) $-\dfrac{b^2}{4a}$ 4) $\dfrac{b^2}{4a}$

66	PQ is a tangent from P to a circle with centre O and QOR is a diameter of circle such that $\angle POR = 120^o$ then $\angle OPR$ is

	1) 30° 2) 60° 3) 45° 4) 90°
67	In a market, 20% opted for product A whereas 60% opted for product B. The remaining individuals were not certain. If the difference between those opted for product B and those who are uncertain was 720, how many individuals were covered in survey? 1) 3600 2) 1440 3) 1800 4) Data Inadequate
68	If $a^3=1+7$, $3^3=1+7+b$, $4^3=1+7+c$ then value of a+b+c is? 1) 77 2) 110 3) 58 4) 75
69	P started from his house towards west. After walking a distance of 25 m, he turned to the right and walked 10 m. He then again turned to the right and walked 15 m. After this he is turn to his right at 135° and to cover 30 m. In which direction he is going now? 1) West 2) South 3) South-west 4) South-east
70	5 Kg of tea and 8 Kg of sugar together cost Rs. 172.00. The price of the tea has risen by 20% and that of sugar by 10%. Hence the same quantity of tea and sugar now cost Rs. 199.20. What is the original price of tea per Kg? 1) Rs. 18/Kg 2) Rs. 19/Kg 3) Rs. 20/Kg 4) Rs. 16/Kg
71	Four times the area of the curved surface of a cylinder is equal to 6 times the sum of the areas of its bases. If its height is 12 cm, then its volume (in cm^3) is? 1) 48π 2) 384π 3) 786π 4) 768π
72	Ratio of the area of a circle and an equilateral triangle whose diameter and a side are respectively equal to? 1) $\dfrac{\pi}{3}$ 2) $\dfrac{\pi}{6}$ 3) $\dfrac{\pi^2}{3}$ 4) $\dfrac{\pi}{\sqrt{3}}$
73	If $\sin\theta$ and $\cos\theta$ are roots of equation $ax^2 +bx+ c=0$ then $b^2 -2ac =$? 1) $-a^2$ 2) b^2 3) a^2 4) $-b^2$
74	If A(5,2), B(2,-2), C(-2,t) are the vertices of a right angled triangle with $\angle B=90°$, then the value of t? 1) 0 2) ½ 3) 2 4) 1
75	A bicycle wheel makes 5000 revolutions in moving 11 km. find the diameter of the wheel(in cm)? 1) 70 cm 2) 35 cm 3) 140 cm 4) 105 cm
76	A monkey is climbing a rope of length 100 m. He climbs 3m in one minute and slips down by 1 m in another one minute because of rope being slippery(it takes him completely one minute time to slip down one meter). Now again he climbs 3m in one minute and in another one minute slips down one meter. This climbing and slipping continues till he reaches the top of rope. How much times he takes to reach the top of the rope? 1) 100 min 2) 98 min 40 sec 3) 98 min 38 sec 4) none of above
77	What is the capacity of a cylindrical vessel with a hemispherical portion raised upward at the bottom. 1) $\dfrac{\pi r^2}{3}(3h-2r)$ 2) $\dfrac{\pi r^3}{3}(2r-3h)$ 3) $\dfrac{\pi r}{3}(3h^2-2r)$ 4) $\dfrac{\pi r^2}{3}(3h-2r^2)$

78	Four circles of radius 1 each are inscribed in a large circle. The large circle is tangent to every smaller circle. Each smaller circle is tangent to the large circle and to two small circles. What is the radius of the large circle? 1) $1+\sqrt{2}$ 2) $1+\sqrt{3}$ 3) $2+\sqrt{2}$ 4) $2+2\sqrt{2}$
79	In a queue, Ankita is 10th from the front while Mohit is 25th from behind & Asha is just middle of the two. If there are 50 persons in the queue, what position does Asha occupy from the front? 1) 20th 2) 19th 3) 18th 4) 17th
80	The sum of the roots of $\frac{1}{x+a}+\frac{1}{x+b}=\frac{1}{c}$ is zero. The product of the roots is? 1) 0 2) $\frac{1}{2}(a+b)$ 3) $-\frac{1}{2}(a^2+b^2)$ 4) $2(a^2+b^2)$
81	In a class, there are 18 boys who are over 160 cm tall. If these constitute three-fourths of the boys and the total numbers of boys is two-thirds of the total numbers of students in the class, what is the numbers of girls in the class? 1) 6 2) 12 3) 18 4) 2
82	A shopkeeper marks his goods at 30% above cost price and allows discount of 15% for cash payment. What profit % does he make? 1) 12.5% 2) 10.5% 3) 11.5% 4) 9.5%
83	If the sum of first m terms of an A.P. is same as the sum of its first n terms, then the sum of its first $(m+n)$ terms is 1) 1 2) 2 3) 0 4) $\frac{1}{2}$
84	A man on the top of a tower, standing on the sea shore finds that a boat coming towards him takes 10 minutes for the angle of depression to change from 30° to 60°. Find the time taken by boat to reach the shore from the position 1) 5 minutes 2) 10 minutes 3) 8 minutes 4) 15 minutes
85	If $2x = secA, \frac{2}{x} = tanA$ then $2(x^2-\frac{1}{x^2}) =$ 1) $\frac{1}{2}$ 2) $\frac{1}{4}$ 3) $\frac{1}{8}$ 4) $\frac{1}{16}$
86	Radha tell her friend that her age in years is equal to the sum of squares of the zeroes of polynomial $x^2+10x+24$. Find the age of Radha (in years) 1) 52 2) 56 3) 42 4) 46
87	The circumference of the front wheel of a cart is 30 feet long. What is the distance travelled by the cart, when the front wheel has done five more revolutions than the rear wheel? 1) 20 feet 2) 25 feet 3) 750 feet 4) 900 feet
88	The sum of first 100 natural numbers is divisible by 1) 2, 4 and 8 2) 2 and 4 3) 2 only 4) None of these.
89	The square sheet of paper is converted into a cylinder by rolling it along its length. What is the ratio of the base radius to the side of square? 1) $\frac{1}{2\pi}$ 2) $\frac{\sqrt{2}}{\pi}$ 3) $\frac{1}{\sqrt{2}\pi}$ 4) $\frac{1}{\pi}$
90	In a shower, 5 cm of rain falls, the volume of water that falls on 1.5 hectares of ground is? 1) 7.5 m^3 2) 750 m^3 3) 7500 m^3 4) 75000 m^3
91	50 men took a dip in a water tank 40 m long and 20 m broad on a religious day. If the average displacement of water by a man is 4 m^3, then rise in water level of the tank will be? 1) 20 cm 2) 25 cm 3) 35 cm 4) 50 cm
92	A number is selected from first thirty natural numbers. What is the chance that it is multiple of either 3 or 13? 1) $\frac{17}{30}$ 2) $\frac{2}{5}$ 3) $\frac{11}{30}$ 4) $\frac{4}{15}$

93	The mean of first n odd natural numbers is $\frac{n^2}{81}$, then n is equal to?
	1) 9 2) 81 3) 27 4) 18

94	The total of the ages of Amar, Akbar and Anthony is 80 years. What was the total of these ages three years ago?
	1) 71 years 2) 72 years 3) 74 years 4) 77 years

95	Which of the following statement is NOT true? 1) A line which intersects a circle in two points is called a secant of a circle. 2) A line intersecting a circle at one point only, is called a tangent to the circle 3) The point at which a line touches the circle, is called the point of contact. 4) A tangent to a circle can be drawn from a point inside the circle.

96	If both 11^2 and 3^3 are factors of the number $a \times 4^3 \times 6^2 \times 13^{11}$ then what is the smallest possible value of a?
	1) 121 2) 3267 3) 363 4) 33

97	CANCELLED
98	CANCELLED

99	What is the area of the sector covered by the hour hand after it was moved through 3 hours, the length of the hour hand is 7cm?
	1) 77cm² 2) 38.5cm² 3) 35 cm² 4) 70 cm²

100	If $\sec\theta + \tan\theta = p$ find $\frac{P^2 - 1}{P^2 + 1}$
	1) $\sin\theta$ 2) $\sin^2\theta$ 3) $\cos\theta$ 4) $\cos^2\theta$