GOA BOARD OF SECONDARY AND HIGHER SECONDARY EDUCATION
FIRST TERM EXAMINATION MODEL PAPER (2022-2023)
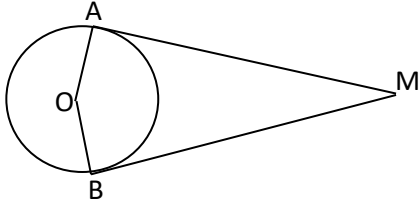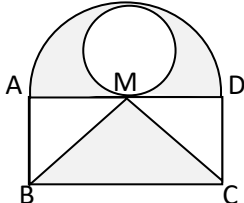
STD X   **MARKS : 40**
SUBJECT : MATHEMATICS - LEVEL 1 (ENGLISH)   **TIME : 1HR 45MIN**
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Instructions :

1. Each question is provided with four alternatives. Choose the correct alternative.

2. Each question carries one mark . There is no negative marking for incorrect choice.

1.	The prime factorisation of 1176 is (A) 2^2 x 3^3 x 7 (B) 2^3 x 3^2 x 7 (C) 2^2 x 3 x 7^2 (D) 2^3 x 3 x 7^2
2.	If the lines given by 4x + ky = 12 and x + 2y = 3 coincide, then the value of k is (A) -8 (B) 4 (C) 8 (D) 12
3.	If $1 + \tan^2 36°= \sec^2 2A$ where 2A is an acute angle then the value of A is (A) 18° (B) 36° (C) 54° (D) 72°
4.	The midpoint of the line segment joining the points P (-3, 4) and Q (7, -2) is (A) (-2, -1) (B) (2, -1) (C) (-2, 1) (D) (2, 1)
5.	One of the zeroes of the quadratic polynomial $4x^2$- 25 is (A) 4/25 (B) 2/5 (C) 25/4 (D) 5/2
6.	From a deck of 52 playing cards all the ace cards are removed. If a card is then drawn at random, the probability that it is a face card is (A) 1/4 (B) 3/14 (C) 3/13 (D) 2/13
7.	The length of the tangent drawn from a point P which is at a distance of 7cm from the centre O of a circle of radius 3cm is (A) $2\sqrt{10}$ cm (B) $\sqrt{58}$ cm (C) 10 cm (D) 100cm
8.	The length of the arc of a circle of radius r and angle with degree measure θ is (A) $\frac{\theta}{180}$ x ∏r (B) $\frac{\theta}{360}$ x ∏r ^{2} (C) $\frac{\theta}{180}$ x 2∏r (D) $\frac{\theta}{180}$ x ∏r^2
9.	Which of the following is irrational? (A) $\sqrt{729}$ (B) ($\sqrt{3}$ - 2) ($\sqrt{3}$ + 2) (C) $\frac{3+2\sqrt{3}}{\sqrt{3}}$ (D) $\sqrt{2}$ ($\sqrt{2}$ - $\sqrt{8}$)
10.	If one equation of a pair of consistent linear equations is 3x -2y +4 = 0 then the second equation can be (A) 6x - 4y +1 = 0 (B) - 6x + 4y +1 = 0 (C) 6x + 4y +1 = 0 (D) 9x - 6y +1 = 0
11.	If △PQR is right angled at P and ∠ Q= 60° then the value of cos R is (A) 1 (B) 1/2 (C) 1/√2 (D) √3/2
12.	The perimeter of a triangle with vertices A(0,6) ; B(0,0) ; C(-8, 0) is (A) 10 units (B) 12 units (C) 24units (D) 36 units
13.	If the product of the zeroes of the quadratic polynomial $5x^2$ - 20x - m is 3, then the value of m is (A) - 15 (B) - 4 (C) 4 (D) 15
14.	A box contains cards which are numbered from 5 to 102. If a card is drawn at random from the box, then the probability that it bears a two digit number which is a multiple of 7 is (A) 13/98 (B) 1/7 (C) 13/97 (D) 14/97

15.	In the figure MA and MB are tangents to the circle with centre O and radius 5cm. If OM = 13cm then perimeter of □AOBM is (A) 18 cm (B) 27 cm (C) 34 cm (D) 36 cm
16.	□ABCD is a rectangle . If AB=5cm and the radius of the semicircle AM=7cm then area of the shaded portion is (Take π = 22/7) (A) 56 cm^2 (B) 73.5 cm^2 (C) 74.5 cm^2 (D) 76.5 cm^2
17.	Which of the following rational numbers has a terminating decimal expansion? (A) $\frac{7}{12}$ (B) $\frac{17}{45}$ (C) $\frac{27}{72}$ (D) $\frac{37}{168}$
18.	The solution of the pair of linear equations 8x - 3y = -2 and 3 x + y = -5 is (A) x= -1, y= 2 (B) x= 1, y= - 2 (C) x= 1, y= 2 (D) x= -1, y= -2
19.	The value of the trigonometric expression : sin ^{2} 30° + cos ^{2} 45° − 7tan ^{2} 60° is (A) - 81/4 (B) − 79/4 (C) 79/4 (D) 81/4
20.	The ratio in which the point K(1,3) divides the line segment joining the points M(-1, 7) and N(4 , -3) internally is (A) 1 : 3 (B) 3 : 1 (C) 2 : 3 (D) 3 : 2
21.	The quadratic polynomial whose sum and product of zeroes are -9 and 20 respectively is (A) x^2 - 9x - 20 (B) x^2 + 9x - 20 (C) x^2 - 9x + 20 (D) 2x^2 +18x + 40
22.	Two dice are thrown simultaneously. The probability that the sum of the numbers appearing on top of both the dice is 4 is (A) 1/12 (B) 1/9 (C) 1/2 (D) 2/3
23.	If PA and PB are tangents from an external point P to the circle with centre O such that ∠APB = 80° then the measure of ∠AOP is (A) 10° (B) 50° (C) 100° (D) 160°
24.	The length of the minute hand of a clock is 21cm. Therefore the area swept by the minute hand in 6 minutes is (A) 13.2 cm^2 (B) 15.4 cm^2 (C) 23.1 cm^2 (D) 138.6 cm^2
25.	The product of two numbers is 1440. If their HCF is 4 , then their LCM is (A) 10 (B) 36 (C) 90 (D) 360
26.	If the pair of linear equations (k - 7)x - 2y = -5 and 4y − (k+1)x = 2 have no solution then the value of k is (A) 0 (B) 1 (C) 15 (D) 16
27.	The simplified form of (cosecA- cotA) (1+cosA) is (A) sinA (B) cosA (C) cosecA (D) secA
28.	If the area of the triangle with vertices A(4,0) ; B(-5, 0) ; C (2, k) is 36 square units then the value of k is (A) - 8 (B) - 4 (C) 4 (D) 8
29.	The remainder when p(x)= 2x^3 - 5x^2 - 4x - 7 is divided by g(x)= x^2 - 2 is (A) -17 (B) - 3 (C) 3 (D) 17

30.	If 114x +156y = 426 and 156x + 114y = 384 ; then the value of x - y is
	(A) -3 (B) - 1 (C) 1 (D) 3
31.	The value of the trigonometric expression: $\sin65^\circ \cos 25^\circ + \cos65^\circ \sin25^\circ$ is
	(A) - 1 (B) 0 (C) 1 (D) 2
32.	If the perimeter of a semi circular wall piece is 108cm , then the diameter of the wall piece is (Take π =22/7)
	(A) 21cm (B) 28cm (C) 42cm (D) 56cm
33.	Toffees from two toffee jars containing 210 and 240 toffees are to be packed in small packets. The maximum number of packets that can be packed if each packet has equal number of toffees is
	(A) 9 (B) 18 (C) 30 (D) 36
34.	Five years hence Tom will be x years old and Jerry will be y years old. Therefore the sum of their present ages in years is
	(A) x + y – 5 (B) x + y + 5 (C) x + y + 10 (D) x + y - 10
35.	If 17sinA = 8 , then tanA =
	(A) 8/15 (B) 15/8 (C) 15/17 (D) 17/15
36.	The point which divides the line segment joining the points (7, -6) and (3,4) in the ratio 1:2 internally lies in the
	(A) I quadrant (B) II quadrant (C) III quadrant (D) IV quadrant
37.	If the zeroes of the quadratic polynomial $x^2 + (m+1)x + n$ are 2 and -3 , then
	(A) m = -7, n = - 1 (B) m = 5 , n = - 1 (C) m = - 2 , n = - 6 (D) m = 0, n = - 6
38.	If the digit in the unit's place of a two digit number is 3x and the digit in the ten's place is y then the two digit number formed after interchanging the digits is
	(A) 3xy (B) 3x + y (C) 3x + 10y (D) 30x +y
39.	If $\sin A - \cos A = 0$ then the value of $\sin^4 A - \sin^2 A$ is
	(A) -3/ 4 (B) - 1/4 (C) 1/4 (D) 3/4
40.	If the radius of a wheel is 0.63m, then the distance covered by the wheel in 400 revolutions is (Take $\pi = 22/7$)
	(A)142.56m (B) 1584m (C) 14256m (D) 15840m
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ANSWER KEY

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Q No		Answer
1.	D	2^3 x 3 x 7^2
2.	C	8
3.	A	$18°$
4.	D	(2, 1)
5.	D	5/2
6.	A	1/4
7.	A	$2\sqrt{10}$ cm
8.	A	$\frac{\theta}{180}$ x ∏r
9.	C	$\frac{3 + 2\sqrt{3}}{\sqrt{3}}$
10.	C	6x + 4y +1 = 0
11.	D	√3/2
12.	C	24units
13.	A	-15
14.	A	13/98
15.	C	34cm
16.	B	$73.5cm^2$
17.	C	27/72
18.	D	x= -1, y= -2
19.	A	- 81/4
20.	C	2 : 3
21.	D	$2x^2$ +18x + 40
22.	A	1/12
23.	B	50
24.	D	$138.6 cm^2$
25.	D	360
26.	C	15
27.	A	sinA
28.	A	-8
29.	A	-17
30.	B	-1
31.	C	1
32.	C	42
33.	C	30
34.	D	x + y - 10
35.	A	8/15
36.	D	IV quadrant
37.	D	m = 0, n = - 6
38.	D	30x +y
39.	B	-1/4
40.	B	1584m