**1st ROUND:**

Here, the candidates are expected to Tick or Circle the preferred answer with a “blue” or a “black pen”. Rough works are not supposed to be done in the answer shit itself but are supposed to be done in the loose paper provided. Rough and dirty works are not much entertained.

1. TIME: 45 MIN. (1 QUESTION 1.5 MIN.)
2. ANSWERS: CIRCLE OR TICK
3. ROUGH: IN THE LOOSE SHIT GIVEN.
4. Do not write on the bar code, even the small smudge may disqualify the candidate.
5. Instruction to answer will be informed before the test starts.



1. Here is an equation of a circle x2 + y2 = 36

What could be the circumference of the circle?

1.12π 2. 6π 3.4π 4.8π

1. A sketch of ax2+bx+c is shown. The minimum point is (2, -3)

Pin point the stationary point:

For the sketch shown, circle the correct answer in each of the following.

3.The value of a is

Zero positive negative

4. The value of c is

Zero positive negative

5. The solutions ofax2+bx+c= 0 are

Both zero both positive both negative one positive and one negative

6. The number of solutions of ax2+bx+c=-6

0123

7. The equation of the tangent of y=ax2+bx+c at (2,-3) is

x = 2 y =2 x =-3 y =-3

8. If y = 3x, 3x+2 =

(A) y2

(B) 2y

(C) y + 3

(D) 9y

(E) y+ 9

9.AB and AC are tangents to a circle at points B and C, respectively. Minor arc BCis 7π in. and the radius of the circle is 18 in. What is the number of degrees in angle BAC?

(A) 90

(B) 95

(C) 70

(D) 100

(E) 110

**10.  1,2,3,1,4,9,1,...27**

|  |  |
| --- | --- |
| [**A.**](javascript:void(0);) | 5 |
| [**B.**](javascript:void(0);) | 4 |
| [**C.**](javascript:void(0);) | 16 |
| [**D.**](javascript:void(0);) | 8 |

**11. 3,5, 9,17,33**

|  |  |
| --- | --- |
| [**A.**](javascript:void(0);) | 44 |
| [**B.**](javascript:void(0);) | 65 |
| [**C.**](javascript:void(0);) | 64 |
| [**D.**](javascript:void(0);) | 49 |

**12.** Compound interest on $2500 for 5 years at 4% per annum (compounded annually) is

1. $432
2. $542
3. $642
4. $452

13. For Cosine Rule of any triangle ABC, b2 is equal to

1. a2 - c2 + 2ab cos A
2. a3 + c3 - 3ab cos A
3. a2 + c2 - 2ac cos B
4. a2 - c2 4bc cos A

\*14. What comes next in the sequence: 2, 4, 10, 28, \_\_\_ ?

* 1. 64
  2. 70
  3. 76
  4. 82B

15. The probability that an electronic device produced by a company does not function properly is equal to 0.1. If 10 devices are bought, then the probability, to the nearest thousandth, that 7 devices function properly is   
  
A. 0.057    
B. 0.478   
C. 0.001   
D. 0

\*16. When a metallic ball bearing is placed inside a cylindrical container, of radius 2 cm, the height of the water, inside the container, increases by 0.6 cm. The radius, to the nearest tenth of a centimeter, of the ball bearing is   
  
A. 1 cm    
B. 1.2 cm   
C. 2 cm   
D. 0.6 cm   
  
17. The mean of a data set is equal to 10 and its standard deviation is equal to 1. If we add 5 to each data value, then the mean and standard deviation become   
  
A. mean = 15 , standard deviation = 6   
B. mean = 10 , standard deviation = 6    
C. mean = 15 , standard deviation = 1   
D. mean = 10 , standard deviation = 1

\*18. The exam scores of all 500 students were recorded and it was determined that these scores were normally distributed. If Jane's score is 0.8 standard deviation above the mean, then how many, to the nearest unit, students scored above Jane?   
  
A. 394   
B. 250    
C. 400   
D. 106

19.If f(x) is an odd function, then | f(x) | is   
  
A. an odd function    
B. an even function   
C. neither odd nor even   
D. even and odd

20.Five different books (A, B, C, D and E) are to be arranged on a shelf. Books C and D are to be arranged first and second starting from the right of the shelf. The number of different orders in which books A, B and E may be arranged is   
  
A. 5!    
B. 3!   
C. 2!   
D. 3! \* 2!

|  |
| --- |
| 21. From a group of 7 men and 6 women, five persons are to be selected to form a committee so that at least 3 men are there on the committee. In how many ways can it be done? |
| |  |  | | --- | --- | | [**A.**](javascript:%20void%200;) | Happy ☺ | | [**B.**](javascript:%20void%200;) | 645 | | [**C.**](javascript:%20void%200;) | 735 | | [**D.**](javascript:%20void%200;) | 756 | | [**E.**](javascript:%20void%200;) | I don’t know | |
| 22. In how many ways can the letters of the word 'LEADER' be arranged? |
| |  |  | | --- | --- | | [**A.**](javascript:%20void%200;) | 72 | | [**B.**](javascript:%20void%200;) | 144 | | [**C.**](javascript:%20void%200;) | 360 | | [**D.**](javascript:%20void%200;) | 720 | | [**E.**](javascript:%20void%200;) | None of these | |

23. If a=b, b=c2 what would be a: c?

1. b

2. c\*a

3.c1/2

4. b1/2

5. Khai, tha bhayena

24. 1, 9,3,5,11,13 any of these 3 numbers add up to give 30, what are those numbers?\*

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25. If Alexandra has three balls, red, blue and black. What is the probability that he gets a red ball in his second attempt? (Withoutreplacement)

1. 2/3

2. 1/3

3. 4/9

4. 1

5. I don’t care.

6. What ever!

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26. If Margarita and Nastasiya are facing each other and the sun is directly perpendicular to where Margarita is standing.

If Nastasiya has kept 15 mangos in the sun and Margarita has kept his 20 bananas inside the house. What is the ratio of these fruits (mangos to bananas)?

* 1. 3:4
  2. 4:8
  3. Nothing
  4. 15:20
  5. Like I care.

27. If x+y=z ,c+x+y=0 and c=3 find the value of z.

1. 3

2. 4

3. -3

4. 0

28. If sinβ=cosβ, then find the value of β.

1. 30

2.45

3. 60

4. -45

29. If a2 = b2 and a=c. Does this mean that b=c?

1. yes

2. no

30. If x+iy=2+3i then find the value of x and y?

1. 3 and 2

2. 2 and -3

3. 2 and 3

4. 2.9 and 3.1

ANSWERS:

1. 1
2. The convex point
3. Positive
4. Negative
5. One and one
6. Zero
7. Y=-3
8. D
9. C
10. D
11. B
12. B
13. C
14. D
15. A
16. B
17. C
18. D
19. B
20. B
21. D
22. C
23. 4
24. NO
25. 2
26. 3
27. 3
28. 2
29. NO
30. 3