Amity University Dubai

Amity Placement Test: SAMPLE QP – MATHEMATICS

Marks: 30 **Time: 90 min**

Name: ……

Date of Exam: …… …….. **Signature of Invigilator:……**

Marks Obtained: ……. **Signature of Evaluator:……**

General Instructions for students

1. Attempt all questions. Each question carries 1 mark.
2. Fill all the details with ink /ball point pen only.
3. Do not keep electronic Diary / mobile phone in examination room.
4. Strict disciplinary action will be initiated against any student found using unfair means.
5. When the allotted time gets over, student should stop further writing and handover the answer books to the invigilator.

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1. The value of x that satisfies the equation $6 + 4x = 42$ is
   a. 9
   b. 12
   c. 16
   d. 6
2. If $x = 4$, and $f(x) = 6x^2 + 4$, then the value of $6f(x)$ is
   a. 600
   b. 500
   c. 400
   d. 300
3. Which of the following is equivalent to $6n(1 + n^2 - 2n^3)$?
   a. $6n^2 + 6n - 12n^4$
   b. $6n + 6n^3 - 12n^4$
   c. $6n^2 - 6n - 12n^4$
   d. $6n + 6n^3 + 12n^4$
4. The midpoint of a line segment joining two points $A(2,4)$ and $B(-2,-4)$
   a. $(2,2)$
   b. $(0,0)$
   c. $(1,1)$
   d. $(-1,-2)$
5. The coordinates of a point P, where PQ is the diameter of a circle whose centre is $(2,-3)$ and Q is $(1,4)$ is:
   a. $(3,-10)$
   b. $(-2,10)$
   c. $(-3,10)$

d. $(2, -10)$

6. The perimeter of a triangle with vertices (0, 4), (0, 0) and (3, 0) is
   a. 6
   b. 11
   c. 12
   d. 15
7. The altitude of a right triangle is 7 cm less than its base. If the hypotenuse is 13 cm, the other two sides of the triangle are equal to:
   a. Base$= 10cm$ and Altitude$= 6cm$
   b. Base$= 11cm$ and Altitude$= 5cm$
   c. Base$= 12cm$ and Altitude$= 5cm$
   d. Base$= 9cm$ and Altitude$= 6cm$
8. A quadratic equation $ax^2 + bx + c = 0$ has no real roots, if
   a. $b^2 - ac > 0$
   b. $b^2 - 4ac > 0$
   c. $b^2 - 4ac < 0$
   d. $b^2 - ac < 0$
9. Which term of the arithmetic progression: $21, 42, 63, 84$ … is 210?
   a. $9th$
   b. $10th$
   c. $11th$
   d. $12th$
10. If perimeter of a triangle is 100 cm and the length of two sides are 30 cm and 40 cm, the length of third side will be:
    a. $30cm$
    b. $40cm$
    c. $50cm$
    d. $70cm$
11. The height of an equilateral triangle of side $5cm$ is:
    a. $4.33cm$
    b. $3.8cm$
    c. $5cm$
    d. $4cm$
12. Sides of two similar triangles are in the ratio $4: 9$. Areas of these triangles are in the ratio
    a. $2: 3$
    b. $4: 9$
    c. $16: 81$
    d. $81: 16$
13. $\sin(90 - A)$ and $\cos A$ are
    a. Different
    b. Not related
    c. Same
    d. None of the above
14. If $\cos X = a/b$, then $\sin X$ is equal to
    a. $(b^2 - a^2)/b$
    b. $(b - a)/b$
    c. $\sqrt{(b^2 - a^2)}/b$
    d. $\sqrt{(b - a)}/b$

15. $2\tan 30\,/(1+tan^2 30)$
    a. $\sin 60$
    b. $\cos 60$
    c. $\tan 60$
    d. $\sin 30$
16. If a tower $6m$ high casts a shadow of $2\sqrt{3}$ m long on the ground, then the sun's elevation is:
    a. 60^0
    b. 45^0
    c. 30^0
    d. 20^0
17. A circle has a number of tangents equal to
    a. 0
    b. 2
    c. ∞
    d. 1
18. The length of a tangent from a point A at a distance $5cm$ from the centre of the circle is $4cm$. The radius of the circle is:
    a. $5cm$
    b. $3cm$
    c. $7cm$
    d. $10cm$
19. The diameters of the two circular ends of the bucket are $44cm$ and $24cm$. The height of the bucket is $35cm$. The capacity of the bucket is
    a. $33.7ltrs$
    b. $31.7ltrs$
    c. $32.7ltrs$
    d. $34.7ltrs$
20. If the area of a circle is 154 cm^2, then its perimeter is
    a. $11cm$
    b. $22cm$
    c. $33cm$
    d. $44cm$
21. In a circle of radius 14 cm, an arc subtends an angle of 30° at the centre, the length of the arc is
    a. $44cm$
    b. $28cm$
    c. $22/3cm$
    d. $11cm$
22. A bag has 3 red balls and 5 green balls. If we take a ball from the bag, then what is the probability of getting red balls only?
    a. $5/8$
    b. $3/8$
    c. $8/3$
    d. 8
23. An event is very unlikely to happen. Its probability is closest to
    a. 0.001
    b. 0.01
    c. 0.9
    d. 0.09
24. The derivative of $\ln(2x+1)$, is

a. $(2x + 1)$.
b. $2x$.
c. $2/(2x + 1)$.
d. $1/(2x + 1)$

25. What is the polar coordinate of $1 + \sqrt{3}\, i$?
a. $2(\sin 60^{\circ} + i\ \cos 60^{\circ})$
b. $2(\cos 60^{\circ} + i\ \sin 60^{\circ})$
c. $2(\cos 30^{\circ} + i\ \sin 30^{\circ})$
d. $2(\sin 30^{\circ} + i\ \cos 30^{\circ})$

26. The $\int (3x^2 + 2x - 5\,)dx$, is
a. $3x^3 + x^2 - 5x + C$
b. $x^3 + x^2 - 5x + C$
c. $x^3 + 2x^2 - 5x + C$
d. $3x^3 + 2x^2 - 5x + C$

27. If $f(x) = (x^2 + 8)/2x$ when$x \neq 0$, what is value of $f(2)$?
a. 10
b. 4
c. 3
d. 2

28. What is value of x, if $\ln x + \ln 4 = \ln 8$?
a. 3
b. 4
c. 2
d. 5

29. What is the slope of the line $y = -2x + 7$?
a. 1
b. 1
c. -2
d. 2

30. Give $A = \begin{bmatrix} -2 & 4 \\ -3 & 1 \end{bmatrix}$ and $B = \begin{bmatrix} -1 & 5 \\ 1 & 6 \end{bmatrix}$, so $A - 2B$ equal to
a. $\begin{bmatrix} 0 & 6 \\ -5 & -11 \end{bmatrix}$
b. $\begin{bmatrix} 0 & -6 \\ -5 & 11 \end{bmatrix}$
c. $\begin{bmatrix} 0 & -6 \\ -5 & -11 \end{bmatrix}$
d. $\begin{bmatrix} 0 & 6 \\ 5 & 11 \end{bmatrix}$

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