UNIVERSITY OF BUEA

FACULTY OF ENGINEERING AND TECHNOLOGY

ENTRANCE EXAMINATION **October 2020**

MATHEMATICS

Time: 3 Hours

Answer all Questions

Each Question has four suggested answers A, B, C, D. Select only one answer.

1. The parametric equations of a curve are
$1 - x = \tan\theta, \quad y = \sec\theta$.
The Cartesian equation of this curve is
   - A $x^2 - y^2 + 2x + 2 = 0$
   - B $x^2 - y^2 + 2x - 2 = 0$
   - C $x^2 - y^2 - 2x + 2 = 0$
   - D $x + y^2 - 2x + 2 = 0$

2. $n! + (n-1)! + (n-2)! =$
   - A $n^2(n-1)!$
   - B $n^2(n-2)!$
   - C $n(n-2)!$
   - D $n(n-1)!$

3. The center of the circle with equation
$x^2 + y^2 - x + \frac{1}{2}y - \frac{1}{4} = 0$ is
   - A $(\frac{1}{2}, \frac{1}{4})$
   - B (2, -1)
   - C $(-\frac{1}{2}, -\frac{1}{4})$
   - D $(\frac{1}{2}, -\frac{1}{4})$

4. The general solution of the equation
$\sin 2x = \frac{\sqrt{3}}{2}$ is
   - A $\frac{\pi}{6}[3n + (-1)^n]$
   - B $\frac{\pi}{2}[6n + (-1)^n]$
   - C $\frac{\pi}{6}[2n + (-1)^n]$
   - D $\frac{\pi}{3}[3n + (-1)^n]$

5. If $y = \ln(\frac{x+1}{2x})$, *then* $\frac{dy}{dx}$ *is*
   - A $\frac{2x}{1+x}$
   - B $\frac{1}{x+1} - \frac{1}{x}$
   - C $\frac{1}{x+1} + \frac{1}{2x}$
   - D $\frac{1}{x+1} - \frac{1}{2x}$

6. $\int_1^2 3e^{\ln x^2}\,dx =$
   - A 6 ln2
   - B $\frac{3}{\ln 4}$
   - C 8
   - D 7

7. The general solution of the differential equation $(x-3)\frac{dy}{dx} = y$ is
   - A $y = \frac{x^2}{2} - 3x + K$
   - B $y = Ke^{x-3}$
   - C y=K(x-3)
   - D y=(x-3)+K

8. The statement $x - 3 > \frac{x-4}{x}$, $x \in R$ is equivalent to
   - A $\frac{x^2 - 4x + 4}{x} > 0$
   - B $x^2 - 4x + 4 > 0$
   - C $\frac{x^2 - 4x - 4}{x} > 0$
   - D $x^2 - 2x - 4 > 0$

$|a-b| = \sqrt{|a|^2+|b|^2-2a\cdot b}$

9. Given that -2, K, 5 are three consecutive terms of an arithmetic progression, then the common difference is

A $\frac{3}{2}$

B $\frac{7}{2}$

C 7

D 3

10. The set of values of x for which the geometric series $\sum_{r=0}^{\infty}(x-1)^r$ is convergent is

A 0< x < 2

B -1 < x <1

C -2 < x <1

D $0 \le x \le 2$

11. Given that x is a periodic function of period 4 and that

$f(x) = \{x^2, 0 \le x < 2;\ x+2,\ 2 \le x < 4$

then f(9)= $f(9) = f(2(4)+1)$

$f(1) = 1^2$

A 1

B 81

C 11

D 7

12. The volume generated when the area of the finite region enclosed by the x-axis and the curve $y = x - x^2$ is rotated completely about the x-axis is

A $\pi\int_0^1 (x-x^2)^2\,dx$

B $\pi\int_0^2 (x-x^2)^2\,dx$

C $2\pi\int_{-1}^1 (x-x^2)^2\,dx$

D $2\pi\int_{-1}^0 (x-x^2)^2\,dx$

$x(1-x)=0$

$x=0 \quad x=1$

13. Two consecutive integers between which a root of the equation $x^3 + x - 16 = 10$ lies are

A 1 and 2

B 2 and 3

C 3 and 4

D 4 and 5

14. The vectors a and b are such that $|a| = 3, |b| = 5, and\ ab = -14$

then $|a-b| =$

A 62

B $\sqrt{62}$

C 44

D $\sqrt{44}$

15. The sum of the first n terms of a series is given by $S_n = 5n^2 + 2n$. The n^{th} term of the series is

A 10n + 7

B 10n – 3

C 10n + 3

D 10n – 7

16. The expansion of $(2+3x)^{-1}$ is valid when

A $-\frac{2}{3} < x < \frac{2}{3}$

B $-\frac{1}{3} \le x \le \frac{1}{3}$

C $-\frac{1}{3} < x < \frac{1}{3}$

D $-\frac{3}{2} < x < \frac{3}{2}$

17. The Cartesian equation of the curve with parametric equation $x = 1 + t^2,\ y = 2t,$ where t is a parameter, is

A $y^2 = 4(x-4)$

B $y^2 = 4(x-1)$

C $y^2 = 4(x+4)$

D $y^2 = 4(1-x)$

18. $\lim_{x\to\pi} \frac{\sin 2x}{\sin x} =$

A -1

B 2

C 0

D -2

19. $1+\frac{1}{2}+\frac{1}{2^2}+\frac{1}{2^3}+\frac{1}{2^4}=$

A $\frac{31}{16}$

B $\frac{1}{2}$

C 7

D 2

20. The asymptotes of the curve $y=\frac{(x-5)^2}{(x+5)(x-3)}$ are

A x=3, x=-5, y=5

B x=-3, x=-5, y=-5

C x=3, x=-5, y=1

D x=3, x= -5, y=-1

21. Given that $\begin{vmatrix} 1 & 2 & -2 \\ 2 & 1 & 3 \\ 3 & 2 & -4 \end{vmatrix} = d,$ *then*

$$\begin{vmatrix} 1 & 6 & -8 \\ 2 & 3 & 12 \\ 3 & 6 & -16 \end{vmatrix} =$$

A 7d

B 72d

C 12d

D $12d^2$

22. When the polynomial function $x^3+2x^2+\beta x-3$ is divided by x – 2 and x+1, the remainders are the same. The value of the constant β is

A -5

B 15

C 18

D -6

23. α and β are the roots of a quadratic such that α + β = 2 and αβ = $\frac{1}{2}$. The value of $\alpha^2+\beta^2$ is

A $\frac{7}{2}$

B 3

C 2

D $\frac{9}{2}$

24 The equation $\cos x+\sqrt{3}\sin x=1$ is equivalent to

A $2\sin(x+\frac{\pi}{6})=1$

B $2\sin(x+\frac{\pi}{3})=1$

C $2\cos(x-\frac{\pi}{6})=1$

D $2\cos(x-\frac{\pi}{3})=1$

25. Given that $\tan x=\frac{2}{3}$, $\tan 2x=$

A $\frac{12}{5}$

B $\frac{4}{3}$

C $\frac{12}{13}$

D $\frac{4}{9}$

26. The vector v, where $|v|=28$, Is in the direction of the vector $2i+3j-6k$.
V =

A 14i + 21j -42k

B 8i + 12j -24k

C 26i + 25j -22k

D $14i+\frac{28}{3}j-\frac{14}{3}k$

27. The vector perpendicular to both 3i -6j -4k and -3i + 2j + 2k is

A - 4i +6j +12 k

B - 4i +6j - 12k

C 4i -6j - 12k

D - 2i + 3j + 6k

28. Given that $f(x)=x^2\ln(x-2)$
$f'(3)=$

A 9

B 6

C 6ln5 – 9

D -9

29. $\int_0^{\frac{\pi}{4}} \tan x \, dx =$

A $\frac{1}{2}\ ln2$

B $-\frac{1}{2}\ ln2$

C $\frac{1}{2}\ ln2\ - 1$

D $-\frac{1}{2}\ ln2\ - 1$

$= -\ln|\cos x|_0^{\frac{\pi}{4}}$

$= \frac{1}{2}\ln 2$

30. The curve $y = \frac{x^2}{x-1}$ cannot lie between y=0 and y=4. There is a local maximum of the curve at the point

A (0, 0)

B (0, 4)

C (2, 4)

D (2, 0)

31. The solution of the differential equation $y\frac{dy}{dx} = 2x$, given that y=1 and x=1 is

A $x^2 = y^2 - 2$

B $2x^2 = y^2 - 1$

C $x = 2y^2 - 1$

D $y^2 = 2x^2 - 1$

32. The line segment PQ, where P is the point(7,7) and Q the point(-1,3), is the diameter of a circle. The equation of the circle is

A $(x-7)(x+1)+(y-7)(y-3)=0$

B $(x-7)(x-1)+(y-7)(y-3)=0$

C $(x+7)(x-1)+(y+7)(y+3)=0$

D $(x+7)(x+1)+(y-7)(y+3)=0$

33. When $f(x) = 2x^3 + x^2 - 13x + 6$ is divided by $2x - 1$, the remainder is

A 13

B 52

C $\frac{1}{2}$

D 0

34. The range of values of x for which $|x-4| \le 2$ is

A $x \le 6$

B $x \le 2$ or $x \ge 6$

C $2 \le x \le 6$

D $x \ge 2$

35. Which of the following statements is TRUE?

A If $x^2 = y^2$, $then\, x = y$

B If f(a)=0 then x+a is a factor of f(x)

C If f(x) has a maximum value at x=a then $f''(a) > 0$

D Let $m, n \in Z$ be the set of integers. If m and n are both odd, then m+n is even

36. Given that $f(x) = \begin{vmatrix} x & x^2 & x^3 \\ 1 & 2x & 3x^2 \\ 0 & 2 & 6x \end{vmatrix}$, $f'(x) =$

A 12

B $6x^2$

C 6x

D $42x^2$

37. Given that x is a periodic function of period 4 and that

$f(x) = \{x^2,\ 0 \le x < 2;\ x+2,\ 2 \le x < 4$

then f(9=

A 1

B 81

C 11

D 7

38. Given that

$\frac{x}{(3-x)(4-x)} \equiv \frac{p}{3-x} + \frac{q}{4-x}$

A p=3, q=4

B p=4, q= -3

C p=3. q= -4

D p= -3, q= -4

39. Two consecutive integers between which a root of the equation $x^3 + x - 16 = 10$ lies are

A 1 and 2
B 2 and 3
C 3 and 4
D 4 and 5

40. The range of real values of x for which $\frac{x-3}{x+2} \leq 0$ *is*

A $x \leq -2$ *or* $x \geq 3$
B $-2 < x \leq 3$
C $x \leq -3$ *or* $x \geq 2$
D $-3 \leq x \leq 2$

41. When $(3 - 2x)^{\frac{1}{2}}$ is expanded in ascending powers of x, *the range of values of* x for which the expansion is valid is

~~A~~ $-\frac{3}{2} < x < \frac{2}{3}$

B $-\frac{2}{3} < x < \frac{3}{2}$

C $-\frac{3}{2} < x < \frac{3}{2}$

D $-\frac{2}{3} < x < \frac{2}{3}$

42. The general solution of the equation $\sec(\theta + 30^o) = 2$ is

A $\theta = 360^o n \pm 30^o - 60^o$
B $\theta = 180^o n \pm 30^o - 60^o$
~~C~~ $\theta = 360^o n \pm 60^o - 30^o$
D $\theta = 180^o n \pm 60^o - 30^o$

43. The sine of the acute angle between the plane π *and the line* l, *where*

π: $x - y + z = 2$ and

l: $\frac{x-2}{2} = \frac{y+1}{2} = \frac{z}{1}$ is

A $\frac{1}{\sqrt{5}}$

B $\frac{1}{\sqrt{15}}$

~~C~~ $\frac{1}{3\sqrt{3}}$

D $\frac{1}{\sqrt{3}}$

44. The vector equation of a straight line is

$r = 2i + j - 2k + t(3i + 2j + 6k)$

The direction cosines of the line are

A $[2, 1, -2]$
B $[3, 2, 6]$
C $\left[\frac{2}{3}, \frac{1}{3}, -\frac{2}{3}\right]$
~~D~~ $\left[\frac{3}{7}, \frac{2}{7}, \frac{6}{7}\right]$

45. Given the parametric equations

$x = 2t + \sin 2t$ and $y = 2 - \cos 2t$

Where t is the parameter,

$\frac{dy}{dx} =$

A $-\tan t$
B $\frac{\sin 2t}{1+\cos 2t}$
C $\cot t$
D $\frac{\sin t \cos t}{2(1+\cos 2t)}$

46. Given that

$y = x\ln(3x^2)$, *the value of* $\frac{dy}{dx}$ *when* $x = 1$ *is*

A 3
B $\ln 3$
C $1 + \ln 3$
D $2 + \ln 3$

47. The values of y corresponding to the values of x are given in the table below

x	6	9	12	15	18	21
Y	0.3	0.8	1.4	2.1	3.0	4.3

Using the trapezoid rule, the approximate value for $\int_{6}^{21} y\,dx$ is

A 9.6
B 35.7
C 28.9
D 28.8

48. The gradient of the implicit function to the curve $x^2 + y^2 = 13$ at the point$(2,-3)$ is

A $-\frac{2}{3}$

B $\frac{3}{2}$

C $\frac{2}{3}$

D $-\frac{3}{2}$

49. $\sin 50^\circ + \sin 40^\circ =$

A $\sqrt{2}\cos 5^\circ$
B $2\cos 10^\circ$
C $2\cos 5^\circ$
D $\sqrt{2}\cos 10^\circ$

50. The value of the constant λ, for which the plane $\lambda x - 3y + 4z = 5$ and the line $r = i - 2j - 3k + t(2i + 6j + 3k)$ are parallel is

A 6
B 3
C 4
D 5

51. A point P divides the line segment joining the points M(4, 1) and N(7, 7) internally in the ratio 2:1. The coordinates of P are

A (5, 6)
B (5, 5)
C (6, 3)
D (6, 5)

52. If $4\log_{10} x - \log_{10} y = \log_{10} 13$ *then*

A $x^4 y = 13$
B $4x = 13y$
C $x^4 = 13y$
D $4^x = 13y$

53. A first approximation to the real root of the equation $x^3 + x^2 - 5x - 1 = 0$ *is* 2. A second approximation to the root of the equation, using the Newton-Raphson's method, is

A $\frac{21}{11}$
B $\frac{23}{11}$
C $\frac{19}{11}$
D $\frac{18}{11}$

54. Given the complex number z, where $z = -\sqrt{3} - i$, the modulus-argument form for z is

A $2(\cos\frac{\pi}{6} - i\sin\frac{\pi}{6})$
B $2(\cos\frac{5\pi}{6} - i\sin\frac{5\pi}{6})$
C $2(\cos\frac{\pi}{6} + i\sin\frac{\pi}{6})$
D $2(\cos\frac{5\pi}{6} - i\sin\frac{5\pi}{6})$

55. Given that $\sqrt{3}\cos x = \cos(\frac{\pi}{6} - x)$, $\tan x =$

A $\sqrt{3}$
B $\frac{1}{\sqrt{3}}$
C 1
D $\frac{\sqrt{3}}{2}$

56. $\int e^{3x}dx =$

A $\frac{1}{3x+1}e^{3x+1} + k$
B $3e^{3x} + k$
C $e^{3x} + k$
D $\frac{1}{3}e^{3x} + k$

57. Given the parametric equations $x = 2t + \sin 2t$ *and* $y = 1 - \cos 2t$ where t is a parameter, $\frac{dy}{dx} =$

A $-\tan t$
B $\cot t$
C $\frac{-\sin 2t}{1+\cos 2t}$
D $\frac{\sin 2t}{1+\cos 2t}$

58. The curve $y = (x+2)^2$ has a minimum point at

A (0, 4)
B (4, 0)
C (0, -2)
D (-2, 0)

49. $\sin 50^\circ + \sin 40^\circ =$

A $\sqrt{2}\cos 5^\circ$
B $2\cos 10^\circ$
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50. The value of the constant λ, for which the plane $\lambda x - 3y + 4z = 5$ and the line $r = i - 2j - 3k + t(2i + 6j + 3k)$ are parallel is

A 6
B 3
C 4
D 5

51. A point P divides the line segment joining the points M(4, 1) and N(7, 7) internally in the ratio 2:1. The coordinates of P are

A (5, 6)
B (5, 5)
C (6, 3)
D (6, 5)

52. If $4\log_{10} x - \log_{10} y = \log_{10} 13$ *then*

A $x^4 y = 13$
B $4x = 13y$
C $x^4 = 13y$
D $4^x = 13y$

53. A first approximation to the real root of the equation $x^3 + x^2 - 5x - 1 = 0$ *is* 2. A second approximation to the root of the equation, using the Newton-Raphson's method, is

A $\frac{21}{11}$
B $\frac{23}{11}$
C $\frac{19}{11}$
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54. Given the complex number z, where $z = -\sqrt{3} - i$, the modulus-argument form for z is

A $2(\cos\frac{\pi}{6} - i\sin\frac{\pi}{6})$
B $2(\cos\frac{5\pi}{6} - i\sin\frac{5\pi}{6})$
C $2(\cos\frac{\pi}{6} + i\sin\frac{\pi}{6})$
D $2(\cos\frac{5\pi}{6} - i\sin\frac{5\pi}{6})$

55. Given that $\sqrt{3}\cos x = \cos(\frac{\pi}{6} - x)$, $\tan x =$

A $\sqrt{3}$
B $\frac{1}{\sqrt{3}}$
C 1
D $\frac{\sqrt{3}}{2}$

56. $\int e^{3x} dx =$

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B $3e^{3x} + k$
C $e^{3x} + k$
D $\frac{1}{3} e^{3x} + k$

57. Given the parametric equations $x = 2t + \sin 2t$ and $y = 1 - \cos 2t$ where t is a parameter, $\frac{dy}{dx} =$

A $-\tan t$
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51. A point P divides the line segment joining the points M(4, 1) and N(7, 7) internally in the ratio 2:1. The coordinates of P are

A (5, 6)

B (5, 5)

C (6, 3)

D (6, 5)

52. If $4\log_{10} x - \log_{10} y = \log_{10} 13$ *then*

A $x^4 y = 13$

B $4x = 13y$

C $x^4 = 13y$

D $4^x = 13y$

53. A first approximation to the real root of the equation $x^3 + x^2 - 5x - 1 = 0$ *is* 2. A second approximation to the root of the equation, using the Newton-Raphson's method, is

A $\frac{21}{11}$

B $\frac{23}{11}$

C $\frac{19}{11}$

D $\frac{18}{11}$

54. Given the complex number z, where $z = -\sqrt{3} - i$, the modulus-argument form for z is

A $2(\cos\frac{\pi}{6} - i\sin\frac{\pi}{6})$

B $2(\cos\frac{5\pi}{6} - i\sin\frac{5\pi}{6})$

C $2(\cos\frac{\pi}{6} + i\sin\frac{\pi}{6})$

D $2(\cos\frac{5\pi}{6} - i\sin\frac{5\pi}{6})$

55. Given that $\sqrt{3}\cos x = \cos(\frac{\pi}{6} - x)$, $\tan x =$

A $\sqrt{3}$

B $\frac{1}{\sqrt{3}}$

C 1

D $\frac{\sqrt{3}}{2}$

56. $\int e^{3x}dx =$

A $\frac{1}{3x+1}e^{3x+1} + k$

B $3e^{3x} + k$

C $e^{3x} + k$

D $\frac{1}{3}e^{3x} + k$

57. Given the parametric equations $x = 2t + \sin 2t$ *and* $y = 1 - \cos 2t$ where t is a parameter, $\frac{dy}{dx} =$

A $-\tan t$

B $\cot t$

C $\frac{-\sin 2t}{1 + \cos 2t}$

D $\frac{\sin 2t}{1 + \cos 2t}$

58. The curve $y = (x + 2)^2$ has a minimum point at

A (0, 4)

B (4, 0)

C (0, -2)

D (-2, 0)

59. The number of selections of 3 students from a class of 7 students for a party in which the class prefect must attend is

A $1 \times {}^6C_3$

B $1 + {}^6C_3$

C $1 \times {}^6C_2$

D $1 + {}^6C_2$

60. Given that x-c is a factor of f(x), where $f(x) = 2x^3 - cx^2 + +c(1-c)x - (6+c)$, the value of the constant c is

A 2 or -3

B -2 or 3

C -2 or -3

D 2 or 3

61. Given the differential equation $\cos x \frac{dy}{dx} = y \sin x$, then

A $y = \ln(\sec x) + K$

B $\ln y = \ln(\sec x) + K$

C $y = \sec x + K$

D $\ln y = \sec x + K$

62. $\sum_{r=1}^{n+1} (r-1) =$

A $\frac{1}{2}n(n+1) - (n+1)$

B $\frac{1}{2}n(n+1)(n+2) - n$

C $\frac{1}{2}n(n+1)$

D $\frac{1}{2}n(n+2) - (n+1)$

63. $\lim_{x \to 0} \left(\frac{\sin 2x - \sin x}{\sin x} \right) =$

A 0

B -3

C 2

D 1

64. Given that $\frac{d}{dx}(3x^3e^{2x}) = 3x^2(a+bx)e^{2x}$

A a=9, b=6

B a=6, b=9

C a=2, b=3

D a=3, b=2

65. The number of arrangements of the letters of the word MINIMUM is

A $\frac{7!}{2!3!}$

B $7! \times 3! \times 2!$

C $7!$

D $\frac{5!}{2!3!}$

66. If $\frac{2}{x-2} + \frac{3}{x+1} = \frac{ax+b}{(x-2)(x+1)}$ then the values of the real constants a and b are respectively

A 5, 4

B 5, -4

C -5, 4

D -5, -4

67. The roots of the quadratic equation $cx^2 - 3x - c = 0$ are

A $\frac{3 \pm \sqrt{9 - 4c^2}}{2c}$

B $\frac{3 \pm \sqrt{9 + 4c}}{2c}$

C $\frac{3 \pm \sqrt{9 + 4c^2}}{2c}$

D $\frac{3 \pm \sqrt{9 - 4c}}{2c}$

68. Given that $x \in R$ and that $x > 0$, the root of the equation $\log 2 + \log(2x^2 + 2x - 1) = 0$ is

A $\frac{3}{2}$

B $\frac{2}{3}$

C $\frac{1}{4}$

D $\frac{1}{2}$

69. The diameters of two concentric circles are 10m and 6m. The area of the region between the two circles is

A 16π
B 64π
C 4π
D 9π

70. The parametric equations of a curve are $1 - x = \tan\theta$, $y = \sec\theta$.
The Cartesian equation of this curve is

A $x^2 - y^2 + 2x + 2 = 0$
B $x^2 - y^2 + 2x - 2 = 0$
C $x^2 - y^2 - 2x + 2 = 0$
D $x + y^2 - 2x + 2 = 0$

71. $n! + (n-1)! + (n-2)! =$

A $n^2(n-1)!$
B $n^2(n-2)!$
C $n(n-2)!$
D $n(n-1)!$

72. The period of the function $f(x) = 3\cos 5x$ is

A $\frac{2\pi}{5}$
B $\frac{5\pi}{2}$
C $\frac{2\pi}{3}$
D $\frac{3\pi}{5}$

73. The general solution of the equation $\sin 2x = \frac{\sqrt{3}}{2}$ is

A $\frac{\pi}{6}[3n + (-1)^n]$
B $\frac{\pi}{2}[6n + (-1)^n]$
C $\frac{\pi}{6}[2n + (-1)^n]$
D $\frac{\pi}{3}[3n + (-1)^n]$

74. If $y = \ln(\frac{x+1}{2x})$, then $\frac{dy}{dx}$ is

A $\frac{2x}{1+x}$
B $\frac{1}{x+1} - \frac{1}{x}$
C $\frac{1}{x+1} + \frac{1}{2x}$
D $\frac{1}{x+1} - \frac{1}{2x}$

75. $\int_1^2 3e^{\ln x^2} dx =$

A 6 ln2
B $\frac{3}{\ln 4}$
C 8
D 7

76. An Arithmetic Progression has first term ln2 and common difference ln4. The sum of the first 4 terms of the progression is

A 16 ln4
B 16 ln2
C 10 ln4
D 8 ln2

77. The statement $x - 3 > \frac{x-4}{x}$, $x \in R$ is equivalent to

A $\frac{x^2 - 4x + 4}{x} > 0$
B $x^2 - 4x + 4 > 0$
C $\frac{x^2 - 4x - 4}{x} > 0$
D $x^2 - 2x - 4 > 0$

78. The argument of the complex number z, where $z = \frac{1+i}{1-i}$ is

A $\frac{\pi}{4}$
B $\frac{\pi}{3}$
C $\frac{\pi}{2}$
D $\frac{\pi}{6}$

79. The set of values of x for which the geometric series $\sum_{r=0}^{\infty}(x-1)^r$ is convergent is

A $0 < x < 2$
B $-1 < x < 1$
C $-2 < x < 1$
D $0 \leq x \leq 2$

80. The partial fractions corresponding to $\frac{2x+7}{x^2+5x+6}$ are

A $\frac{3}{x+2} - \frac{1}{x+3}$
B $-\frac{3}{x+2} + \frac{1}{x+3}$
C $-\frac{3}{x+2} - \frac{1}{x+3}$
D $\frac{3}{x+2} + \frac{1}{x+3}$