21. If (x - 2) is a factor of the polynomial x^3 - 2x^2 - kx + 2k, what is the value of k?

A. 3

B. 4

C. 5

D. 6

22. What is the degree of the zero polynomial?

A. 0

B. 1

C. Undefined

D. Infinity

23. The polynomial p(x) = x^4 - 2x^3 + x^2 - 8x + 4 has how many real roots?

A. 1

B. 2

C. 3

D. 4

24. Which of the following expressions is a quadratic polynomial?

A. x^2 + √2

B. x^3 + x^2 + x + 1

C. 3√x + 2

D. 2x^2 - 5x + 3

25. If the polynomial x^2 + px + q is divided by x + 1, the remainder is 10. What is p + q?

A. 9

B. 10

C. 11

D. 12

26. For which of the following values of k will the polynomial x^2 + kx + 64 have two equal roots?

A. -8

B. 8

C. 16

D. -16

27. What is the coefficient of x^2 in the polynomial (2x^3 + 3x^2 - 5x + 7) - (5x^3 - 2x^2 + x - 3)?

A. 5

B. 4

C. 1

D. -1

28. If the roots of the quadratic polynomial ax^2 + bx + c = 0 are reciprocal of each other, then which of the following is true?

A. ac = b^2

B. a = c

C. a^2 = bc

D. ab = c

29. The polynomial x^3 - 4x^2 + x + 6, when divided by x - 2, gives a remainder of:

A. 0

B. 2

C. 4

D. -2

30. Which of the following is not a polynomial function?

A. y = x^2 + 2x + 1

B. y = 5x^(-2) + 3

C. y = x^5 + 4x^3 - 2x^2 + x

D. y = 7

31. If a and b are the roots of the polynomial x^2 - x - 1, what is the value of a^2 + b^2?

A. 1

B. 3

C. 5

D. 7

32. If one root of the quadratic equation x^2 - 3x + k = 0 is 2, what is the value of k?

A. 2

B. 4

C. 6

D. 8

33. What is the sum of the squares of the zeros of the polynomial x^2 - 5x + 6?

A. 25

B. 36

C. 1

D. 30

34. The roots of the polynomial x^2 - (k/2)x + 16 are real and equal. Find the value of k.

A. 8

B. 16

C. 4

D. -8

35. If the polynomial x^3 - 3x^2 + x + 5 is divided by x - 1, then the quotient is:

A. x^2 - x + 5

B. x^2 - 2x + 3

C. x^2 - 4x + 5

D. x^2 - x + 1

36. The remainder when x^3 + 2x^2 + 3x + 4 is divided by x + 1 is:

A. 0

B. 1

C. 2

D. 4

37. Which of the following is a binomial of degree 3?

A. x^3 - 2x^2

B. x^2 - 2

C. x^3

+ 3

D. 3x - 2

38. If (x + 1) and (x - 2) are factors of the polynomial ax^2 + bx + c, then what is a + b + c?

A. 1

B. -1

C. 2

D. -2

39. What is the discriminant of the quadratic equation 3x^2 - 4x + 1 = 0?

A. 4

B. 16

C. 8

D. -8

40. If the polynomial 2x^3 - 3x^2 - 11x + 6 is divided by the polynomial x - 1, then the remainder is:

A. 0

B. 1

C. -1

D. 2

Here are the answers to the MCQs:

21. B. 4

22. C. Undefined

23. D. 4

24. D. 2x^2 - 5x + 3

25. B. 10

26. B. 8

27. A. 5

28. B. a = c

29. A. 0

30. B. y = 5x^(-2) + 3

31. B. 3

32. B. 4

33. D. 30

34. A. 8

35. B. x^2 - 2x + 3

36. C. 2

37. C. x^3 + 3

38. B. -1

39. A. 4

40. A. 0

These questions cover concepts such as polynomial division, factor theorem, relationship between roots and coefficients, and the nature of polynomial roots.