PRINTABLE VERSION

Quiz 18

Question 1

Find the zero(s) of the polynomial

$$P(x) = x^2 - 16$$

a) ○ 4

b) ○ $-16, 16$

c) ○ -4

d) ○ $-4, 4$

e) ○ $0, 4$

f) ○ None of the above

Question 2

Find all the zero(s) (real or complex) of the polynomial

$$P(x) = 64\,x^2 + 16$$

a) ○ $\dfrac{-i}{2}, \dfrac{i}{2}$

b) ○ $-\dfrac{1}{2}, \dfrac{1}{2}$

c) ○ $-2\,i, 2\,i$

d) ○ $-4\,i, 4\,i$

e) ○ $-4, 4$

f) ○ None of the above

Question 3

Find the zero(s) of the polynomial

$$P(x) = x^3 - 9x$$

a) ○ $\{-3, 3\}$

b) ○ $\{-9, 0\}$

c) ○ 9

d) ○ $\{0, 3\}$

e) ○ $\{-3, 0, 3\}$

f) ○ None of the above

Question 4

Find the zero(s) of the function

$$P(x) = x^3 + x^2 - 16x - 16$$

a) ○ $\{4, 1\}$

b) ○ $\{-4, 4, -1\}$

c) ○ -1

d) ○ $\{4, -1, 1\}$

e) ○ $\{-4, 4, 1\}$

f) ○ None of the above

Question 5

Find a polynomial with integer coefficients that satisfies the following conditions:

Degree of polynomial : 3
Zeros : $4, -2i, 2i$
Constant coefficient : -112

a) ○ $P(x) = -x^3 - 4x^2 + 28x - 112$

b) ○ $P(x) = 7x^3 + 28x^2 + 7x + 112$

c) ○ $P(x) = x^3 - 4x^2 + 4x - 112$

d) ○ $P(x) = 7x^3 - 28x^2 + 28x - 112$

e) ○ $P(x) = 7x^3 - 28x^2 - 28x - 112$

f) ○ None of the above

Question 6

Find a polynomial with integer coefficients that satisfies the following conditions :

Degree of polynomial : 3
Zeros : 3, 2 i
Constant coefficient : -24

a) ○ $P(x) = x^3 - 6x^2 + 8x - 24$

b) ○ $P(x) = 2x^3 - 2x^2 + 8x - 24$

c) ○ $P(x) = x^3 + 6x^2 + 8x + 24$

d) ○ $P(x) = 2x^3 - 6x^2 + 8x - 24$

e) ○ $P(x) = x^3 - 4x^2 - 8x - 24$

f) ○ None of the above

Question 7

Factor the polynomial completely and find all its zeros and their multiplicities.

$$P(x) = x^5 - 2x^4 + x^3$$

a) ○ The zeros are: 0 of multiplicity 2, -1 of multiplicity 2

b) ○ The zeros are: 0 of multiplicity 3, 1 of multiplicity 2

c) ○ The zeros are: 0 of multiplicity 4, 1 of multiplicity 2

d) ○ The zeros are: 0 of multiplicity 4, -1 of multiplicity 1

e) ○ The zeros are: 0 of multiplicity 1, 1 of multiplicity 4

f) ○ None of the above

Question 8

Find a polynomial of degree 5 with integer coefficients that has zeros 2, $\sqrt{3}i$, $\sqrt{2}i$, and y-intercept of 60.

a) ○ $P(x) = -5(x-2)(x^2-2)(x^2-3)$

b) ○ $P(x) = -5(x-2)(x^2+3)(x^2+2)$

c) ○ $P(x) = -5(x+2)(x^2-2)(x^2-3)$

d) ○ $P(x) = (x+2)(x^2-2)(x^2-3)$

e) ○ $P(x) = (x-2)(x^2+3)(x^2+2)$

f) ○ None of the above

Question 9

Factor the polynomial into linear irreducible factors.

$$P(x) = x^4 - 36$$

a) ○ $P(x) = (x-\sqrt{6})(x+\sqrt{6})(x-\sqrt{6}\sqrt{i})(x+\sqrt{6}\sqrt{i})$

b) ○ $P(x) = (x-\sqrt{6})^2(x+\sqrt{6}\sqrt{i})^2$

c) ○ $P(x) = (x-\sqrt{6})(x+\sqrt{6})(x-\sqrt{6}i)(x+\sqrt{6}i)$

d) ○ $P(x) = (x+\sqrt{6})^2(x-\sqrt{6}i)^2$

e) ○ $P(x) = (x-\sqrt{6})^2(x+\sqrt{6}i)^2$

f) ○ None of the above

Question 10

Factor the polynomial into linear irreducible factors.

$$P(x) = x^4 + 6x^2 - 27$$

a) ○ $P(x) = (x-\sqrt{3})(x+\sqrt{3})(x-3i)(x+3i)$

b) ○ $P(x) = (x-\sqrt{3})^2(x-3)^2$

c) ○ $P(x) = (x - \sqrt{3})(x + \sqrt{3})(x - 3)(x + 3)$

d) ○ $P(x) = (x - \sqrt{3}i)(x + \sqrt{3}i)(x - 3\,i)(x + 3\,i)$

e) ○ $P(x) = (x - \sqrt{3}i)(x + \sqrt{3}i)(x - 3)(x + 3)$

f) ○ None of the above