The Bodwad Sarvajanik Co-Op. Education Society Ltd., Bodwad

Arts, Commerce and Science College Bodwad

<u>Question Bank</u>

Class:- FYBSc **Sem:- II**

Subject: Theory Of Equations **Paper Name:-MTH202**

Sr.No.	Questions	Ans
1	If a, b are integers and $a \mid b$ and $b \mid c$ then $a \mid c$. a) True b) False	A
2	If a, b are integers and $a \mid b$ and b $\mid a$ then $a = \pm b$. a) True b) False	A
3	If a, b are integers and $a \mid b$ and a $\mid c$ then $a \mid (b + c)$. a) False b) True	B
4	If p is prime and a, b are integers $s \neq p \mid a\ b\ then\ p \mid a\ or\ p \mid b$ a) True b) False	A
5	$\sqrt{13}$ is not rational number. a) True b) False	A
6	$\sqrt{17}$ is not rational number. a) True b) False	A
7	$1 + 3 + 5 + - - - + (2n - 1) = ?$ a) n b)n^{22} c) n^3 d) n^2	D
8	An expression $a_0 + a_1 x + a_2 x^2 + - - - + a_n x^n$ represents polynomial in x . If degree n for integer value $n \geq o$ A)True B)False	A
9	Which is example of polynomial? a)25 b)$\frac{5}{x}$ c) x^{-2} d) None of these	A
10	Which is non example of polynomial? a)$x + x^2$ b) x^4 c) 6 d) $x^{-1} + 7$	D

11	Statement of Descartes' rule of signs for positive Roots of $f(x) = 0$. Is given by No equation $f(x) = 0$ can have more positive roots than it has changes of signs from + to -,and from - to +in terms of the first term. A)True B)False	A
12	Statement of Descartes' rule of signs for negative roots of $f(x)$. No equation $f(x) = 0$ can have more negative roots than the number of changes in signs from positive to negative and from negative to positive in the terms of $f(-x)$. A) True B)False	A
13	consider the equation $f(x) \equiv x^3 - 6x^2 + 11x - 6 = 0$ The number of changes in signs =? A)0 B)1 C)3 D)4	C
14	consider the equation $f(x) \equiv x^3 - 6x^2 + 11x - 6 = 0$ equation can not have more than ….. positive roots. A)0 B)3 C) 1 D)2	B
15	$f(x) \equiv x^3 - 6x^2 + 11x - 6 = 0$ The given equation $f(x) = 0$ can not have negative root. A)True B)False	A
16	Let $f(x) \equiv x^4 - 9x^2 + 4 = 0$ The number of changes in signs =? A)0 B)1 C) 2 D)3	C
17	Let $f(x) \equiv x^4 - 9x^2 + 4 = 0$. The given equation can not have more than two positive roots. A)True B)False	A
18	Every nonempty subset of N has a ...... element 0 B) Greatest C) Least D) None of these	C
19	Let P(n) be the statement for $n \in N$, such that i) P(1) is true, ii) P(r) is true $\forall r < m \Rightarrow P(m)$ is true Then P(n) is true for all $n \in N$ is the statement of ...... A) First principle of finite induction B) Second principle of finite induction C) Generalized form of first principle of finite induction D) None of These	B
20	1+2+3+ ...... + n = ... A) $\frac{n(n+1)(2n+1)}{6}$ B) n^2 $C)$ $\frac{n(n+1)}{2}$ D) None of these	C
21	$1^2+2^2+3^2+ \ldots\ldots + n^2= \ldots\ldots$	A

	A) $\frac{n(n+1)(2n+1)}{6}$ B) n^2 $C)$ $\frac{n(n+1)}{2}$ D) None of these	
22	For any natural number n, $5^n + 3$ is divisible by ...... 3 B) 5 C) 4 D) None of these	C
23	For any natural number n, $7^n + 2$ is divisible by ...... 3 B) 4 C) 5 D) None of these	A
24	If a|b and a|c then ...... A) a|bc B) a|b±c C)a|bx+cy D) All of These	D
25	If a and b any two integers with b ≠ 0 then there exist unique integers q and r such that a = ... where 0 ≤ r < |b| A) bq+r B) bq-r C)bq D) None of These	A
26	g.c.d of 75 and 48 is ...... A) 3 B) 12 C) 15 D)None of These	A
27	L.C.M of 6 and 10 is .... A) 6 B) 30 C)60 D) None of These	B
28	L.C.M of 12 and 50 is .... A) 6 B) 30 C)300 D) None of These	C
29	If a and b are relatively prime then g.c.d of a and b is ...... 0 B) 1 C)-1 D) None of These	B
30	If a, b, m, n are non-zero integers such that ma+nb= 1, then (a, b)= (m, n) = (a, n) = (m, b)= ... -1 B) 1 C) 0 D) None of these	B
31	If (a, k) = (b, k) = 1 then (ab,k) = ... 0 B)1 C) -1 D)None of these	B
32	If (a, b)= d , c|a , c|b then...... ab|cd B) c|d C)a|b D) None of These	B
33	If (a,b)= 1 then (a^2,b^2) = …… -1 B) 0 C)1 D) None of These	C
34	If (a, b)= 1 then for any positive integer (a^n,b^n) = ... -1 B) 0 C)1 D)None of These	C
35	If (a, b)= 1 then for any positive integer (a^n,b) = ... -1 B) 0 C)1 D)None of These	C
36	7 is ......number A)Prime B)not prime C)composite D) None of These	A
37	17 is ......number A)Prime B)not prime C)composite D) None of These	A
38	For any natural number n, $5^n - 1$ is divisible by ...... 3 B) 5 C) 4 D) None of these	C
39	When looking for possible positive roots, we need to look at... A) f(x)	A

	B) f(-x) C) -f(x) D) None of these	
40	If $f(x)=x^2+4x-1$ Then A) $f(-x)=x^2-4x-1$ B) $f(-x)=x^2-4x+1$ C) $f(-x)=x^2+4x+1$ D) $f(-x)= -x^2-4x-1$	A
41	When looking for possible negative roots, we need to look at... A) f(x) B) f(-x) C) -f(x) D) None of these	B
42	What information does Descartes' Rule of Signs provide? (A) How many solutions to expect (B) What kind of solutions to expect (positive, negative, imaginary) (C) Possible rational solutions to expect (D)None of these	B
43	The Descartes' rule mainly focuses on (A) Signs of the zeroes of an equation (B) Degree of the equation (C) Differentiation (D)None of the above	A
44	To remove the second term from the equation $a_0x^n + a_1x^{n-1}+\ldots+a_{n-1}x^{n-1} + a_n = 0$ diminish the roots by $h =$? A) $\frac{-a_1}{na_0}$ B)0 C) $\frac{a_1}{na_0}$ D)none of these	A
45	To remove the second term from the equation $x^4 - 8x^3++x^2 - x + 3 = 0$ diminish the roots by $h =$? A) 1 B)4 C)10 D)2	D
46	To remove the second term from the equation $x^4 - 8x^3+25x - 10 = 0$ diminish the roots by $h =$? A) 1 B)4 C)-1 D)2	C

47	To remove the second term from the equation $x^3 - 3x^2$+12$x - 4 = 0$ diminish the roots by $h =$? A) 1 B)4 C)-1 D)100	A
48	Carden's method is useful for solving the cubic equation A)True B)False	A
49	Descarte's Method is useful for solving the biquadratic equations A)True B)False	B
50	To remove the second term from the equation $x^3 + 6x^2$+9x+4=0 diminish the roots by $h =$? A) 1 B)4 C)-1 D)-2	D
51	To remove the second term from the equation $x^3 - 15x^2 - 33x + 847 = 0$ diminish the roots by $h =$? A) 1 B)4 C)-1 D)5	D
52	To remove the second term from the equation $x^3 - 6x^2$+9x+4=0 diminish the roots by $h =$? A) 2 B)4 C)-1 D)-2	A
53	If a,b,c are roots of cubic polynomial Then following is symmetric function A)a+b B)a^2 C)a-b D)None of these	D
54	If a,b,c are roots of cubic polynomial Then following is symmetric function A)a+b B)a^2 C)a+b+c D)None of these	C
55	If a,b,c are roots of cubic polynomial Then following is symmetric function A)a+b B)a^2 C)a-b+c D)None of these	D
56	If a,b,c are roots of cubic polynomial Then following is symmetric function A)a+b B)ab+bc+ca C)a-b+c D)None of these	B
57	If a,b,c are roots of cubic polynomial Then following is symmetric function A)a+b B)ab-bc+ca C)a-b+c D)None of these	D
58	If a,b,c are roots of cubic polynomial Then symmetric function $\sum a^2$ represents A)$a^2 + b^2 + c^2$ B) a+b+c C) $a^2 - b^2 + c^2$ D) $a^2 + b^2$	A
59	If a,b,c are roots of cubic polynomial Then following is symmetric function $\sum ab$ represents A)a+b B)ab+bc+ca C)a-b+c D)None of these	B
60	If a,b,c are roots of cubic polynomial Then following is symmetric function $\sum abc$ represents A)a+b B)ab+bc+ca C)abc D)None of these	C
61	The equation whose roots are negatives of the roots of $x^6 + 5x^3 - 7x^2 + 4x - 8 = 0$ is given by $x^6 - 5x^3 - 7x^2 - 4x - 8 = 0$ A)True B)False	A

62	The equation whose roots are negatives of the roots of $x^6 - 5x^3 - 7x^2 + 4x - 8 = 0$ is given by $x^6 - 5x^3 - 7x^2 - 4x - 8 = 0$ A)True B)False	B
63	The equation whose roots are negatives of the roots of $x^6 - 5x^3 - 7x^2 + 4x - 8 = 0$ is given by $x^6 + 5x^3 - 7x^2 - 4x - 8 = 0$ A)True B)False	A
64	The equation whose roots are negatives of the roots of $x^7 + 4x^5 - 8x^3 + 6x^2 - 11x + 13 = 0$ is given by A) $x^7 + 4x^5 - 8x^3 - 6x^2 - 11x - 13 = 0$ B) $x^7 + 4x^5 - 8x^3 + 6x^2 - 11x + 13 = 0$ C) $11x^7 + 4x^5 - 8x^3 + 6x^2 - 11x + 13 = 0$ D)none of these	A
65	The equation whose roots are negatives of the roots of $x^6 + 5x^3 - 7x^2 + 4x - 8 = 0$ is given by A) $x^6 + 5x^3 - 7x^2 + 4x + 8 = 0$ B) $x^6 - 5x^3 - 7x^2 - 4x - 8 = 0$ C) $x^6 + 15x^3 - 7x^2 + 4x + 8 = 0$ D) $x^6 + 5x^3 - 7x^2 + 4x + 18 = 0$	B
66	The equation whose roots the reciprocals of the roots are of $3x^4 + 4x^3 - 7x^2 + 5\,x - 1 = 0$ is given by A) $x^4 + 4x^3 - 7x^2 + 5\,x - 1 = 0$ B) $x^4 + 5x^3 - 7x^2 + 4x + 1 = 0$ C) $-x^4 + 5x^3 - 7x^2 + 4x + 1 = 0$ D) $-x^4 - 5x^3 - 7x^2 + 4x + 1 = 0$	C
67	The equation whose roots the reciprocals of the roots are of $x^3 + 5x^2 - 7\,x + 8 = 0$ is given by A) $8x^3 - 7x^2 + 5\,x + 8 = 0$ B) $8x^3 + 7x^2 + 5\,x + 1 = 0$ C) $x^3 + 5x^2 - 7\,x + 8 = 0$ D) $8x^3 - 7x^2 + 5\,x + 1 = 0$	D
68	The equation whose roots the reciprocals of the roots are of $39x^3 + 17x^2 - 13 = 0$ is given by A) $3x^3 + 7x^2 - 39 = 0$ B) $13x^3 + 7x^2 - 13 = 0$ C) $13x^3 + 17x^2 - 3 = 0$ D) $13x^3 - 17x^2 - 39 = 0$	D

69	The equation whose roots the reciprocals of the roots are of $x^4+39x^3+17x^2-13=0$ is given by $A)3x^3+7x^2-39=0$ $B)13x^3+7x^2-13=0$ $C)13x^3+17x^2-3=0$ $D)-13x^4+17x^3+39x+1=0$	D
70	The equation whose roots are Three times the roots of $3x^4-4x^3+4x^2-2x+1=0$ is given by A) $3x^4-12x^3+36x^2-54x+81=0$ B) $3x^4-4x^3+4x^2-2x+1=0$ C) $3x^4-12x^3+36x^2-54x+1=0$ D) $x^4-12x^3+36x^2-54x+81=0$	A
71	The equation whose roots are Three times the roots of $x^4-4x^3+4x^2-2x+1=0$ is given by A) $x^4-12x^3+36x^2-54x+81=0$ B) $3x^4-4x^3+4x^2-2x+1=0$ C) $3x^4-12x^3+36x^2-54x+1=0$ D) $3x^4-12x^3+36x^2-54x+81=0$	A
72	The equation whose roots are Two times the roots of $x^4-4x^3+4x^2-2x+1=0$ is given by $A)x^4-8x^3+16x^2-16x+16=0$ $B)3x^4-4x^3+4x^2-2x+1=0$ $C)3x^4-12x^3+36x^2-54x+1=0$ $D)3x^4-12x^3+36x^2-54x+81=0$	A
73	The equation whose roots are Two times the roots of $x^4+4x^3+4x^2-2x+1=0$ is given by $A)x^4+8x^3+16x^2-16x+16=0$ $B)3x^4-4x^3+4x^2-2x+1=0$ $C)3x^4-12x^3+36x^2-54x+1=0$ $D)3x^4-12x^3+36x^2-54x+81=0$	A
74	The equation whose roots are four times the roots of $x^3+x^2+1x+1=0$ is given by A) $3x^4-12x^3+36x^2-54x+81=0$ B) $3x^4-4x^3+4x^2-2x+1=0$ C) $3x^4-12x^3+36x^2-54x+1=0$ D) $x^3+4x^2+16x+64=0$	D
75	The equation whose roots are five times the roots of $x^3+x^2+x+1=0$ is given by	D

	A) $3x^4 - 12x^3 + 36x^2 - 54x + 81 = 0$ B) $3x^4 - 4x^3 + 4x^2 - 2x + 1 = 0$ C) $3x^4 - 12x^3 + 36x^2 - 54x + 1 = 0$ D) $x^3 + 5x^2 + 25x + 125 = 0$	
76	The equation whose roots are five times the roots of $x^3 - x^2 - x + 1 = 0$ is given by A) $3x^4 - 12x^3 + 36x^2 - 54x + 81 = 0$ B) $3x^4 - 4x^3 + 4x^2 - 2x + 1 = 0$ C) $3x^3 - 5x^2 - 25x + 125 = 0$ D) $x^3 + 5x^2 + 25x + 125 = 0$	C
77	$\sqrt{7}$ is …… [A] not rational number [B] rational number [C] integer [D] None of These	B
78	If $f(x) = a_0 + a_1x + a_2x^2 + a_3x^3 \cdots + a_nx^n$ with $a_n \neq 0$ is called …… of degree n. [A] polynomial [B] equation [C] linear equation [D] None of these	A
79	If $f(x) = a_0 + a_1x + a_2x^2 + a_3x^3 \cdots + a_nx^n$ with $a_n = 1$ is called …… polynomial of degree n. [A] quadratic [B] monic [C] linear [D]None of these	B
90	If $f(x) = a_0 + a_1x + a_2x^2 + a_3x^3 \cdots + a_nx^n$ is polynomial, then its constant term is …… [A]a_0 [B] a_1 [C] a_n [D] None of these	A
91	A polynomial of degree 2 is called …… polynomial. [A] linear [B] quadratic [C] cubic [D] None of these	B
92	Two polynomials $f(x) = a_0 + a_1x + a_2x^2 + a_3x^3 \cdots + a_mx^m$ and $g(x) = b_0 + b_1x + bx^2 + b_3x^3 \cdots + b_nx^n$ in Q[x] are equal if ……	A

	[A] $a_i = b_i \forall i\ and\ \ m = n$ [B] $a_i = b_i \forall i\ and\ \ m \neq n$ [C$a_i \neq b_i$ [D] None of these	
93	If $f(x) = a_0 + a_1x + a_2x^2\ + a_3x^3\ \cdots + a_nx^n$ with $a_n \neq 0$ is called … of degree n. [A] polynomial [B] equation [C] rational equation [D] None of these	A
94	If $f(x) = a_0 + a_1x + a_2x^2\ + a_3x^3\ \cdots + a_nx^n = 0$ is called monic polynomial equation of degree n, if a_n = …... [A] -1 [B] 0 [C] a_0 [D] 1	D
95	An equation of degree one is called …… equation. [A] linear [B] quadratic [C] cubic [D] None of these	A
96	$g(x) = 1 - 5x - 7x^2 + \frac{7}{2}x^4$ is polynomial of degree …… [A] 2 [B] 4 [C] 5 [D] None of these	B
97	If f(x) is polynomial of degree m and g(x) is polynomial of degree n then degree of [f(x)+g(x)] is …… [A] max.{m, n} [B] min.{m, n} [C] m+n [D] None of these	A
98	A polynomial of degree 3 is called …… polynomial. [A] linear [B] quadratic [C] cubic [D] None of these	C
99	$\sqrt{2}$ is ……	A

	[A] not rational number [B] rational number [C] integer [D] None of These	
100	When looking for possible negative roots, we need to look at... A)f(x) B)f(-x) C)-f(x) DNone of these	B
101	Every equation $f(x)=0$ of degree $n \geq 1$ with real coefficients has at least one real or complex root a) True b) False	A
102	If $f(x)=0$ is the equation with real coefficients, then all imaginary roots of $f(x)=0$ occur in conjugate pairs. a) False b) True	B
103	If $f(x)=0$ is the equation of odd degree with real coefficients, then $f(x)=0$ has at least one real root. a) True b) False	A
104	Transform equation whose roots are the roots of $x^3-3x^2+12\,x+16=0$ is diminished by 1 is given by a) $x^3+9\,x+26=0$ b) $x^3-9\,x+26=0$ c) $x^3-9\,x-26=0$ d) None of these	A
105	Transform equation whose roots are the roots of $x^3-12x^2+48\,x-72=0$ is diminished by 1 is given by a) $x^3-8=0$ b) $3x^3-8=0$ c) $4x^3-6=0$ d) None of these	A
106	Transform equation whose roots are the roots of $x^3+6x^2+9\,x+4=0$ is diminished by 1 is given by	A

	a) $x^3 - 3x + 2 = 0$ b) $x^3 - 6x + 2 = 0$ c) $x + 2 = 0$ d) None of these	