Assignment

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A. Fill in the blanks

1) The coefficient of x^{99} in the polynomial (x-1)(x-2)....(x-100) is....... (1982-2 Marks)
2) If $2+isqrt3$ is a root of the equation $x^2+px+q=0$,where p and q are real, then(p,q)=(........ , ...). (1982 - 2 Marks)
3) If the product of the roots of the equation $x^2-3kx+2e^{2lnk}-1=0$ is 7, then the roots are real for k =........ (1984 - 2 Marks)
4) If the quadratic equation $x^2+ax+b=0$ and $x^2+bx+c=0(a \neq b)$have a common root then value of a+b is...... (1986 - 2 Marks)
5) The solution of equation $log_7 log_5(sqrtx+5+sqrtx=0$ is...... (1986 - 2 Marks)
6) If $x<0, y, 0, x+y+\frac{x}{y}=\frac{1}{2}$ and $(x+y)(\frac{x}{y})=-\frac{1}{2}$, then x= .... and y= .... (1990 - 2 Marks)
7) Let n and k be such positive numbers such that $n \geq \frac{(k)(k+1)}{2}$. The number of solutions $(x_1, x_2, ...x_k), x_1 \geq 1, x_2 \geq 2, ..., x_k \geq k$, all integers, satisfying $x_1+x_2+...x_k=n$, is........ (1996 - 2Marks)
8) The sum of all the real roots of the equation $|x-2|^2+|x-2|-2=0$ is (1997 - 2 Marks)

B. True / False

1) For every integer $n>1$, the inequality $(n!)^{\frac{1}{n}}<\frac{n+1}{2}$ holds. (1981 - 2 Marks)
2) The equation $2x^2+3x+1=0$ has an irrational root. (1983 - 1 Mark)
3) If a¡b¡c¡d, then the roots of the equation $(x-a)(x-c)+2(x-b)(x-d)=0$ are real and distinct. (1984 - 1 Mark)
4) If $n_1, n_2, ...n_p$ are p positive integers, whose sum is an even number, then the number of odd integers among them is odd. (1985 - 1 Mark)
5) If $P(x)=ax^2+bx+c$ and $Q(x)=-ax^2+dx+c$, where ac $\neq$ 0, then P(x)Q(x)=0 has at least two real roots. (1985 - 1 Marks)
6) If x and y are positive real numbers and m,n are any positive integers, then $\frac{x^n y^m}{(1+x^{2n})(1+y^{2m})}>\frac{1}{4}$ (1989 - 1 Mark)