

GATE 2024 Electronics and Communication Engineering (EC) Answer Key

1. Bode plot of 40 db/dec?

Ans: 12 db/oct

2. $F = \sum m(0,2,5,7,8,10,12,13,14,15)$. Essential prime implicants?

Ans: BD, B'D'

3. Suppose x and y are independently and identically distributed random variables uniformly distributed in the intervals (0, 1). Find the probability that $(x \geq y) = ?$

Ans: 1/2

4. Base-r, $x^2 - 12x + 37 = 0$ has $x = 8$ as one of its solutions. Then $r = ?$

Ans: 11

5. $\{[2 \ -3 \ a], [3, \ -1 \ 3], [1 \ -5 \ 7]\}$. Find a.

Ans: 5

6. $Z_0 = 50 \text{ ohm}$, Mod Gamma = 0.6, $Z_{\max} = ?$

Ans: $Z_{\max} = 200 \text{ ohm}$

7. A white Gaussian $w(t)$ with zero mean and power spectral density $N_0/2$, when applied to a first-order RC low pass filter produces an output $n(t)$. At a particular time, $t = t_1$, the variance of the random variable $n(t) = \underline{\hspace{2cm}}$

a) N_0/RC b) $N_0/4RC$ c) $N_0/2RC$ d) $2N_0/RC$

Ans: b) $N_0/4RC$

8. Two identical sheets A and B of dimensions 24 cm x 16 cm, operations FO_1 or FO_2 . In FO_1 , the axis of folding remains parallel to the initial long edge parallel to the initial short edge. If sheet A is folded twice using FO_1 , and sheet B is folded twice into half using two distinct, the axis of folding remains. find the final ratio of A and B

- a) 11:18 b) 11:14 c) 14:11 d) 18:11

Ans: b)11:14

9. P,Q,R,S and T launched a new startup. Two of them are siblings. The office of the startup has just three rooms. All of them agree that the siblings should not share the same room. If S and Q are single children and the room allocations shown below are acceptable

PR TS Q PQ RT S

Then which of the given options is the sibling?

- a) T and Q b) T and S c) T and R d) P and T

Ans: d) P and T

10. Five years ago the ratio of Aman's age to his father's age was 1:4 and five years from now, the ratio will be 2:5. What is his father's age when Aman was born?

- a) 35 years b) 32 years c) 30 years d) 28 years

Ans: c) 30 years

