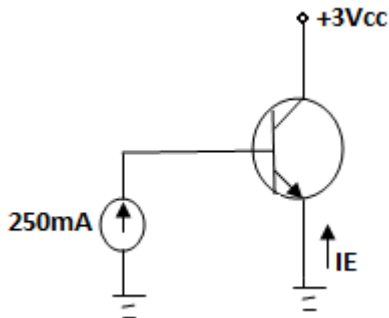


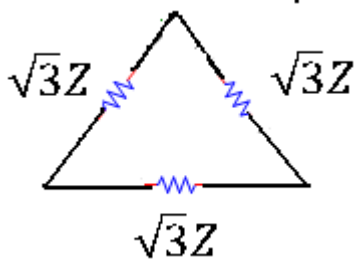
**BEL PROBATIONARY ENGINEER 2012 QUESTIONS (ECE)**

- ❖ I have attended BEL EXAM for Probationary Engineer (PE) at Bangalore on 1/7/2012
- ❖ Here I given some questions that I remember purely from my memory.
- ❖ I understand it is a criminal offense leaking out questions but I share here for knowledge of my friends since no apt questions are available in net.
- ❖ **The exam was 2 hrs total no. of questions was 150.**
- ❖ **Out of that 75 was Aptitude and English and rest 75 was Technical .**
- ❖ **Each right answer carry 1 and wrong -1 marks**
- ❖ **Here are some technical questions I remember.**

1. A question about Digital Volt meter.
2. Find  $V_{BE}$  and  $I_E$  for the given circuit given  $I_{sat} = 10^{-6} A$ ,  $\beta_R=0.5$ ,  $\beta_F=50$



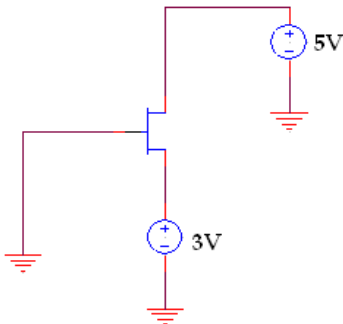
3. A question relating modulation index and efficiency of AM modulation.
4. If the input of UJT relaxation oscillator is doubled the voltage across capacitor  $V_C$  becomes?
5. Schering bridge is used to measure?
6. How many minterms are required in 6 variable expression  $A \oplus B \oplus C \oplus D \oplus E \oplus F$ .
7. If the current before modulation is 18A and current after modulation of AM is 20A what is the modulation index?
8. Two waves have equal amplitude and frequency 10KHz & 10.1KHz are detected using coherent detector what will be the output frequency of detector?
9. Convert the given delta to star topology



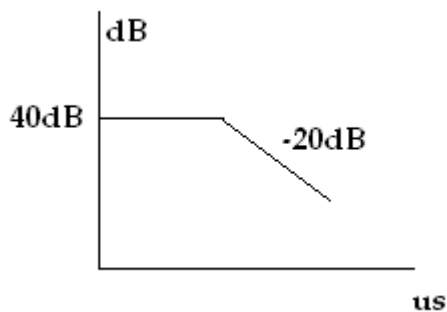
10. For a PCM the no. of bits increased from N to N+2 the SNR changes to dB
11. Delay in ripple & synchronous counter if input delay is 10ns
12. Find the condition for solution of equation no solution exists relating  $\lambda$  and  $\mu$   
 $X+Y+Z=6$   
 $X+4Y+6Z=20$

$$X+4Y+\lambda Z=\mu$$

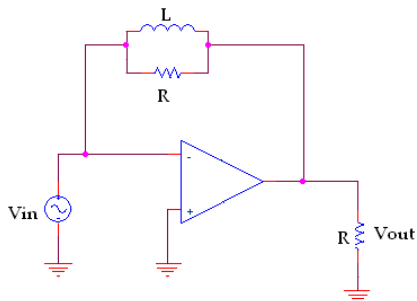
13. For minimum phase system slope & asymptote is?
14. Graph relating  $g_m$  &  $V_G$  of NMOS?
15. The below given transistor will be which operation region of characteristics?



16. Difference between TWT & Klystron.
17. Noise in Op Amp depends on?
18. The current shunt feedback is used for?
19. Voltage shunt feedback is used for?
20. The diode used as Temperature transducer is?
21. Find Z-Transform of  $(n+1)^2$
22. Inverse Laplace transform for  $[1-e^{-at}]$  unit impulse input is ?
23. Laplace inverse of  $\log\left(\frac{1+s}{s}\right)$
24. Steady state error of  $u(t)$  input for the given figure



25. Identify the circuit



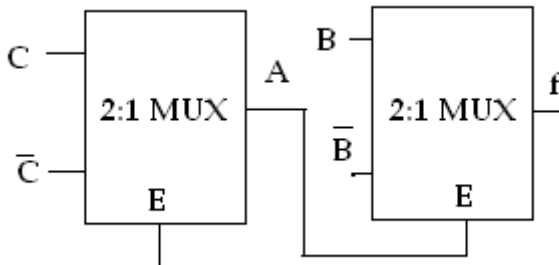
26. Current mirror circuit is used as active load for what purpose?
27. Relation between propagation delay time delay and total time for avoiding the race condition in JK -Flip flop is?
28. Hilbert transform of  $t^2/3$  is?
29. PN silicon band gap difference for  $10^0\text{C}$  and at room temperature?

30. Find which amplifier has highest gain and efficiency?

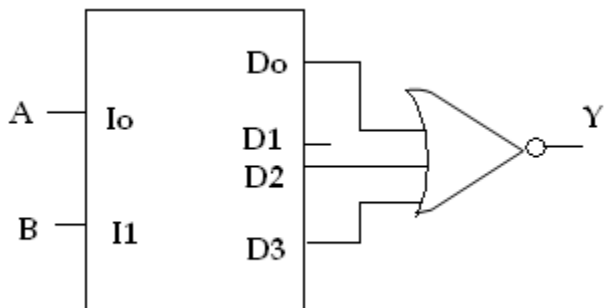
| Amplifier | Input Noise Temperature | SNR |
|-----------|-------------------------|-----|
| A         | 100K                    | 4   |
| B         | 120K                    | 6   |
| C         | 140K                    | 12  |

31. Find the minimum number of 2 input NOR & OR gates required for realizing the function  $f(0,0)=f(0,1)=f(1,1)=1$  &  $f(1,0)=0$

32. Find the output expression of function f in terms of A, B & C



33. Find the output expression of the decoder is



\*\*\*\*\*That all what I remember dear friends\*\*\*\*\*

ALL THE BEST 4ur EXAMS

You will find lot more solved technical question for ECE from this website