06 FEB 2023

| Reg. No. | | | | | | | | | | | | |
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(COB)

| Question Paper Code | 11683 |
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**B.E./B.Tech. - DEGREE EXAMINATIONS, NOV/DEC 2022**

Third Semester

**Electrical and Electronics Engineering**

**20EEPC301 - ANALOG ELECTRONICS**

(Regulations 2020)

Duration: 3 Hours | Max. Marks: 100

**PART - A (10 × 2 = 20 Marks)**

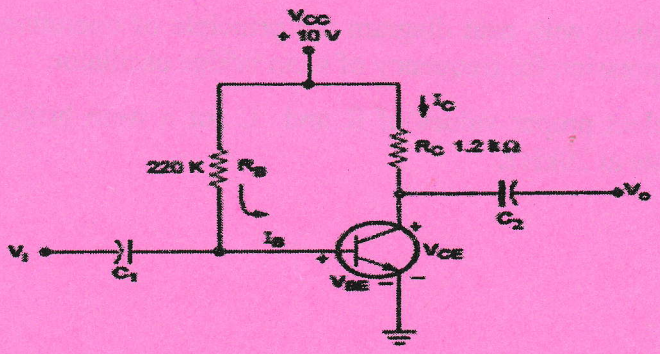
Answer ALL Questions

| | | *Marks, K-Level,CO* |
|---|---|---|
| 1. | Compare BJT and FET. | *2,K1,CO1* |
| 2. | Mention the four different configuration of Differential amplifier. | *2,K1,CO1* |
| 3. | Define CMRR for a differential amplifier. What is the value for the ideal case? | *2,K1,CO2* |
| 4. | Differentiate oscillator and amplifier. | *2,K2,CO2* |
| 5. | In practical op-amps, what is the effect of high frequency on its performance? | *2,K2,CO3* |
| 6. | What happens when the common terminal of V+ and V-sources is not grounded? | *2,K1,CO3* |
| 7. | What is a sample and hold circuit? Where is it used? | *2,K1,CO4* |
| 8. | List the various A/D conversion techniques. | *2,K1,CO4* |
| 9. | Mention the applications of 555 timer. | *2,K1,CO5* |
| 10. | Define load regulation. | *2,K1,CO5* |

**PART - B (5 × 13 = 65 Marks)**

Answer ALL Questions

| | | | |
|---|---|---|---|
| 11. | a) | Explain the DC and AC load line analysis of BJT | *13,K2,CO1* |
| | | **OR** | |
| | b) | For the circuit shown, find $I_B$, $I_C$, $V_{CE}$, $V_C$ & $V_{BC}$ for $V_{BE}$=0.7and β=50. | *13,K2,CO1* |



12. a) Describe the working of class A and class B power amplifier in detail with relevant diagram. *13,K2,CO2*

**OR**

b) Derive the expression and characteristics of RC phase shift oscillator. *13,K2,CO2*

13. a) With a neat circuit diagram & equation discuss the operation of inverting and non-inverting summer. *13,K3,CO3*

**OR**

b) Discuss in detail about the DC characteristics of op-amp. *13,K3,CO3*

14. a) With a help of neat diagram explain the working principle of an instrumentation amplifier using op-amp. *13,K2,CO4*

**OR**

b) Explain the R-2R ladder type D/A converter with necessary equations. What are the advantages of R-2R ladder type D/A? *13,K2,CO4*

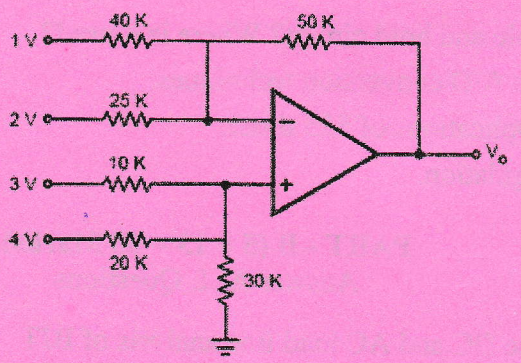
15. a) Draw and explain the functional block diagram of astable multivibrator using a 555 timer. Derive the expression for time delay. *13,K2,CO5*

**OR**

b) Draw and explain the functional block diagram of 723 regulators. *13,K2,CO5*

## PART C (1 × 15 = 15 Marks)

16. a) *15,K3,CO3*




Find Vo for the circuit.

**OR**

b) (i) Explain with neat diagram the principle of operation and derive the expression for frequency of wein bridge oscillator. *10,K2,CO2*

(ii) Select proper values of R and C for a wein bridge oscillator to oscillate at 20kHz. *5,K2,CO2*