Reg. No.															

Question Paper Code	12856

B.E. / B.Tech. - DEGREE EXAMINATIONS, APRIL / MAY 2024
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.	Define thermal runaway in IGBT.	2	K1	CO1
2.	Why IGBT is popular in recent days?	2	K1	CO1
3.	How power amplifiers are classified?	2	K1	CO2
4.	List the advantages and disadvantages of a phase shift oscillator.	2	K	CO2
5.	Mention the characteristics of an ideal op-amp.	2	K1	CO3
6.	Define slew rate. What is its significance?	2	K1	CO3
7.	List the features of instrumentation amplifier.	2	K1	CO4
8.	Which is the fastest ADC and why?	2	K2	CO4
9.	Draw the pin diagram of IC 555 timer.	2	K1	CO5
10.	How current boosting is achieved in IC723?	2	K2	CO5

PART - B (5 × 13 = 65 Marks)
Answer ALL Questions

11. a) Determine $I_{D(min)}$, $I_{D(max)}$, $V_{DS(min)}$, $V_{DS(max)}$ for the voltage divider bias circuit shown in the figure.   13   K2   CO1
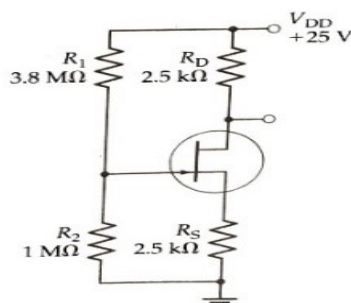
OR

b) Explain the DC and AC load line analysis of BJT.   13   K2   CO1

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

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create

OR

b) Explain the operation of wein bridge oscillator with neat diagram.   *13 K2 CO2*

13. a) Explain the following terms in an op-amp   *13 K2 CO3*
   (i) Bias current.
   (ii) Thermal drift.
   (iii) Input offset voltage and current.
   (iv) Virtual ground.

OR

b) Explain the application of op-amp as differentiator and integrator.   *13 K2 CO3*

14. a) Draw the circuit of monostable multivibrator and obtain the expression.   *13 K2 CO4*

OR

b) Explain the principle of operation of successive Approximation ADC.   *13 K2 CO4*

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

OR

b) Draw the block diagram of the function generator ICL 8038 and explain its operation.   *13 K2 CO5*

PART - C (1 × 15 = 15 Marks)

16. a) i) Explain the principle of operation of crystal oscillator with neat diagram.   *9 K5 CO2*
   ii) In an RC phase shift oscillator if R1=R2=R3= 200kΩ and C1=C2=C3= 100Pf estimate the frequency of oscillation.   *6 K5 CO2*

OR

b)   *15 K5 CO3*
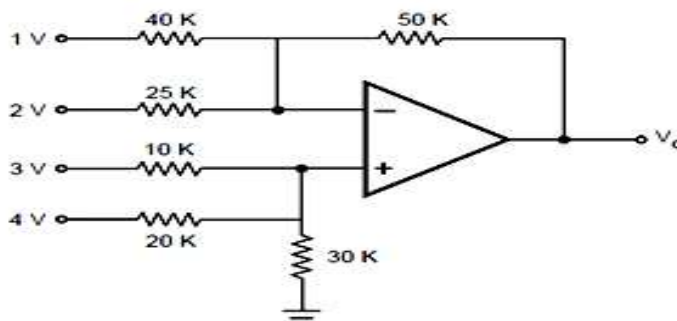
Determine the output voltage for the circuit.