Reg. No.																

Question Paper Code	14632

B.E. / B.Tech. - DEGREE EXAMINATIONS, APRIL / MAY 2026

Third Semester

Electrical and Electronics Engineering

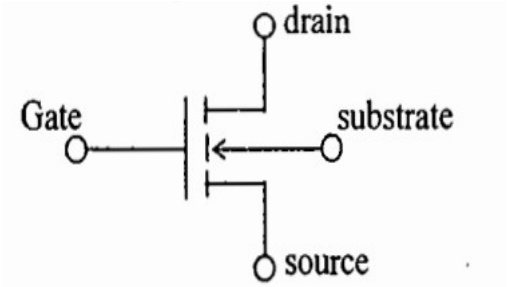
20EEPC301 - ANALOG ELECTRONICS

Regulations - 2020

Duration: 3 Hours | Max. Marks: 100

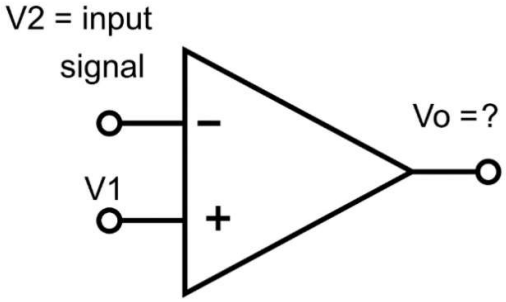
PART – A (i) (MCQ)
(16 × 1 = 16 Marks)
Answer ALL Questions

		Marks	K – Level	CO
1.	The primary application of MOSFET amplifiers is in _____	1	K1	CO1
	a) Audio amplification b) Microwave communication			
	c) Lighting circuits d) Digital signal processing			
2.	The ability of the differential amplifier to reject a common mode signal is ____.	1	K2	CO1
	a) CMRR b) Common mode gain			
	c) Differential mode gain d) none of the mentioned			
3.	Identify circuit symbol for the figure shown below	1	K3	CO1



	a) FET b) PMOSFET			
	c) MOSFET d) NMOSFET			
4.	In Class A power amplifiers, the transistor is biased in the _____region of its characteristics, which results in continuous conduction and constant power dissipation.	1	K1	CO2
	a) Cutoff b) Saturation			
	c) Linear d) Active			
5.	An amplifier differs from the oscillator because an oscillator_____	1	K2	CO2
	a) has more gain b) has less gain			
	c) does not require DC supply d) does not require input signal			
6.	Identify the characteristics of quartz crystal oscillator has.....	1	K3	CO2
	a) Only parallel resonant frequency b) Only series resonant frequency			
	c) Neither series nor parallel frequency d) Both series and parallel frequencies			
7.	For an Op-amp with negative feedback, the output is …….	1	K1	CO3
	a) equal to the input b) Increased			
	c) fed back to the inverting input d) fed back to the non-inverting input			
8.	A regenerative comparator is also called a	1	K2	CO3
	a) Zero crossing detectors b) Window detectors			
	c) Phase meters d) Schmitt trigger			

9. Select the output from the following circuit — 1 K3 CO3



a) 180˚ in phase with input signal
b)180 ˚ out of phase with input signal
c) Same as that of input signal
d) Output signal cannot be determined

10. Which among the following is an advantage of using flash type A/D converter? — 1 K1 CO4
a) High speed conversion
b) Low speed conversion
c) Nominal speed conversion
d) None of the mentioned

11. The inverted R-2R ladder type is also called the _____ mode converter — 1 K2 CO4
a) Voltage
b) Current
c) Power
d) Energy

12. Identify the other name for square wave generator — 1 K3 CO4
a) bistable multivibrator
b) Astable multivibrator
c) Monostable multivibrator
d) None of the above

13. Most practical voltage regulators are _____type — 1 K1 CO5
a) linear
b) non-linear
c) switching
d) neither linear nor non-linear

14. Make use of the last two digits in the part number of the voltage regulators of series 78XX indicate… — 1 K3 CO5
a) nominal output voltage
b) maximum allowable input voltage
c) minimum required input voltage
d)output impedance of the regulator in milli-ohms

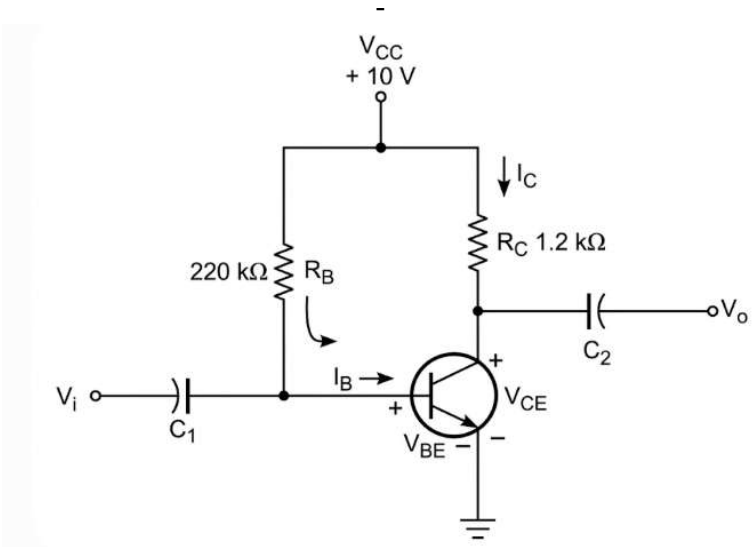
15. Switching regulator is _____ power efficient than a linear regulator — 1 K2 CO5
a) more
b) less
c) zero
d) constant

16. Select the important features of IC 8038 — 1 K3 CO5
a) Outputs are simultaneously available
b) High distortion in the output wave forms
c) High frequency drifts due to change in temperature
d) None of the above

PART – A (ii) (Short Answer Questions)
(8 × 3 = 24 Marks)
Answer ALL Questions

17. Examine the need for Biasing. — 3 K4 CO1

18. For the circuit show, identify I_B, V_C & V_{BC} for V_{BE}=0.7andβ=50. *3* *K3* *CO1*



19. List various configurations of differential amplifier. *3* *K4* *CO2*
20. Make use of phase shift oscillator to mention the advantages and disadvantages. *3* *K3* *CO2*
21. Model the output voltage for the inverting amplifier. *3* *K3* *CO3*
22. Develop a sample and hold circuit. *3* *K3* *CO4*
23. Identify the LSB, MSB and full-scale output for an 8 bit DAC for the 0-10V range. *3* *K3* *CO4*
24. Compare load regulation and line regulation. *3* *K4* *CO5*

PART - B (Descriptive Answer Questions)
(5 × 12 = 60 Marks)
Answer ALL Questions

25. a) List any two biasing circuits for BJT. *12* *K4* *CO1*

OR

b) Compare the voltage gain, input resistances of CD and CG amplifiers. *12* *K4* *CO1*

26. a) Distinguish the working of class A and class B power amplifier in detail with relevant diagram. *12* *K4* *CO2*

OR

b) Analyze the operation of a Wien bridge oscillator and examine the conditions required for sustained oscillations with the help of a neat diagram. *12* *K4* *CO2*

27. a) Determine the output voltage of an operational amplifier using its DC characteristics for specified input conditions. *12* *K3* *CO3*

OR

b) Apply the concepts of differentiator and integrator circuits to calculate the output waveform of an operational amplifier for specified inputs. *12* *K3* *CO3*

28. a) Make use of instrumentation amplifier using op-amp to explain the working principle with a help of neat diagram. *12* *K3* *CO4*

OR

b) Apply the working principle of a successive approximation ADC to find the conversion steps for a given input. *12* *K3* *CO4*

29.	a)	Identify the expression for time delay from the functional block diagram of a stable multi vibrator using a 555 timer.	*12*	*K3*	*CO5*
		OR			
	b)	Apply the working principle of a switched mode power supply to determine its output characteristics for specified operating conditions.	*12*	*K3*	*CO5*