

DAY - **19** SEAT NUMBER

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2026	III	06	1100	V - 733	(E)
ELECTRONICS PAPER - I (C-2)					
Time : 3 Hours		3 Pages		Max. Marks : 50	

- Instructions :*
- (1) All questions are compulsory.
 - (2) Figures to the right indicate full marks.
 - (3) Draw neat labelled diagrams wherever necessary.
 - (4) Use of logtable is allowed.

1. (A) Select correct alternative and rewrite the following :
- (a) In astable multivibrator if charging time constant is equal to discharging time constant, duty cycle is _____ 1
- (i) 50%
 - (ii) 100%
 - (iii) 1%
 - (iv) 25%
- (b) The area to be served by a cellular telephone system is divided into _____ 1
- (i) region
 - (ii) cells
 - (iii) MTSO
 - (iv) rings
- (c) _____ stage of operational amplifier rejects the noise. 1
- (i) Level Shifter
 - (ii) Differential Amplifier
 - (iii) Emitter Follower
 - (iv) Output

- (d) The semiconductor diode is used as _____ 1
- (i) Temperature Transducer
 - (ii) Pressure Transducer
 - (iii) Displacement Transducer
 - (iv) Piezoelectric Transducer
- (B) Answer **any two** of following :
- (a) A Zener voltage regulator is to be designed for output of 10 volts. If the input voltage to the regulator is 25 volts. Find the value of current limiting resistor. Given $P_z = 500$ mw. 3
 - (b) What are the drawbacks of RC coupled amplifier ? 3
 - (c) Explain the use of Cathode Ray Oscilloscope for measurement of AC and DC voltage. 3
2. (A) Answer **any two** of following :
- (a) Draw the diagram showing pin connection of IC-555 and IC LM317. 3
 - (b) What do you mean by Network Topology ? Enlist the types of network topologies and explain any one of them with diagram. 3
 - (c) Write a note on LDR. 3
- (B) Answer **any one** of following :
- (a) In a circuit of Schmitt trigger $R_1 = 10K\Omega$ $R_2 = 2K\Omega$ $V_{in} = 3$ Vp - p sinewave, with saturation voltage of ± 13 volts. Calculate : 4
 - (i) UTP
 - (ii) LTP
 - (iii) Hysteresis voltage
 - (iv) Feedback factor β
 - (b) State eight advantages of fibre optic cable over conventional electrical cable for communication. 4
3. (A) Answer **any two** of following :
- (a) The turns ratio of transformer in a bridge rectifier is 12:1. Primary is connected to 230 volts, 50 Hz AC mains. Find the output of DC voltage under no load condition, assume the voltage drop across each diode to be zero. 3
 - (b) The deflection sensitivity of CRT is 0.04 mm/v. An unknown voltage applied to X-plates causes the deflection of spot 5mm horizontally. Find the value of unknown voltage. 3
 - (c) Explain the working of Piezoelectric Transducer. 3

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- (B) Answer **any one** of following :
- (a) List any four advantages of SMPS. 4
 - (b) Draw the circuit diagram of Inverting Operational Amplifier and obtain an expression for its gain. Explain how it can be used as sign changer. 4
4. (A) Answer **any two** of following :
- (a) Explain the working of IC 555 as a Monostable Multivibrator. 3
 - (b) List three applications of simplex and three applications of duplex communication system. 3
 - (c) Explain how CRO displays a waveform. 3
- (B) Answer **any one** of following :
- (a) State any eight characteristics of ideal Op-Amplifier. 4
 - (b) Draw internal block diagram of IC555 and explain its working. 4
5. (A) Answer **any two** of the following :
- (a) Define deflection sensitivity of CRO. What is the function of delay line in CRO ? 3
 - (b) A single phase half wave rectifier supplies power to $1K\Omega$ load. The input supply voltage is 220 VRMS. Neglect the forward resistance of diode. Calculate average voltage and current in the circuit. 3
 - (c) What is cell in cellular phone system ? Explain in brief. 3
- (B) Answer **any one** of following :
- (a) Explain the working of centre tapped full wave rectifier and compare any two parameters in case of centre tapped full wave rectifier and bridge rectifier. 4
 - (b) State any two Linear and Non-linear applications of Op-Amp. 4
- OR**
5. (A) Answer **any two** of following :
- (a) State any three applications of function generator. 3
 - (b) Explain the working of Loudspeaker with neat diagram. 3
 - (c) State any three advantages of Op-Amp over normal amplifier. 3
- (B) Answer **any one** of the following :
- (a) State any four points of comparison between Amplitude Modulation and Frequency Modulation. 4
 - (b) Give one advantage and one disadvantages of following types of filter circuits : 4
 - (i) Capacitor input filter
 - (ii) Inductor filter
 - (iii) R.C. filter
 - (vi) L.C. filter

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