DAY - 13 SEAT NUMBER | | | | | | |

2014	III	12	1100	V – 233	(E)

ELECTRONICS

PAPER - I (C-2)

Time : 3 Hours	4 Pages	Max. Marks : 50

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

1. (A) Select correct alternatives from the following sub-questions and rewrite complete sentences :

(a) Charged Coupled Device works on _____. 1

(i) Inductive Effect

(ii) Capacitive Effect

(iii) Resistive Effect

(iv) Photo Electric Effect

(b) In a Monostable Multivibrator, the terminals _____ are connected directly to each other. 1

(i) Threshold and V_{cc}

(ii) Threshold and Trigger

(iii) Threshold and Discharge

(iv) Reset and Trigger

(c) If a constant D.C. Voltage is applied as input to an integrator using OP-AMP, then the Output Voltage has _____ nature. 1

(i) Ramp

(ii) Sinusoidal

(iii) Cosine

(iv) Sawtooth

(d) The unit of deflection sensitivity of CRT is _____. 1

(i) mm/volt

(ii) volt/mm

(iii) cm

(iv) volt × mm

(B) Attempt **any two** of the following :

(a) Derive an expression for Instantaneous Value of AM Wave. 3

(b) Mention parameters for Selection of Transducer. 3

(c) Explain how CRO displays a Waveform on the Screen. 3

2. (A) Attempt **any two** of the following :

(a) Explain frequency response of OP-AMP. 3

(b) Compare Half Wave Rectifier, Full Wave Rectifier (Bridge), Full Wave Centre Tapped Rectifier. (Any six points) 3

(c) In an adjustable voltage regulator calculate range of output voltage obtained from the following data : 3

$R_1 = 200\Omega$

$R_2 = 1k\Omega - 4.7\Omega$

(B) Attempt **any one** of the following :

(a) Draw block diagram of FAX Machine and explain function of each block. 4

(b) Draw labelled diagram of CRT and explain function of each Electrode. 4

3. (A) Attempt **any two** of the following :

(a) Explain use of OP-AMP as Inverting Adder. 3

(b) Explain characteristics of Zener Diode with suitable graph. 3

(c) Explain working of Thermistor and LDR. 3

(B) Attempt **any one** of the following :

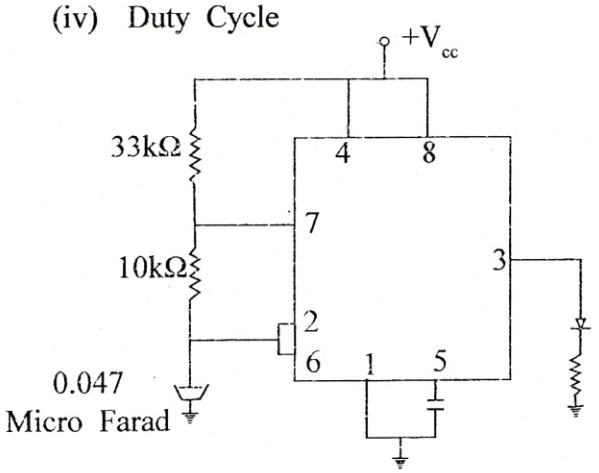
(a) Find : 4

(i) Charging Time

(ii) Discharging Time

(iii) Frequency

(iv) Duty Cycle



(b) Define the following terms in Frequency Modulation : 4

(i) Frequency Deviation

(ii) Guard Band

(iii) Carrier Swing

(iv) Modulation Index

4. (A) Attempt **any two** of the following :

(a) State Linear and Non-linear Applications of OP-AMP. 3

(b) Explain working of Full Wave Centre-tapped Rectifier Circuit. 3

(c) Peak-to-peak Divisions of Waveform on a CRO Screen is 4 Division and horizontally spread over 5 Divisions. If volt/div is at 5V/div and Time/div is at 2 msec/div, find Frequency and Magnitude of unknown Voltage. 3

(B) Attempt **any one** of the following :

(a) Explain use of OP-AMP as Inverting Amplifier and explain concept of Virtual Ground. 4

(b) Define Active Transducer. Explain working of Piezo Electric Crystal. 4

5. (A) Attempt **any two** of the following :

(a) What is RADAR ? Explain Concept of Pulsed and Continuous Wave RADAR. 3

(b) Explain Action of Capacitor Filter. 3

(c) Draw Pin Configurations of : 3

(i) LM 317

(ii) LM 741

(iii) LM 555

(B) Attempt **any one** of the following :

(a) Explain working of Transistorised Series Voltage Regulator. Write expression for output voltage. 4

(b) Explain the following parameters of OP-AMP : 4

(i) Open Loop Gain

(ii) CMRR

(iii) Input Offset Current

(iv) Slew Rate

OR

5. (A) Attempt **any two** of the following :

(a) Explain different types of Communication Systems. 3

(b) Define Amplitude Modulation and explain it graphically. 3

(c) In Non-inverting Amplifier : Rf = 20 kΩ, V_0 = 3V for V_{input} = 1V. Find Input Resistance. 3

(B) Attempt **any one** of the following :

(a) Draw block diagram of OP-AMP and explain function of each block. 4

(b) Explain working of Zener Regulator. 4
