

C.U.SHAH UNIVERSITY

Winter Examination-2015

Subject Name : Basic Electronics Engineering

Subject Code : 2TE02BEE1

Branch :Diploma(All)

Semester : 2 Date :23/11/2015 Time :10:30 To 1:30

Marks :-70

Instructions:

- (1) Use of Programmable calculator & any other electronic instrument is prohibited.
- (2) Instructions written on main answer book are strictly to be obeyed.
- (3) Draw neat diagrams and figures (if necessary) at right places.
- (4) Assume suitable data if needed.

Q-1

Attempt the following questions:

(14)

- a) Which is the correct formula for β of transistor ?
(a) I_C/I_E (b) I_E/I_B (c) I_C/I_B (d) I_B/I_C
- b) How many electrons are there in an outer orbit of pentavalent element?
(a) 3 (b) 4 (c) 5 (d) None
- c) Which are the minority carriers in 'P type' semiconductor?
(a) Electrons (b) Holes (c) Both (d) None
- d) What is the knee voltage of Germanium diode?
(a) 0.5V (b) 0.3V (c) 0.7V (d) 0.1V
- e) Which electronic component is required for rectifier circuit?
(a) Transistor (b) Zener Diode (c) Diode (d) IC
- f) Which is the true equation for transistor currents?
(a) $I_C=I_B+I_E$ (b) $I_E=I_C+I_B$ (c) $I_B=I_C+I_E$ (d) None
- g) Which is the full form of PIV with respect to diode?
(a) Positive Inverse Voltage (b) Peak Inverse Voltage (c) Peak Integer voltage (d) Peak Inverse Value
- h) Which is not true for PN-junction diode?
(a) used in rectifier circuit (b) used in clamper circuit (c) used in clipper circuit (d) used in an amplifier circuit
- i) Which is the binder material for carbon composition resistor?
(a) Silica (b) Carbon (c) Resin (d) None
- j) What is the value of resistor having color code Red-Red-Orange-Gold?
(a) 22k (b) 220 (c) 2.2k (d) 220k
- k) What is the tolerance of resistor having color code Brown -Black - Blue -Silver?
(a) +/-5% (b) +/-10% (c) +/-20% (d) +/-1%
- l) The varactor diode can be used as
(a) Fixed resistor. (b) Variable resistor. (c) Variable capacitor. (d) None.
- m) Which component is used as Light sensor device.
(a) VDR (b) Relay (c) Transformer (d) LDR



- n) Which type of material is used in the capacitor?
(a) Only Conductor (b) Only Insulator (c) Semiconductor(d) None

Attempt any four questions from Q-2 to Q-8

- Q-2 Attempt all questions**
- (a) Explain working of P-N Junction diode. (5)
 - (b) Explain V-I characteristics of P-N junction diode. (5)
 - (c) Draw the circuit diagram of half wave rectifier. (4)
- Q-3 Attempt all questions**
- (a) Write short note on Varactor Diode. (5)
 - (b) Explain V-I characteristics of Zener diode. (5)
 - (c) Draw the circuit diagram of Full wave rectifier. (4)
- Q-4 Attempt all questions**
- (a) Explain working of NPN transistor. (5)
 - (b) Explain working of transistor as switch. (5)
 - (c) Draw circuit diagram of CE amplifier. (4)
- Q-5 Attempt all questions**
- (a) Explain the formation of 'P type' and 'N type' semiconductor. (7)
 - (b) Explain the classification of resistors. (7)
- Q-6 Attempt all questions**
- (a) Explain bridge rectifier circuit with necessary waveforms. (7)
 - (b) Explain diode positive clipper circuit with necessary waveforms. (7)
- Q-7 Attempt all questions**
- (a) Explain the construction and working of electromagnetic relay. (7)
 - (b) Describe different types of switches used in electronics engineering. (7)
- Q-8 Attempt all questions**
- (a) Explain the construction of an electrolytic capacitor. (5)
 - (b) Explain 4-band color code system for resistor. (5)
 - (c) Define Conductor, Insulator, semiconductor and super conductor. (4)



Q-1

(14)

(a) “ i “ ” ° i “ i “ Ä i i

» ã “ (ß) “ (ß) “ Ó

i

(a) Ic/Ie (b) Ie/Ib (c) Ic/Ib (d) Ib/Ic

(b) ” ç i ç ç i ç “ ü »

i i 1 2 i “ i i i

(a) 3 (b) 4 (c) 5 (d) » “ i i “ i

(c) ” - ” i » 1 »

“ i i i i

(a) i 2 i “ (b) i (c) i

i 2 i “ “ i i (d) » “

i i “ i

(d) i “ i “ “ - i i Ä

i

(a) 0.5V (b) 0.3V (c) 0.7V (d) 0.1V



(e)

F L V U A P E F K F L U V D P L E P B G L V P Q L K L P Ç P B V U Ä † F X R

(a) Transistor (b) Zener Diode (c) Diode (d) IC

(f)

V P T U K V F P L F V D P V L E Y K Y K P Q Y R

(a) $I_C = I_B + I_E$ (b) $I_E = I_C + I_B$ (c) $I_B = I_C + I_E$ (d)

A P D P Y A L E

(g)

X P E P X P K V C D P PIV Y Y






(a) Positive Inverse Voltage (b) Peak Inverse Voltage (c) Peak Integer voltage (d) Peak Inverse Value






(h)




P-N Ä L I X P E P X D P V L E Y K P Q Y U A F L V U A P E F K L U V D P D E P N P E R L G Ç F K L U V D P
















(i)



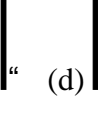


(a)    (c)  

(b)    (d)  






(c)   







(d)      

(a)       

(b)  (c)   (d)  






(j)






Red-Red-Orange-Gold     

(a) 22k (b) 220 (c) 2.2k (d) 220k




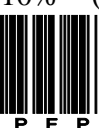


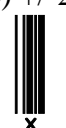


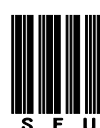
(k)




Brown -Black - Blue -Silver     

(a) +/-5% (b) +/-10% (c) +/-20% (d) +/-1%

(l)

(a) Fixed resistor. (b) Variable resistor. (c) Variable capacitor. (d)



(m)

A P D P » “ Y A L E Q L -

G P B V K K F X U H P B I S F U L L E P

L P i Ç ” P i “ V “ P i D ” E P i N ‘ P E R i

(a) VDR (b) Relay (c) Transformer (d) LDR

(n)

L i ” i K U V F D P » L E P D V U F U E G “ P i

D ” E P i N ‘ P E R i

(a) Only Conductor (b) Only Insulator (c) Semiconductor (d)

A P D P » “ Y A L E Q L -

Q-2 ‘ U

G M P i

Q-8 » ‘ U L P B ” Z Q P F ” ° i “ P i “ P Ä H P B

Q-2

B P P Ä ” ° i “ P i “ P Ä H P B P i G M P i

(a) (5)

P-N Ä » “ L I X P E P i X “ Y L P E ® K D P H P i -

(b) (5)

P-N Ä » “ L I X P E P i X “ U V-I

L i F i L V U K V U L 1 K K D Ä P H P i -

(c) (4)

L P ë A H H F L V U A P E F P i K F L U V



Q-3

X P E P N P D V P i F P i .

B P Ä " ° i " P i " P Ä H P B P i G M P i

(a) H i F i L V F X P E P i X D " F V Y L " P i » ' G M P i . (5)

(b) T U F X P E P i X " U V-I

(c) L i F i L 1 2 V U K V U L 1 K K D Ä P H P i . (4)

A Y G H i H F i L 1 V U A P E F " P i K F L U V

X P E P N P D V P i F P i .

Q-4

B P Ä " ° i " P i " P Ä H P B P i G M P i

(a) NPN V P 2 » " Y L P E ® K D P H P i . (5)

(b) V 2 » T U K V F Y K H U Q S F U L i " Y L P E ® (5)

(c) K D P H P i . (4)

CE A i Ç " G U A P E F " U K F L U V V P i F P i .

Q-5

B P Ä " ° i " P i " P Ä H P B P i G M P i

(a) P V P B " A i N V P B " K i D U L » X L 1 V F (7)



(b)

“ Y A P i D i ® I “ K D Ä P H P i
 F T U K V F “ Y H N U ® L F Z K D Ä P H P i .

(7)

Q-6

(a)

B P Ä ” ° i “ P i “ P Ä H P B P i G M P i
 Ä † F U H i H A P i D ® K P i B ° U Ä F i L V U A P E F

(7)

(b)

K F L U V K D P H P i
 Ä † F U H i H A P i D ® K P i X P E P i X
 ” P i T U V U H L G U ” F K F L U V K D P H P i .

(7)

Q-7

(a)

B P Ä ” ° i “ P i “ P Ä H P B P i G M P i
 B G i L V 2 i D i Á “ i V U L F U G i “ U F Q P A i

(7)

(b)




L P E ® K D P H P i .
 B G i L V 2 “ “ 1 D P » D E P i N ‘ S U Ä Y V P
 Ä Y V P ” ° “ “ K H U Q P i “ Y H Z ® “
 L F P .

(7)



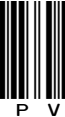



Q-8

B P Ä ” ° i “ P i “ P Ä H P B P i G M P i



(a)                (5)

(b)                (5)

(c)                (4)

