

Shikshan Mandal, Karad's
Mahila Mahavidyalaya, Karad
B.Sc.– I (Preliminary-I) Examination 2022
Subject:-DSC – 9A – Electronics-I

(Network Analysis and Analog Electronics – I)

Day and Date:- Wednesday/04-01-2022

Time : 1:00 to 3:00pm

Total marks:- 40

Instruction:-

- 1.All questions are compulsory.
2. Figures to the right indicate full marks.

Q 1) select the correct alternative.

[8]

- a) A zener diode _____
- i) Is a battery. ii) Has a constant voltage in the breakdown region
- iii) Has a barrier. iv) Is Forward biased.
- b) In H- Parameter representation, the independent Variable for _____
- i) I_1 & V_1 ii) I_1 & V_1
- iii) V_1 & V_2 . iv) I_1 & I_2
- c) Thevenin's theorem helps to replace gives network by _____
- i) A Source with a series resistance
- ii) A Single Voltage Source with a series resistance
- iii) A single voltage source with a parallel resistance
- iv) None of these.
- d) If Reverse bias is applied to the PN- junction diode then it's barrier width _____
- i) Increases ii) Decreases
- iii) Remains the same iv) None of these
- e) The cut in voltage of silicon diode is _____
- i) 0.2 V ii) 0.7 V iii) 0.4 V iv) 1.0 V
- f) Ripple factor of Bridge rectifier is _____
- i) 1.11 ii) 1.21 iii) 0.812 iv) 0.482

- g) Superposition theorem is applicable to the networking containing _____
- i) One energy source
 - ii) More than two energy source
 - iii) Only resistance
 - iv) None of these.
- h) In full wave Rectifier if the input frequency is 100 Hz then output frequency is _____
- i) 50
 - ii) 150
 - iii) 200
 - iv) 25

Q 2) Attempt any two of the following. [16]

- a) What is Rectified & Explain full wave Rectifier using two diode with suitable circuit diagram & Wave forms derive expression for efficiency.
- b) State & explain the thevenin's theorem. Draw necessary circuit diagram.
- c) Explain with neat diagram forward & Reverse biasing PN junction diode.

Q 3) Attempt any four of the following. [16]

- a) Describe mesh analysis method for finding solutions for network?
- b) State & explain Star Network?
- c) Explain the construction of carbon composition resistor?
- d) Explain line & load Regulation?
- e) With Suitable circuit diagram prove & explain prove maximum power transfer theorem?
- f) Derive the full wave rectifier find the value of rectifier efficiency?

Shikshan Mandal, Karad's
Mahila Mahavidyalaya, Karad
B.Sc.-I (Preliminary-I) Examination 2022
DSC – 9B – Electronics -II
(Digital Integrated Circuit - II)

Day and Date : Thursday and 05/01/2023

Time: 1:00PM to 3:00PM

Total marks- 40

Instruction:-

1. All questions are compulsory.
2. Figures to the right indicate full marks.

Q 1) Select the correct alternative.

[8]

- a) $A+1$ is equal to _____
i) A ii) 0 iii) 1 iv) None of these
- b) for 8:1 multiplexed select input pins are _____
i) 1 ii) 8 iii) 4 iv) 3
- c) To 7447 is _____
i) Encoder ii) Multiplexer
iii) DE multiplexer iv) Decode counter
- d) A half Subtractor Circuit Subtracts _____ binary digit from another.
i) Three ii) Two
iii) One iv) Four
- e) 2's complement of $(111100)_2$ is _____
i) 111100 ii) 000010
iii) 000101 iv) 000100
- e) The logical sum of two or more product terms is called as _____
i) Sum ii) sum of product
iii) k-map iv) product of sum
- g) 7404 is gate of IC _____
i) AND ii) OR
iii) NOT iv) NOR

h) To k-map pair eliminates _____ variables.

- i) One
- ii) Two
- iii) Three
- iv) Four

Q 2) Attempt any two of the following [16]

- a) What is multiplexer & Explain working on 8:1 multiplexer with suitable diagram.
- b) State & Prove De- Morgan's both theorems with logic diagram & truth tables.
- c) Explain hexadecimal number System with suitable examples & Explain the signed binary no with Suitable example.

Q 3) Attempt any four of the following. [16]

- a) Explain k-map. for three variables and minimise the following equation using k-map. $Y = \overline{ABC} + ABC\overline{C} + A\overline{B}C + \overline{A}BC$
- b) Explain the universality of NOR gate?
- c) Convert the following
 - i) 125_{10} to binary conversions
 - ii) $(10000110000110)_2$ to hexadecimal
 - iii) $(51.83)_8$ to decimal
 - iv) $(0.011)_2$ to decimal
- d) Write a note on Arithmetic logic unit?
- e) What do you mean by encoder? And explain decimal to BCD decoders?
- f) Explain the working of half adder?