Enrollment No: _____ Exam Seat No: _____

C.U.SHAH UNIVERSITY

Summer Examination-2020

Subject Name: Analog and Digital Electronics

Subject Code: 5SC01ADE1 Branch: M.Sc. (Physics)

Semester: 1 Date: 02/03/2020 Time: 02:30 To 05:30 Marks: 70

Instructions:

(1) Use of Programmable calculator and 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.

SECTION – I

Q-1 Attempt the Following questions (07)

a. What is input offset voltage of an Op-Amp? **01**
b. Define slew rate. **01**
c. Write any one application of Astable multivibrator using Op-Amp. **01**
d. What is an Op-Amp? Draw its symbol. **01**
e. Give the full form of LDR and draw its symbol. **01**
f. On which principle does LED work? **01**
g. What is reverse recovery time? **01**

Q-2 Attempt all questions (14)

a) Explain in detail the principle, construction and working of a Light Emitting Diode taking the help of suitable diagrams. **07**
b) Explain the working of a diode as a clipper. **07**

OR

Q-2 Attempt all questions (14)

a) Write a note on Astable multivibrator. **06**
b) Give an account of an Inverter made using an Op-Amp. **05**
c) What is an opto-coupler? Use its circuit diagram for explanation. **03**

Q-3 Attempt all questions (14)

a) Write in detail the construction, working, characteristics and applications of Photo diode. **06**
b) Write in brief about Schmitt trigger circuit made using an Op-Amp. **05**
c) Explain briefly precision Half wave rectifier. **03**

OR

Q-3 Attempt all questions (14)

a) Elucidate the construction, working and applications of a Light dependent **06**

resistor.

b)	Write a short note on Photo transistor.	**06**
c)	Mention the characteristics of an ideal Op-Amp.	**02**

SECTION – II

Q-4	**Attempt the Following questions**	**(07)**
a.	Define Shift Register.	**01**
b.	Enlist the basic logic gates.	**01**
c.	What is a De-multiplexer?	**01**
d.	What is an Encoder?	**01**
e.	Define ROM. Mention its types.	**01**
f.	Draw the logic circuit of S-R-latch flip flop.	**01**
g.	Define Radio power Amplifier.	**01**

Q-5	**Attempt all questions**	**(14)**
a)	What is a Multiplexer? Explain in detail basic 2-input multiplexer with its logic diagram and truth table.	**06**
b)	Explain class-A push-pull power amplifier with circuit diagram. Mention its advantages and disadvantages.	**05**
c)	Differentiate between Voltage and Power Amplifiers.	**03**

OR

Q-5	**Attempt all questions**	**(14)**
a)	Describe decimal-to-BCD Encoder.	**05**
b)	Explain in detail Asynchronous counters with its timing diagram.	**06**
c)	Draw the logic diagram of MASTER-SLAVE JK flip flop.	**03**

Q-6	**Attempt all questions**	**(14)**
a)	Explain class-B push-pull power amplifier with circuit diagram; also highlight its advantages and disadvantages.	**07**
b)	Write a note on Exclusive-OR gate.	**07**

OR

Q-6	**Attempt all Questions**	**(14)**
a)	Explain in detail Shift register mode of Serial input- Serial output with proper logic diagram.	**07**
b)	Write a short note on seven segments Decoder.	**05**
c)	Give a brief explanation of RAM.	**02**