

B.Sc. (New CBCS Pattern) Semester - II
USELT04 - Electronics Paper-II (Digital Integrated Circuit)

P. Pages : 2

Time : Three Hours



GUG/S/23/11579

Max. Marks : 50

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- Notes :
1. All questions are compulsory and carry equal marks.
 2. Draw well labeled diagrams wherever necessary.
 3. Use of calculator and log table is allowed.

Either:

1. a) What is Half adder? draw its logic diagram, truth table and Boolean equation. 5
- b) What is Full adder? Draw its logic diagram, truth table and Boolean equation. 5

OR

- c) What is multiplexer? Explain 4:1 multiplexer with logic diagram. 5
- d) What is de-multiplexer? Explain the concept de-multiplexer with block diagram. 5

Either:

2. a) Draw a block diagram of IC555 and explain its function. 5
- b) Explain IC555 as an astable multivibrator with suitable diagram. 5

OR

- c) Explain construction and working of clocked SR flipflop. 5
- d) Explain construction and working of D-type flipflop. 5

Either:

3. a) Explain construction and working of 4-bit binary counter. 5
- b) Explain the difference between synchronous and asynchronous counter. 5

OR

- c) Draw the block diagram of decade counter and explain its working. 6
- d) Define: 4
 - i) Modulus of counter
 - ii) up/down counter

Either:

4. a) What is Shift register? State its various types. 5
- b) Explain 4-bit weighted type D/A converter with suitable diagram. 5

OR

- c) State the disadvantages of 4-bit weighted type D/A converter. 5
- d) Explain the construction and working of approximation type ADC. 5
5. Attempt **any ten** of the followings. 10
- a) What is Encoder?
- b) What is decoder?
- c) Define K-map.
- d) What is clock?
- e) What is race around condition?
- f) Explain the function of Preset input in flipflop.
- g) What is ring counter?
- h) How many flipflops are required for MOD-20 counter?
- i) Draw truth table of 3-bit ring counter.
- j) Write full form of SISO and PISO shift register.
- k) Write the formula for output voltage in 4-bit R-2R D/A converter?
- l) Define resolution in D/A converter.
