

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.
