

DI-102
December-2018
B.Sc., Sem.-III
202 : Electronics

[Max. Marks : 70]

Time : 2:30 Hours]

Instructions : (1) Figures to the right indicate marks.
 (2) Symbols have their usual meanings.

1. (A) Write the following :
- (i) Explain Transformation of impedances with tapped resonant circuits. 7
- (ii) Explain reactance T-networks for impedance transformation in detail. 7
- OR**
- (i) Explain tapped anti-resonance circuit for impedance transformation with equation.
- (ii) Discuss two-mesh coupled circuit used for impedance transformation. 4
- (B) Answer the following : (any four out of six)
- (1) Co-efficient of coupling $k =$ _____.
- (2) Ideal transformer is assumed to have _____ losses.
- (3) Mutual voltage is given negative sign if the positive currents produce fluxes in _____ directions through the coil.
- (4) Write Weber-Fechner Law.
- (5) What is impedance ?
- (6) What is resonance ?
2. (A) Write the following :
- (i) Explain how a low pass RC circuit behaves as an integrator. 7
- (ii) Derive the relation between neper and decibel. 7
- OR**
- (i) Derive the equation of characteristic impedance of symmetrical networks.
- (ii) Discuss the current and voltage ratio as exponentials in filters.

(B) Answer the following : (any **four** out of **six**)

- (1) 10 Neper = _____ dB.
- (2) Low pass RC circuit has high resistance in series with _____ capacitance.
- (3) For better differentiation CR should be as _____ as possible.
- (4) The bel is defined as the logarithm of a _____ ratio.
- (5) Draw high pass RC circuit.
- (6) Draw integrator circuit.

3. (A) Write the following :

- (i) Explain how 555 timer can be used as monostable multivibrator. 7
- (ii) Discuss in detail about Arithmetic logic unit. 7

OR

- (i) Discuss the Schmitt trigger operation of the 555 timer.
- (ii) Draw & explain binary adder-subtractor with the help of example.

(B) Answer the following : (any **three** out of **five**)

3

- (1) Full form of ALU is _____.
- (2) The output of the exclusive-OR gate in half adder circuit is called _____.
- (3) The duty cycle is the ratio of ON time to the _____ time period.
- (4) Draw half adder circuit.
- (5) Define multivibrator.

4. (A) Write the following :

- (i) Explain Machine language, assembly language & high-level language. 7
- (ii) Explain 8085 hardware and programming model in detail. 7

OR

- (i) Explain large computers, medium-size computers & microcomputers.
- (ii) Discuss arithmetic, logical & machine control operations.

(B) Answer the following : (any **three** out of **five**)

3

- (1) 1 Byte = _____ bits.
- (2) Full form of ASCII is _____.
- (3) Full form of MSI is _____.
- (4) Part of instruction which indicates task to be performed is called _____.
- (5) Communication path between data and control signals is called _____.