*4457*

C14–EC–403

# 4457

## BOARD DIPLOMA EXAMINATION, (C–14)
## OCT/NOV—2018
## DECE—FOURTH SEMESTER EXAMINATION

NETWORK ANALYSIS

*Time* : 3 hours] [*Total Marks* : 80

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**PART—A** 3×10=30

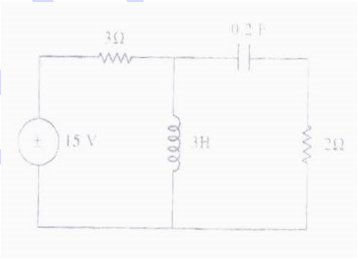
***Instructions*** : (1) Answer **all** questions.
(2) Each question carries **three** marks.
(3) Answers should be brief and straight to the point

**1.** Define ideal voltage source and practical voltage source.

**2.** Define dot rule in coupled circuits.

**3.** Define node, loop and branch of a network.

**4.** Draw the dual of given network




**5.** Define superposition theorem.

**6.** Define maximum power transfer theorem for AC load.

**7.** Define initial condition and steady state response in transients.

**8.** Define the Y-parameters of a two-port network.

**9.** Define the terms Neper and Decible.

**10.** Distinguish between attenuators and equalizers.

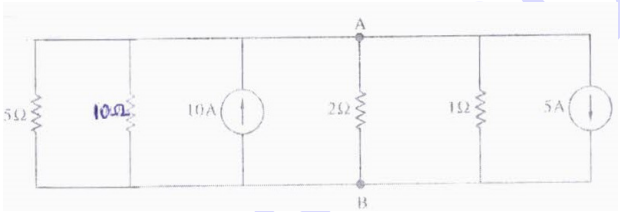
## PART–B

10×5=50

***Instructions :*** (1) Answer *any* **five** questions.
(2) Each questions carries **ten** marks.
(3) Answers should be comprehensive.

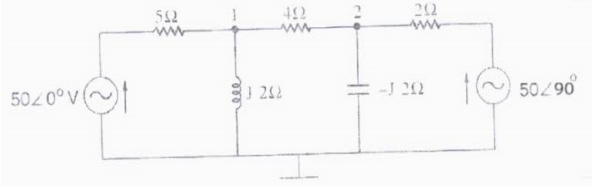
**11.** (a) State Kirchhoff's current law and Kinchhoff's voltage law.

(b) Find the voltages on 10Ω resistor using KCL.

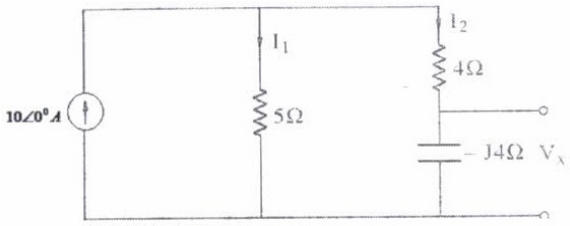



**12.** Find the currents $I_A$, $I_B$, $I_C$ using mesh analysis.

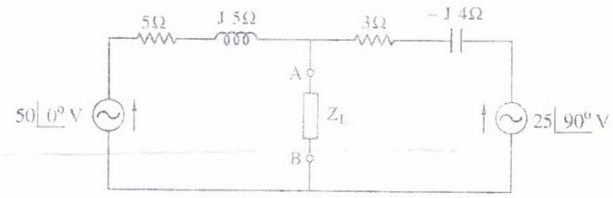

**13.** Determine voltages at nodes 1 and 2 for the circuit given below.



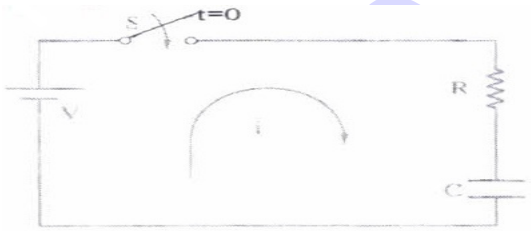
**14.** Verify reciprocity theorem to find the voltage $V_X$



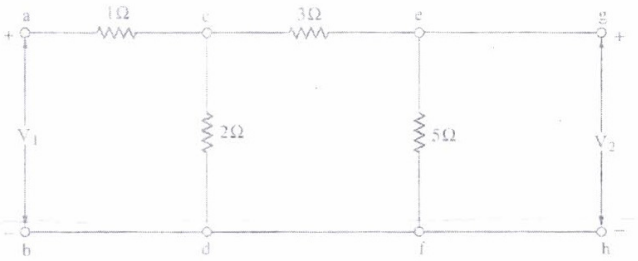

**15.** Determine load impedance $Z_L$ for maximum power transfer and find the maximum power.




**16.** Derive the expressions for Voltages across R and C for for t > 0, When switch is closed at t=0.




**17.** Find the Z parameters for the two port network given below.




**18.** Derive the expression for characteristic impedance of a symmetrical π-Network.