**SAMPLE PAPER**
**ESE KT**
**SE (ELEX)/CBCGS-H-SEM-III**
**Electrical Networks**

| Q. No. | Objective Questions |
|---|---|
| 1 | If the current of source depends upon some other current in the network, it is called as –<br>a. Independent source<br>b. Current dependent source<br>c. Uncontrolled source<br>d. Variable source |
| 2 | Node is a junction where ---------- network element are connected together.<br>a. Two or more<br>b. Only one<br>**c.** Resistance<br>**d.** Only two |
| 3 | Superposition Theorem is applicable to –<br>a. Non-linear elements<br>b. Dependent voltage source<br>c. Dependent current source<br>d. Linear elements |
| 4 | If the value of Current Source in the circuit is depending on some other current source present in the network, then it is called as –<br>a. VCVS<br>b. VCCS<br>c. CCVS<br>d. CCCS |
| 5 | According to Millman's Theorem, if there are n voltage sources with n internal resistances respectively, are in parallel, then these sources are replaced by?<br>a. single current source I' in series with R'<br>b. single voltage source V' in series with R'<br>c. single current source I' in parallel to R'<br>d. single voltage source V' in parallel to R' |
| 6 | In A.C. circuits the Cramer's rule is to solved –<br>a. Complex matrix<br>b. Simple matrix<br>c. Identity matrix<br>d. Diagonal matrix |
| 7 | When Inductance's are in Parallel, the differential coupling is –<br>a. $L_{Differential} = \frac{L_1 L_2 + M^2}{L_1 + L_2 + 2M}$<br>b. $L_{Differential} = \frac{L_1 L_2 - M^2}{L_1 + L_2 + 2M}$ |

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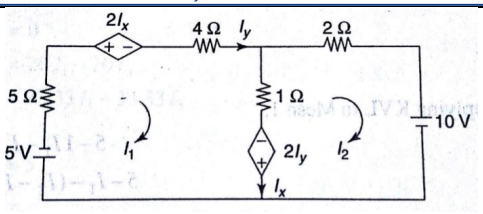
| | c. $L_{Differential} = \frac{L_1 L_2 - M^2}{L_1 + L_2 - 2M}$<br>d. $L_{Differential} = \frac{L_1 L_2 - M^2}{L_1 - L_2 + 2M}$ |
| 8 | When energy transfer takes place from one circuit to the other without having any electrical connections between then –<br>a. Two circuits are said to parallel circuits<br>b. Two circuits are said to coupled circuits<br>c. Two circuits are said to series circuits<br>d. Two circuits are said to simple circuits |
| 9 | The coefficient of self-inductance is represented by –<br>a. L<br>b. R<br>c. C<br>d. R-C |
| 10 | In transient analysis of electrical network arbitrary constants are determine by using –<br>a. Final conditions<br>b. Initial conditions<br>c. Normal conditions<br>d. Steady state conditions |
| | **Short Questions** |
| 11 | The equivalent circuit of capacitor at t = infinity is represented as -–<br>a. Short circuit<br>b. Open circuit<br>c. Resistance<br>d. Inductance |
| 12 | The equivalent circuit of inductance with caring current (Io), at t = 0+ is represented as –<br>a. Current source of Io<br>b. Voltage source of Vo<br>c. Voltage source of Vo with parallel O.C.<br>d. Voltage source of Vo with parallel S.C. |
| 13 | The equivalent circuit of inductor at t = infinity is represented as -–<br>a. Short Circuit<br>b. Open circuit<br>c. Resistance<br>d. Inductance |
| 14 | Identify the correct equation for mesh 1. |




a. $KVL_1 = -5 - 5I_1 - 2I_x - 4I_1 - 1(I_1 - I_2) + 2I_y = 0$

b. $KVL_1 = -5 - 5I_1 - 2I_x - 4I_1 - 1(I_1 + I_2) + 2I_y = 0$

c. $KVL_1 = +5 + 5I_1 - 2I_x - 4I_1 - 1(I_1 - I_2) + 2I_y = 0$

d. $KVL_1 = -5 - 5I_1 + 2I_x + 4I_1 - 1(I_1 - I_2) + 2I_y = 0$

15 The conditions existing just after switching are represented by –

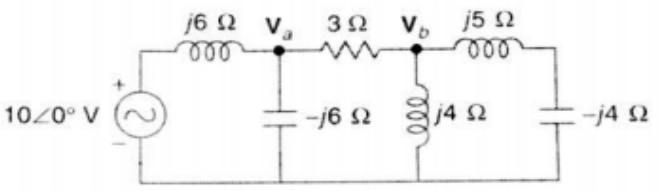
a. $i(0+), v(0^-)$

b. $i(0^-), v(0^+)$

c. $i(0^-), v(0^-)$

d. $i(0^+), v(0^+)$

16 Identify the KCL at nodal Vb for a given network –




a. $\frac{V_b - V_a}{3} + \frac{V_b}{j4} + \frac{V_b}{j1} = 0$

b. $\frac{V_b + V_a}{3} + \frac{V_b}{j4} + \frac{V_b}{j1} = 0$

c. $\frac{V_b - V_a}{3} + \frac{V_b}{j4} - \frac{V_b}{j1} = 0$

d. $\frac{V_b - V_a}{3} - \frac{V_b}{j4} + \frac{V_b}{j1} = 0$

17 **For thevenins theorem steps are mentioned arrange in correct order –**

1. Remove the load resistance RL
2. Find the resistance Rth as seen from point A and B.
3. Find the open circuit voltage Vth across points A and B.
4. Find the current through RL using Ohm's law.
5. Replace the network by a voltage source Vth in series with resistance Rth

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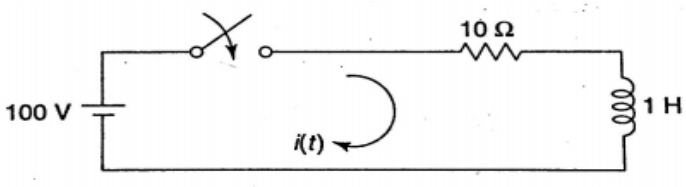
| | **a. 1, 3, 2, 5, 4**<br>b. 1, 2, 4, 3, 5<br>c. 1, 4, 3, 5, 2<br>d. 1, 5, 4, 3, 2 |
| 18 | **For the network shown find the value of current at t = 0+**<br>  <br>a. Current i(0) at t= 0+ is 10<br>b. Current i(0) at t= 0+ is 1<br>c. Current i(0) at t= 0+ is 0<br>d. Current i(0) at t= 0+ is 11 |
| 19 | **Find the value of V1 for the matrix shown.**<br>$\begin{bmatrix} 0.62-j0.16 & -0.5 \\ -0.5 & 0.5-j0.3 \end{bmatrix}\begin{bmatrix} V_1 \\ V_2 \end{bmatrix}=\begin{bmatrix} 10\angle 0° \\ 0 \end{bmatrix}$<br>**a.** $V1 = 21.8\angle 56.42^0$<br>**b.** $V1 = 31.8\angle 56.42^0$<br>**c.** $V1 = 41.8\angle 56.42^0$<br>**d.** $V1 = 51.8\angle 56.42^0$ |
| 20 | **For a two port network to be Symmetrical –**<br>a. Z11 Z22 – Z12 Z21 = 1<br>b. AD – BC = 1<br>c. h11 h22 – h12 h21 = 1<br>d. Y11 Y22 – Y12 Y21 = 1 |