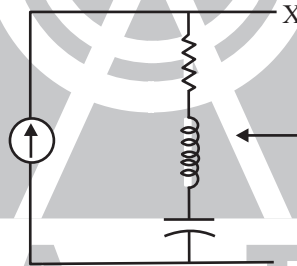




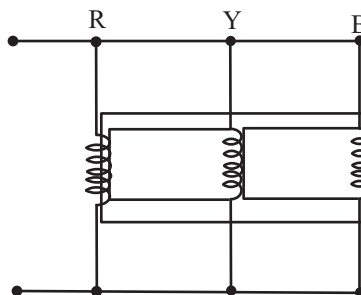
Electrical Engineering 2006

Q.1 to Q.20 carry one mark each

- Q.1 The following is true
- (A) A finite signal is always bounded
 - (B) A bounded signal always possesses finite energy
 - (C) A bounded signal is always zero outside the interval $[-t_0, t_0]$ for some t_0
 - (D) A bounded signal is always finite
- Q.2 $x(t)$ is a real valued function of a real variable with period T . Its trigonometric Fourier Series expansion contains no terms of frequency $\omega = 2\pi(2k)/T$; $k = 1, 2, \dots$. Also, no sine terms are present. Then $x(t)$ satisfies the equation
- (A) $x(t) = -x(t-T)$
 - (B) $x(t) = x(T-t) = -x(-t)$
 - (C) $x(t) = x(T-t) = -x(t-T/2)$
 - (D) $x(t) = x(t-T) = x(t-T/2)$
- Q.3 In the figure the current source is $1 \angle 0$ A, $R=1\Omega$, the impedances are $Z_C = -j\Omega$ and $Z_1 = 2j\Omega$. The Thevenin equivalent looking into the circuit across X-Y is



- (A) $\sqrt{2} \angle 0^\circ$ V, $(1+2j)\Omega$
 - (B) $2 \angle 45^\circ$ V, $(1-2j)\Omega$
 - (C) $2 \angle 45^\circ$ V, $(1+j)\Omega$
 - (D) $\sqrt{2} \angle 45^\circ$ V, $(1+j)\Omega$
- Q.4 The three limbed non ideal core shown in the figure has three windings with nominal inductances L each when measured individually with a single phase AC source. The inductance of the windings as connected will be



- (A) Very low
- (B) $L/3$
- (C) $3L$
- (D) very high



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ANSWERS

1.	B	2.	D	3.	D	4.	A	5.	D	6.	D	7.	B	8.	B
9.	B	10.	A	11.	B	12.	B	13.	B	14.	D	15.	C	16.	A
17.	A	18.	A	19.	D	20.	D	21.	A	22.	D	23.	A	24.	D
25.	D	26.	B	27.	C	28.	A	29.	D	30.	C	31.	D	32.	A
33.	B	34.	D	35.	B	36.	A	37.	B	38.	B	39.	B	40.	*
41.	B	42.	A	43.	C	44.	C	45.	C	46.	A	47.	B	48.	A
49.	B	50.	*	51.	C	52.	A	53.	C	54.	D	55.	A	56.	B
57.	A	58.	A	59.	C	60.	C	61.	C	62.	A	63.	A	64.	A
65.	B	66.	C	67.	A	68.	A	69.	A	70.	A	71.	C	72.	A
73.	A	74.	C	75.	C	76.	D	77.	D	78.	*	79.	B	80.	C
81.	B	82.	D	83.	D	84.	B	85.	C						

□□□