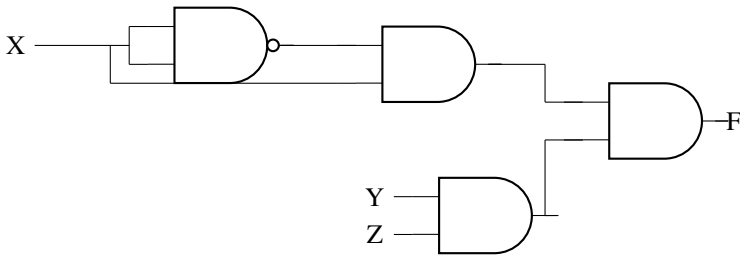
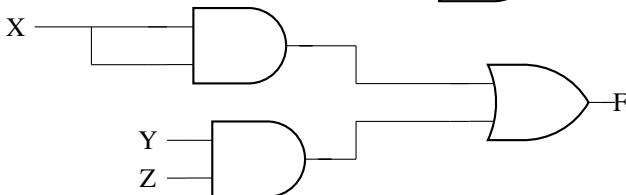


53) Which of the following circuits is a realization of the above function  $F$

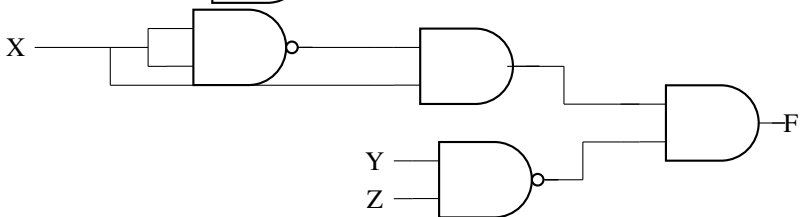
a)



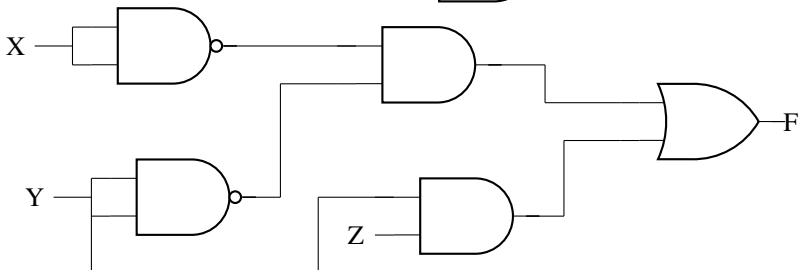
b)



c)

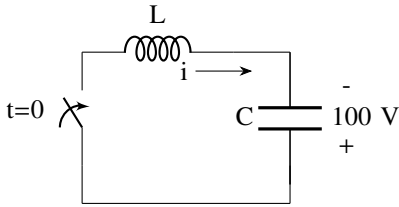


d)



Statement for the linked Answer Questions 54 and 55

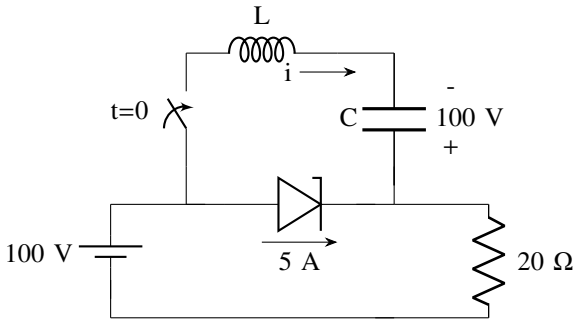
The  $L-C$  circuit shown in the figure has an inductance  $L = 1\text{ mH}$  and a capacitance  $C = 10\text{ }\mu\text{F}$



54) The initial current through the inductor is zero, while the initial capacitor voltage is  $100\text{ V}$ . The switch is closed at  $t = 0$ . The current  $i$  through the circuit is :

- a)  $5 \cos(5 \times 10^4 t)\text{ A}$
- b)  $5 \sin(10^4 t)\text{ A}$
- c)  $10 \cos(5 \times 10^4 t)\text{ A}$
- d)  $10 \sin(10^4 t)\text{ A}$

55) The  $L$ – $C$  circuit of Q54 is used to communicate a thyristor, which is initially carrying a current of  $5\text{ A}$  as shown in the figure below. The values and initial conditions of  $L$  and  $C$  are same as in Q54. The switch is closed at  $t = 0$ . If the forward drop is negligible, the time taken for the device to turn off is



- a)  $52\mu\text{s}$
- b)  $156\mu\text{s}$
- c)  $312\mu\text{s}$
- d)  $26\mu\text{s}$

56) 25 persons in a room. 15 of them play hockey, 17 of them play football and 10 of them play both hockey and football. Then the number of persons playing neither football nor hockey is :

- a) 2
- b) 17
- c) 13
- d) 3

57) Choose the most appropriate word from the options given below to complete the following sentence:

If we manage to ..... our natural resources, we would leave a better planet for our children.

- a) uphold

- b) restrain
- c) cherish
- d) conserve

58) *The below consists of a pair of related words followed by four pairs of words. Select the pair that best expresses the relation in the original pair.*

Unemployed : Worker

- a) fallow : land
- b) unaware : sleeper
- c) wit : jester
- d) renovated : house

59) *Which of the following options is the closest in meaning to the word below :*

Circuitous

- a) cyclic
- b) indirect
- c) confusing
- d) crooked

60) *Choose the most appropriate word from the options given below to complete the following sentence*

His rather casual remarks on politics ..... his lack of seriousness about the subject.

- a) masked
- b) belied
- c) betrayed
- d) suppressed

61) Hari (*H*), Gita (*G*), Irfan (*I*) and Saira (*S*) are siblings (*i.e. brothers and sisters*). All were born on 1<sup>st</sup> January. The age difference between any two successive siblings (*that is born one after another*) is less than 3 years. Given the following facts :

- i.  $\text{Hari's age} + \text{Gita's age} > \text{Irfan's age} + \text{Saira's age}$ .
- ii. The age difference between Gita and Saira is 1 year. However, Gita is not the oldest and Saira is not the youngest.
- iii. There are no twins.

In what order were they born (*oldest first*)?

- a) *HSIG*
- b) *SGHI*
- c) *IGSH*
- d) *IHSG*

62) 5 skilled workers can build a wall in 20 days; 8 semi-skilled workers can build a wall in 25 days; 10 unskilled workers can build a wall in 30 days. If a team has 2 skilled, 6 semi-skilled and 5 unskilled workers, how long will it take to build the wall?

- a) 20 days
- b) 18 days
- c) 16 days
- d) 15 days

- 63) Modern warfare has changed from large scale clashes of armies to suppression of civilian populations. Chemical agents that do their work silently appear to be suited to such warfare; and regretfully, there exist people in military establishments who think that chemical agents are useful tools for their cause.

*Which of the following statements best sums up the meaning of above passage:*

- a) Modern warfare has resulted in civil strife
  - b) Chemical agents are useful in modern warfare
  - c) Use of chemical agents in warfare would be undesirable.
  - d) People in military establishments like to use chemical agents in war.
- 64) Given digits 2, 2, 3, 3, 3, 4, 4, 4, 4 how many distinct 4 digit numbers greater than 3000 can be formed?
- a) 50
  - b) 51
  - c) 52
  - d) 53
- 65) If  $137 + 276 = 435$  how many is  $731 + 672$ ?
- a) 534
  - b) 1403
  - c) 1623
  - d) 1513