gate

EE24BTECH11031 - Jashwanth

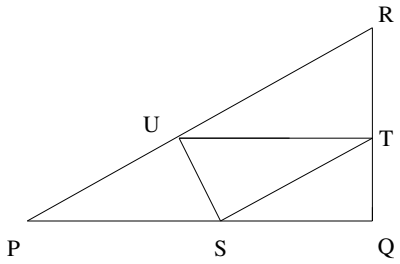
1) Apparent lifelessness _____ dormant life.
   a) harbours
   b) leads to
   c) supports
   d) affects
2) That boy from the town was a _____ in the sleepy village.
   a) dog out of herd
   b) sheep from the heap
   c) fish out of water
   d) bird from the flock
3) Choose the statement where underlined word is used correctly.
   a) When the teacher eludes to different authors, he is being elusive.
   b) When the thief keeps eluding the police, he is being elusive.
   c) Matters that are difficult to understand, identify or remember are allusive.
   d) Mirages can be allusive, but a better way to express them is illusory.
4) Tanya is older than Eric.
   Chiff is older than Tanya.
   Eric is older than Cliff.
   If the first two statements are true, then the third statement is:
   a) True
   b) False
   c) Uncertain
   d) Data insufficient
5) Five teams have to compete in a league, with every team playing every other team exactly once, before going to the next round. How many matches will have to be held to complete the league round of matches?
   a) 20
   b) 10
   c) 8
   d) 5
6) Select the appropriate option in place of underlined part of the sentence.
   Increased productive necessary reflects greater efforts made by the employees.
   a) Increase in productivity necessary
   b) Increase productivity is necessary
   c) Increase in productivity necessarily
   d) No improvement required
7) Given below are two statements followed by two conclusions. Assuming these statements to be true, decide which one logically follows.

   statements:
   i. No manager is a leader.
   ii. All the leaders are executives.

Conclusions:
i. No manager is an executive.
ii. No executive is a manager.

a) Only conclusion i follows.
b) Only conclusion ii follows.
c) Neither conclusion i nor ii follows.
d) Both conclusion i nor ii follows.

8) In the given figure angle **Q** is a right angle, **PS** : **QS** = 3 : 1, **RT** : **QT** = 5 : 2 and **PU** : **UR** = 1 : 1. If area of triangle **QTS** is 20 cm^2, then the area of triangle PQR in cm^2 is ____



9) Right triangle PQR is to be constructed in the xy - plane so that the right angle is at P and line PR is parallel to the x-axis. The x and y coordinates of P. Q, and R are to be integers that satisfy the inequalities: $-4 \leq x \leq 5$ and $6 \leq y \leq 16$. How many different triangles could be constructed with these properties?
a) 110
b) $1,100$
c) $9,900$
d) $10,000$

10) A coin is tossed thrice. Let X be the event that head occurs in each of the first two tosses. Let Y be the event that a tail occurs on the third toss. Let Z be the event that two tails occur in the three tosses. Based on the above information, which one of the following statements is TRUE?
a) X and Y are not independent
b) Y and Z are dependent
c) Y and Z are independent
d) X and Z are independent

11) A satellite is moving in a circular orbit around the Earth. If **T**, **V** and **E** are its average kinetic. average potential and total energies, respectively, then which one of the following options is correct?
a) **V**=-2**T**; **E**=-**T**
b) **V**=-**T**; **E**=0
c) **V**=-**T**/2; **E**=**T**/2
d) **V**=-3**T**/2; **E**=-**T**/2

12) The Pauli matrices for three spin-$\frac{1}{2}$ particles are σ_1, σ_2, and σ_3, respectively. The dimension of the Hilbert space required to define an operator $O = \sigma_1 \cdot \sigma_2 \times \sigma_3$ is ____

13) The mean Kinectic energy of a nucleon in a nucleus of atomic weight **A** varies as $\mathbf{A}^n$, where n is____(upto two decimal places)