2015
AE : Aeronautical Engineering

AI24BTECH11022 - Pabbuleti Venkata Charan Teja

1) Choose the appropriate word/phrase, out of the four options given below, to complete the following sentence.
Apparent lifelessness _____ dormant life.

a) harbours
b) leads to
c) supports
d) affects

2) Fill in the blank with the correct idiom/phrase.
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.
Cliff 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

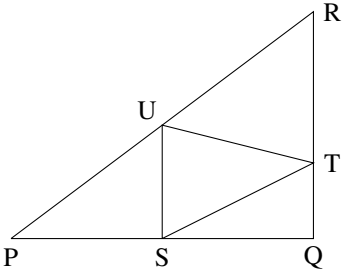
6) Select the appropriate option in place of underlined part of the sentence.
Increased productivity necessary reflects greater efforts made by the employees.

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 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 conclusions I and 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 $20cm^2$, 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 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) The partial differential equation $\frac{\partial u}{\partial t} + \frac{\partial\left(\frac{u^2}{2}\right)}{\partial x} = 0$ is

a) linear and first order
b) linear and second order
c) non-linear and first order
d) non-linear and second order

12) The system of equations for the variables x and y
$ax + by = e$
$cx + dy = f$
has a unique solution only if

a) $ad - bc \neq 0$
b) $ac - bd \neq 0$
c) $a + c \neq b + d$
d) $a - c \neq b - d$

13) A linear mass-spring-dashpot system is over-damped. In free vibration, this system undergoes

a) non-oscillatory motion
b) random motion
c) oscillatory and periodic motion
d) oscillatory and non-periodic motion