EE 2012 14-26

EE24BTECH11005 - Arjun Pavanje

1) Which of the following options is the closest in meaning to the phrase underlined in the sequence below?
It is fascinating to see life cope with varied environmental conditions.

a) adopt to
b) adapt to
c) adept in
d) accept with

2) Chose the most appropriate word from the options given below to complete the following sentence.
He could not understand the judges awarding her the first prize, because he thought that her performance was quite _____

a) superb
b) medium
c) mediocre
d) exhilerating

3) In a press meet on the recent scam, the minister said, "The buck stops here". What did the minister convey by the statement?

a) He wants all the money
b) He will return the money
c) He will assume final responsibility
d) He will resist all enquiries

4) if $\left(z+\frac{1}{z}\right)^2 = 98$, compute $\left(z^2+\frac{1}{z^2}\right)^2$

5) The roots of $ax^2+bx+c=0$ are real and positive, a, b, c are real. Then $ax^2+b|x|+c=0$ has

a) no roots
b) 2 real roots
c) 3 real roots
d) 4 real roots

6) The Palghat Gap, or Palakkad Gap, a region about $30km$ wide in the southern part of the Western Ghats in India, is lower than the hilly terrain to its north and south. The exact reasons for the formation of this gap are not clear. It results in the neighbouring regions of Tamil Nadu getting more rainfall from the South West monsoon and the neighbouring regions of Kerala having higher summer temperatures.
What can be inferred from this passage?

a) The Palghat gap is caused by high rainfall and high temperatures in southern Tamil Nadu and Kerala

b) The regions in Tamil Nadu and Kerala that are near the Palghat Gap are low-lying

c) The low terrain of the Palghat Gap has a significant impact on weather patterns in neighbouring parts of Tamil Nadu and Kerala

d) Higher summer temperatures result in higher rainfall near the Palghat Gap area

7) Geneticists say that they are very close to confirming the genetic roots of psychiatric illnesses such as depression and schizophrenia, and consequently, that doctors will be able to eradicate these diseases through early identification and gene therapy. On which of the following assumptions does the statement above rely?

a) Strategies are now available for eliminating psychiatric illnesses

b) Certain psychiatric illnesses have a genetic basis

c) All human diseases can be traced back to genes and how they are expressed

d) In the future, genetics will become the only relevant field for identifying psychiatric illnesses

8) Round-trip tickets to a tourist destination are eligible for a discount of 10% on the total fare. In addition, groups of 4 or more get a discount of 5% on the total fare. If the one way single person fare is $Rs100$, a group of 5 tourists purchasing round-trip tickets will be charged Rs _____

9) In a survey, 300 respondents were asked whether they own a vehicle or not. If yes, they were further asked to mention whether they own a car or scooter or both. Their responses are tabulated below. What percent of respondents do not own a scooter?

		Men	**Women**
Own vehicle	Car	40	34
	Scooter	30	20
	Both	60	46
Do not own vehicle		20	50

10) When a point insde of a tetrahedron (a solid with four triangular surfaces) is connected by straight lines to corners, how many (new) internal planes are created with these lines _____

11) Given a system of equations,

$$x + 2y + 2z = b_1$$
$$5x + y + 3z = b_2$$

Which of the folllowing is true regarding its solutions

a) The system has a unique solution for any given b_1 and b_2

b) The system will have infinitely many solutions for any given b_1 and b_2

c) Whether or not a solution exists depends on the given b_1 and b_2

d) The system would have no solution for any values of b_1 and b_2

12) Let $f(x) = xe^{-x}$. The maximum value of the function in the interval $(0, \infty)$ is

a) e^{-1}

b) e

c) $1 - e^{-1}$

d) $1 + e^{-1}$

13) The solution for the differential equation

$$\frac{d^2x}{dt^2} = -9x$$

with initial conditions $x(0) = 1$ and $\frac{dx}{dt}|_{t=0} = 1$ is,

a) $t^2 + t + 1$

b) $\sin 3t + \frac{1}{3}\cos 3t + \frac{2}{3}$

c) $\frac{1}{3}\sin 3t + \cos 3t$

d) $\cos 3t + t$