2012-AE-'53-65'

AI24BTECH11006 - Bugada Roopansha

53) If the mass flow rate is $1\frac{kg}{s}$, the power required to drive the compressor is

   a) 50.5 kW
   b) 40.5 kW
   c) 30.5 kW
   d) 20.5 kW

   Statement for Linked Answer Questions 54 and 55:
   A thin-walled spherical vessel (1m inner diameter and10mm wall thickness) is made of a material with $\sigma_y = 500$ MPa in both tension and compression.

54) The internal pressure p_y, at yield, based on the von Mises yield criterion, if the vessel is floating in space, is approximately

   a) 500 MPa
   b) 250 MPa
   c) 100 MPa
   d) 20 MPa

55) If the vessel is evacuated (internal pressure $= 0$) and subjected to external pressure, yielding according to the von Mises yield criterion (assuming elastic stability until yield)

   a) occurs at about half the pressure p_y
   b) occurs at about the same pressure p_y
   c) occurs at about double the pressure p_y
   d) never occurs.

56) Choose the most appropriate alternative from the options given below to complete the following sentence:
   I ... to have bought a diamond ring.

   a) have a liking
   b) should have liked
   c) would like
   d) may like

57) Choose the most appropriate alternative from the options given below to complete the following sentence:
   Food prices ... again this month.

   a) have raised

   b) have been raising
   c) have been rising
   d) have arose

58) Choose the most appropriate alternative from the options given below to complete the following sentence:
   The administrators went on to implement yet another unreasonable measure, arguing that the measures were already ... and one more would hardly make a difference.

   a) reflective
   b) utopian
   c) luxuriant
   d) unpopular

59) Choose the most appropriate alternative from the options given below to complete the following sentence:
   To those of us who had always thought him timid, his ... came as a surprise.

   a) intrepidity
   b) inevitability
   c) inability
   d) inertness

60) The arithmetic mean of five different natural numbers is 12. The largest possible value among the numbers is

   a) 12
   b) 40
   c) 50
   d) 60

61) Two policemen, A and B, fire once each at the same time at an escaping convict. The probability that A hits the convict is three times the probability that B hits the convict. If the probability of the convict not getting injured is 0.5, the probability that B hits the convict is

   a) 0.14
   b) 0.22
   c) 0.33
   d) 0.40

62) The total runs scored by four cricketers P, Q,

R, and S in years 2009 and 2010 are given in the following table:

Player	2009	2010
P	802	1008
Q	765	912
R	429	619
S	501	701

The player with the lowest percentage increase in total runs is

a) P

b) Q

c) R

d) S

63) If a prime number on division by 4 gives a remainder of 1, then that number can be expressed as

a) sum of squares of two natural numbers

b) sum of cubes of two natural numbers

c) sum of square roots of two natural numbers

d) sum of cube roots of two natural numbers

64) Two points $(4, p)$ and $(0, q)$ lie on a straight line having a slope of $\frac{3}{4}$. The value of $(p - q)$ is

a) -3

b) 0

c) 3

d) 4

65) **In the early nineteenth century, theories of social evolution were inspired less by Biology than by the conviction of social scientists that there was a growing improvement in social institutions. Progress was taken for granted and social scientists attempted to discover its laws and phases.**

Which one of the following inferences may be drawn with the greatest accuracy from the above passage?

Social scientists

a) did not question that progress was a fact.

b) did not approve of Biology.

c) framed the laws of progress.

d) emphasized Biology over Social Sciences.