1. One-third of Rahul's savings in National Savings Certificate is equal to one-half of his savings in Public Provident Fund. If he has Rs. 1,50,000 as total savings, how much has he saved in Public Provident Fund?

A. Rs. 30,000  B. Rs. 50,000  C. Rs. 60,000  D. Rs. 90,000

Answer: C

Explanation:
Let savings in N.S.C and P.P.F. be Rs. $x$ and Rs. $(150000 - x)$ respectively. Then, \( \frac{1}{3} x = \frac{1}{2} (150000 - x) \) \( (x/3) + (x/2) = 75000 \) \( 5x/6 = 75000 \) \( x = 90000 \) Therefore Savings in Public Provident Fund = 150000 - 90000= Rs. 60000

2. A man has some hens and cows. If the number of heads is 48 and the number of feet equals 140, then the number of hens will be:

A. 22  B. 23  C. 24  D. 26

Answer: D

Explanation:
Let the number of hens be $x$ and the number of cows be $y$. Then, \( x + y = 48 \) .... (i) and \( 2x + 4y = 140 \) \( x + 2y = 70 \) .... (ii) Solving (i) and (ii) we get: \( x = 26, y = 22 \). The required answer = 26.

3. X and Y can do a piece of work in 20 days and 12 days respectively. X started the work alone and then after 4 days Y joined him till the completion of the work. How long did the work last?

A. 6 days  B. 10 days  C. 15 days  D. 20 days

Answer: B

Explanation:
Work done by X in 4 days \( (1/20) * 4 = 1/5 \) Remaining work = \( 1 - (1/5) = 4/5 \) (X + Y)'s 1 day's work \( (1/20) + (1/20) = 8/60 = 2/15 \) Work done by X and Y in 1 day = \( 2/15 \) So, 4/5 work will be done by X and Y in \( (15/2) * (4/5) = 6 \) days Hence, total time taken = 6+4 = 10 days

4. The difference between a two-digit number and the number obtained by interchanging the positions of its digits is 36. What is the difference between the two digits of that number?

A. 3  B. 4  C. 9  D. cannot be determined

Answer: B
Let the ten’s digit be x and unit’s digit be y. Then, \((10x + y) - (10y + x) = 36\) \(9(x - y) = 36 x - y = 4\).

5. On dividing a number by 5, we get 3 as remainder. What will the remainder when the square of the number is divided by 5?

A. 0    B. 1    C. 2    D. 4

Answer: D

Explanation:
Let the number be x and on dividing x by 5, we get k as quotient and 3 as remainder. \(x = 5k + 3\) \(x^2 = (5k + 3)^2 = (25k^2 + 30k + 9) = 5(5k^2 + 6k + 1) + 4\) On dividing \(x^2\) by 5, we get 4 as remainder.

6. Sum of squares of two numbers is 404 and sum of two numbers is 22. Then product of two numbers?

A. 20    B. 40    C. 80    D. none of these

Answer: B

Explanation:
According to the given conditions \(x + y = 22\) and \(x^2 + y^2 = 404\) now \((x + y)^2 = x^2 + y^2 + 2xy\) so \(22^2 = 404 + 2xy\) so \(xy = 80/2 = 40\).

7. If \(a > 4\), \(b < -1\) then which of the following is true

A. \(2a + b < 0\)    B. \(4a < 3b\)    C. \(a > 4b\)    D. none of these

Answer: C

8. A student was performing an arithmetic operation and he multiplied a number by \(3/2\) instead of dividing it by \(2/3\). What was its error percentage?

A. 10%    B. 12%    C. 15%    D. none of these

Answer: D

Explanation:
\((3/2) x - x/ (2/3) = 0\) Therefore % error = 0%

9. Saritha and Kavitha are separated by a certain distance of 100m and Saritha started from her house and walked for 30m East and turned right and walked up to 10m and then turned left and walked up to 20m and again turned left and walked to the road. What is the distance between the two girls now?
10. What is the distance between Saritha and Kavitha after walking 10 meters towards the road?
A. 52  B. 50  C. 51  D. none of these
Answer: B

11. What are the points in the stress-strain curve for steel?
A. elastic limit or yield point  B. ultimate stress  C. stress at failure  D. all of these
Answer: D

12. The ratio of inertial force and viscous force. It is a dimensionless number. It determines the type of fluid flow.
A. Reynolds number  B. viscous force  C. torque  D. none of these
Answer: A

13. How many joules is 1 BTU?
A. 1055.056 joules  B. 1054 joules  C. 950 joules  D. none of these
Answer: A

14. It is the temperature below which the tendency of a material to fracture increases rather than forming. Below this temperature the material loses its ductility.
A. annealing  B. nil ductility  C. ductile-brittle transition  D. both B & C
Answer: D

15. For a perfectly incompressible material, the Poisson's ratio would be
A. greater than 0.5  B. less than 0.0  C. equal to 0.1  D. none of these
Answer: D

Explanation:
Exactly 0.5. Most practical engineering materials have \( v \) between 0.0 and 0.5. Cork is close to 0.0, most steels are around 0.3, and rubber is almost 0.5.

16. A man sells an article with a 20% discount and gain a profit of 20%. What would be the profit percentage if he sells it with 10% discount?

A. 25%  B. 50%  C. 35%  D. none of these

Answer: C

Explanation:
Let initial selling price be 100 Rs Cost price after 20% discount be \( 80 \times \frac{100}{120} = \frac{200}{3} \) Selling price after 10% discount is 90 Rs Profit = \( (90 - \frac{200}{3}) / \frac{200}{3} = 7/20 \) % profit = \( (7/20) \times 100 = 35\% \)

17. A radioactive element disintegrates by 20th part every hour and find the probability that no matter is left out in duration of 45 min?

A. \( e^{-15} \)  B. 15  C. \( e^{-20} \)  D. none of these

Answer: A

Explanation:
Since it deals with radioactive element 'n' is usually large. so poisons distribution is to be applied. ..
1hr=60min---------20 45min----------? (45*20)/(60)=15.. Hence \( \lambda = 15 \ P(x=0) = e^{-15} * (15!)/ (0!) = e^{-15} \)

18. If side of the square is \( x+2 \) and side of equilateral triangle is \( 2x \) and the perimeters of both square and equilateral triangle are equal. Then find the value of \( x \)?

A. 4  B. 6  C. 8  D. none of these

Answer: A

Explanation:
\[ 4(x+2) = 3(2x) \text{ i.e.; } x=4 \]

19. If side of the square of increased by 5 and change in area were 165, then find the value of side of the square?

A. 16  B. 14  C. 18  D. none of these

Answer: B

Explanation:
\[ x+5)^2-x^2=165 \text{ } 10x+25=165 \text{ } 10x=140 \text{ } x=14 \]
20. A man has Rs. 480 in the denominations of one-rupee notes, five-rupee notes and ten-rupee notes. The number of notes of each denomination is equal. What is the total number of notes that he has?

A. 45  B. 60  C. 75  D. 90

Answer: D

Explanation:
Let number of notes of each denomination be x. Then x + 5x + 10x = 480 16x = 480 x = 30. Hence, total number of notes = 3x = 3 x 30 = 90.

21. Ann is shorter than Jill and Jill is taller than Tom. Which of the following inferences is true.

A. Ann is taller than Tom.  B. Ann is shorter than Tom.  C. Ann shortest among three.  D. None of these.

Answer: D

22. Who is tallest among the three?

A. Ann  B. Tom  C. Jill  D. Cannot be determined

Answer: C

23. We entered (A) into the room (B) after the class was over (C) No Error (D)

A. A  B. B  C. C  D. D

Answer: B

Explanation:
We entered the room after the class was over.

24. Your account should (A) have been credited (B) with three month's interest (C) No error (D).

A. A  B. B  C. C  D. D

Answer: D

Explanation:
There is no error in this sentence.

25. Idli and sambar (A) make the breakfast (B) in the south (C) No error (D).
26. We discussed (A)/about the politics (B)/ in the class room(C)/No Error (D).

A. A  B. B  C. C  D. D

Answer: B

Explanation:
There is an error in fragment 2 of the sentence. The article 'the' has been incorrectly placed.

27. Arrange the sentence order(27-30) A. With the time spent eating, sleeping, taking care of household chores, and looking after the family, there is little time left for leisure activities for many American. B Results of a 2001 Harris Poll on free time conducted in the United States showed that the average workweek for many Americans is fifty hours. C. People today seem to have increasingly hectic lifestyles. D In addition, many people spend up to two or three hours a day commuting to and from work

A. ABCD  B. CBDA  C. ACBD  D. CADB

Answer: B

28. A. The most popular activity for Americans was gardening. B. We can see from the above examples tat in different countries and cultures around the world, free time is spend in different ways. C. In the U.K., it was going to the pub, followed by visiting the cinema. D. In Japan, it was very different from the first two countries. Going too bars and pubs ranked eighth in popularity, and gardening ranked ninth. E There were differences in the most popular outdoor pursuits between the following three countries.

A. EADCB  B. BEACD  C. EACDB  D. CEABD

Answer: C

29. A. When identity is thus 'defined by contrast', divergence with the West becomes central. B. Indian religious literature such as the Bhagavad Gita or the Tantric texts, which are identified as differing from secular writings seen as 'western', elicits much greater interest in the West than do other Indian writings, including India's long history of heterodoxy.
C. There is a similar neglect of Indian writing on non-religious subjects, from mathematics, epistemology and natural science to economics and linguistics.
D. Through selective emphasis that point up differences with the West, other civilizations can, in this way, be redefined in alien terms, which can be exotic and charming, or else bizarre and terrifying, or simply strange and engaging.
E. The exception is the Kamasutra in which western readers have managed to cultivate an interest.

A. BDACE  B. DEABC  C. BDECA  D. BCEDA

Answer: D

Explanation:
Comparing statements B and D for starters as per the options, statement B scores over statement D. BD versus BC (as per the options) - By several reading of the sentences it is possible to see that BC is mandatory or that statement C cannot be placed next to any other statement available except immediately after statement B because of its 'there is similar neglect. The neglect is mentioned only in statement B. BCED and BCDE would have been very difficult to decide. Fortunately we are not required to decide this, because BCED is the only choice. Statement A then falls automatically at the end of the paragraph. Hence, the correct answer is option D

30. A. This is now orthodoxy to which I subscribe - up to a point. B. It emerged from the mathematics of chance and statistics.
C. Therefore the risk is measurable and manageable.
D. The fundamental concept: Prices are not predictable, but the mathematical laws of chance can describe their fluctuations.
E. This is how what business schools now call modern finance was born.

A. ADCBE  B. EBDCA  C. ABDCE  D. DCBEA

Answer: B

Explanation:
The best way to solve this one is not through the options. If you read the sentence several times there are two possibilities for the 'it' in statement B. The 'it' is either 'The fundamental concept' in D (i.e. BD) or 'modern finance' in E (i.e. EB). No other combination even as per the given options (CB and AB) would make sense if the 'it' is worked upon. BD is not in the options. Now, one has to merely check if EBDCA makes sense and there is no other option to compare with. Hence, the correct answer is option B