Book For

State Bank Of India

भारतीय स्टेट बैंक
State Bank of India

SBI Officer Aptitude Sample Paper For Main Exam

(1) What percentage of numbers from 1 to 70 have 1 or 9 in the unit's digit?

[A] 1

[B] 14

[C] 20

[D] 21

Answer : [C]

Explanation:
Clearly, the numbers which have 1 or 9 in the unit's digit, have squares that end in the digit 1. Such numbers from 1 to 70 are 1, 9, 11, 19, 21, 29, 31, 39, 41, 49, 51, 59, 61, 69.
Number of such number =14
$\therefore$ Required percentage = $\left(\frac{14}{70} \times 100\right)\% = 20\%$.

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(2) If A = x% of y and B = y% of x, then which of the following is true?

[A] A is smaller than B.

[B] A is greater than B

[C] Relationship between A and B cannot be determined.

[D] If x is smaller than y, then A is greater than B.

[E] None of these

Answer : [E]

Explanation:
$x\%$ of $y = \left(\frac{x}{100} \times y\right) = \left(\frac{y}{100} \times x\right) = y\%$ of x

$\therefore$ A = B.

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(3) A batsman scored 110 runs which included 3 boundaries and 8 sixes. What percent of his total score did he make by running between the wickets?

[A] 45%

[B] $45\frac{5}{11}\%$

[C] $54\frac{6}{11}\%$

[D] 55%

Answer : [B]

Explanation:
Number of runs made by running = 110 - (3 x 4 + 8 x 6)
= 110 - (60)
= 50.
$\therefore$ Required percentage = $\left(\frac{50}{110} \times 100\right)\% = 45\frac{5}{11}\%$

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(4) If 20% of a = b, then b% of 20 is the same as:

[A] 4% of a

[B] 5% of a

[C] 20% of a

[D] None of these

Answer : [A]

Explanation:

20% of $a = b \Rightarrow \frac{20}{100}a = b$.

$\therefore$ b% of 20 $= \left(\frac{b}{100} \times 20\right) = \left(\frac{20}{100}a \times \frac{1}{100} \times 20\right) = \frac{4}{100}a$ = 4% of a.

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(5) Two numbers A and B are such that the sum of 5% of A and 4% of B is two-third of the sum of 6% of A and 8% of B. Find the ratio of A : B.

[A] 2 : 3

[B] 1 : 1

[C] 3 : 4

[D] 4 : 3

Answer : [D]

Explanation:

5% of A + 4% of B = $\frac{2}{3}$ (6% of A + 8% of B)

$\Rightarrow \frac{5}{100}A + \frac{4}{100}B = \frac{2}{3}\left(\frac{6}{100}A + \frac{8}{100}B\right)$

$\Rightarrow \frac{1}{20}A + \frac{1}{25}B = \frac{1}{25}A + \frac{4}{75}B$

$\Rightarrow \left(\frac{1}{20} - \frac{1}{25}\right)A = \left(\frac{4}{75} - \frac{1}{25}\right)B$

$\Rightarrow \frac{1}{100}A = \frac{1}{75}B$

$\frac{A}{B} = \frac{100}{75} = \frac{4}{3}$.

$\therefore$ Required ratio = 4 : 3

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(6) Gauri went to the stationers and bought things worth Rs. 25, out of which 30 paise went on sales tax on taxable purchases. If the tax rate was 6%, then what was the cost of the tax free items?

[A] Rs. 15

[B] Rs. 15.70

[C] Rs. 19.70

[D] Rs. 20

Answer : [C]

Explanation:

Let the amount taxable purchases be Rs. x.

Then, 6% of $x = \frac{30}{100}$

$\Rightarrow x = \left(\frac{30}{100} \times \frac{100}{6}\right) = 5$.

$\therefore$ Cost of tax free items = Rs. [25 - (5 + 0.30)] = Rs. 19.70

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(7) The difference between simple and compound interests compounded annually on a certain sum of money for 2 years at 4% per annum is Re. 1. The sum (in Rs.) is:

[A] 625

[B] 630

[C] 640

[D] 650

Answer : [A]

Explanation:
Let the sum be Rs. x. Then,

C.I. $= \left[x \left(1 + \frac{4}{100} \right)^2 - x \right] = \left(\frac{676}{625}x - x \right) = \frac{51}{625}x.$

S.I. $= \left(\frac{x \times 4 \times 2}{100} \right) = \frac{2x}{25}.$

$\therefore \quad \frac{51x}{625} - \frac{2x}{25} = 1$

$\Rightarrow x = 625.$

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(8) What is the difference between the compound interests on Rs. 5000 for $1\frac{1}{2}$ years at 4% per annum compounded yearly and half-yearly?

[A] Rs. 2.04

[B] Rs. 3.06

[C] Rs. 4.80

[D] Rs. 8.30

Answer : [A]

Explanation:

C.I. when interest compounded yearly $= \text{Rs.} \left[5000 \times \left(1 + \frac{4}{100} \right) \times \left(1 + \frac{\frac{1}{2} \times 4}{100} \right) \right]$

$= \text{Rs.} \left(5000 \times \frac{26}{25} \times \frac{51}{50} \right)$

$= \text{Rs. } 5304.$

C.I. when interest is compounded half-yearly $= \text{Rs.} \left[5000 \times \left(1 + \frac{2}{100} \right)^3 \right]$

$= \text{Rs.} \left(5000 \times \frac{51}{50} \times \frac{51}{50} \times \frac{51}{50} \right)$

$= \text{Rs. } 5306.04$

$\therefore$ Difference = Rs. (5306.04 - 5304) = Rs. 2.04

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(9) Albert invested an amount of Rs. 8000 in a fixed deposit scheme for 2 years at compound interest rate 5 p.c.p.a. How much amount will Albert get on maturity of the fixed deposit?

[A] Rs. 8600

[B] Rs. 8620

[C] Rs. 8820

[D] None of these

Answer : [C]

Explanation:

Amount $= \text{Rs.} \left[8000 \times \left(1 + \frac{5}{100} \right)^2 \right]$

$= \text{Rs.} \left(8000 \times \frac{21}{20} \times \frac{21}{20}\right)$

$= \text{Rs. } 8820.$

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(10) The effective annual rate of interest corresponding to a nominal rate of 6% per annum payable half-yearly is:

[A] 6.06%

[B] 6.07%

[C] 6.08%

[D] 6.09%

Answer : [D]

Explanation:

Amount of Rs. 100 for 1 year when compounded half-yearly $= \text{Rs.} \left[100 \times \left(1 + \frac{3}{100}\right)^2\right] = \text{Rs. } 106.09$

$\therefore$ Effective rate = (106.09 - 100)% = 6.09%

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(11) The least number of complete years in which a sum of money put out at 20% compound interest will be more than doubled is:

[A] 3

[B] 4

[C] 5

[D] 6

Answer : [B]

Explanation:

$P\left(1 + \frac{20}{100}\right)^n > 2P \quad \Rightarrow \quad \left(\frac{6}{5}\right)^n > 2.$

Now, $\left(\frac{6}{5} \times \frac{6}{5} \times \frac{6}{5} \times \frac{6}{5}\right) > 2.$

So, $n = 4$ years.

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(12) The sum of ages of 5 children born at the intervals of 3 years each is 50 years. What is the age of the youngest child?

[A] 4 years

[B] 8 years

[C] 10 years

[D] None of these

Answer : [A]

Explanation:

Let the ages of children be x, $(x + 3)$, $(x + 6)$, $(x + 9)$ and $(x + 12)$ years.
Then, $x + (x + 3) + (x + 6) + (x + 9) + (x + 12) = 50$
$\Rightarrow 5x = 20$
$\Rightarrow x = 4.$
$\therefore$ Age of the youngest child = $x = 4$ years.

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(13) Father is aged three times more than his son Ronit. After 8 years, he would be two and a half times of Ronit's age. After further 8 years, how many times would he be of Ronit's age?

[A] 2 times

[B] $2\frac{1}{2}$ times

[C] $2\frac{3}{4}$ times

[D] 3 times

Answer : [A]

Explanation:
Let Ronit's present age be x years. Then, father's present age $=(x + 3x)$ years $= 4x$ years.
$\therefore \quad (4x + 8) = \frac{5}{2}(x + 8)$

$\Rightarrow 8x + 16 = 5x + 40$
$\Rightarrow 3x = 24$
$\Rightarrow x = 8.$
Hence, required ratio $= \frac{(4x + 16)}{(x + 16)} = \frac{48}{24} = 2.$

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(14) Sachin is younger than Rahul by 7 years. If their ages are in the respective ratio of 7 : 9, how old is Sachin?

[A] 16 years

[B] 18 years

[C] 28 years

[D] 24.5 years

[E] None of these

Answer : [D]

Explanation:
Let Rahul's age be x years.
Then, Sachin's age $= (x - 7)$ years.
$\therefore \quad \frac{x - 7}{x} = \frac{7}{9}$

$\Rightarrow 9x - 63 = 7x$
$\Rightarrow 2x = 63$
$\Rightarrow x = 31.5$
Hence, Sachin's age $=(x - 7) = 24.5$ years.

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(15) Six years ago, the ratio of the ages of Kunal and Sagar was 6 : 5. Four years hence, the ratio of their ages will be 11 : 10. What is Sagar's age at present?

[A] 16 years

[B] 18 years

[C] 20 years

[D] Cannot be determined

[E] None of these

Answer : [A]

Explanation:
Let the ages of Kunal and Sagar 6 years ago be $6x$ and $5x$ years respectively.
Then, $\frac{(6x + 6) + 4}{(5x + 6) + 4} = \frac{11}{10}$

$\Rightarrow 10(6x + 10) = 11(5x + 10)$
$\Rightarrow 5x = 10$
$\Rightarrow x = 2.$
$\therefore$ Sagar's present age $= (5x + 6) = 16$ years.

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(16) A man is 24 years older than his son. In two years, his age will be twice the age of his son. The present age of his son is:

[A] 14 years

[B] 18 years

[C] 20 years

[D] 22 years

Answer : [D]

Explanation:
Let the son's present age be x years. Then, man's present age = $(x + 24)$ years.
$\therefore (x + 24) + 2 = 2(x + 2)$
$\Rightarrow x + 26 = 2x + 4$
$\Rightarrow x = 22.$

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(17) If a person walks at 14 km/hr instead of 10 km/hr, he would have walked 20 km more. The actual distance travelled by him is:

[A] 50 km

[B] 56 km

[C] 70 km

[D] 80 km

Answer : [A]

Explanation:
Let the actual distance travelled be x km.
Then, $\frac{x}{10} = \frac{x + 20}{14}$

$\Rightarrow 14x = 10x + 200$
$\Rightarrow 4x = 200$
$\Rightarrow x = 50$ km.

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(18) A man complete a journey in 10 hours. He travels first half of the journey at the rate of 21 km/hr and second half at the rate of 24 km/hr. Find the total journey in km.

[A] 220 km

[B] 224 km

[C] 230 km

[D] 234 km

Answer : [B]

Explanation:
$\frac{(1/2)x}{21} + \frac{(1/2)x}{24} = 10$

$\Rightarrow \frac{x}{21} + \frac{x}{24} = 20$

$\Rightarrow 15x = 168 \text{ x } 20$
$\Rightarrow x = \left(\frac{168 \text{ x } 20}{15}\right) = 224$ km.

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(19) The ratio between the speeds of two trains is 7 : 8. If the second train runs 400 km in 4 hours, then the speed of the first train is:

[A] 70 km/hr

[B] 75 km/hr

[C] 84 km/hr

[D] 87.5 km/hr

Answer : [D]

Explanation:
Let the speed of two trains be $7x$ and $8x$ km/hr.

Then, $8x = \left(\frac{400}{4}\right) = 100$

$\Rightarrow x = \left(\frac{100}{8}\right) = 12.5$

$\therefore$ Speed of first train = (7 x 12.5) km/hr = 87.5 km/hr.

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(20) A man on tour travels first 160 km at 64 km/hr and the next 160 km at 80 km/hr. The average speed for the first 320 km of the tour is:

[A] 35.55 km/hr

[B] 36 km/hr

[C] 71.11 km/hr

[D] 71 km/hr

Answer : [C]

Explanation:

Total time taken $= \left(\frac{160}{64} + \frac{160}{80}\right)_{\text{hrs.}} = \frac{9}{2}$ hrs.

$\therefore$ Average speed $= \left(320 \times \frac{2}{9}\right)_{\text{km/hr}} = 71.11$ km/hr.
