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Railway Recruitment Board

Banker's Discount

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Q. 1

The banker’s gain of a certain sum due 2 years hence at 10% per annum is Rs. 24. The present worth is:

[A] Rs. 480
[B] Rs. 520
[C] Rs. 600
[D] Rs. 960

Answer Option [C]

Explanation:

\[ T.D. = \frac{B.G. \times 100}{Rate \times Time} = Rs. \left( \frac{24 \times 100}{10 \times 2} \right) = Rs. 120. \]

\[ \therefore P.W. = \frac{100 \times T.D.}{Rate \times Time} = Rs. \left( \frac{100 \times 120}{10 \times 2} \right) = Rs. 600. \]

Q. 2

The banker’s discount on a sum of money for \( \frac{3}{2} \) years is Rs. 558 and the true discount on the same sum for 2 years is Rs. 600. The rate percent is:

[A] 10%
[B] 13%
[C] 12%
[D] 15%

Answer Option [C]

Explanation:

\[ B.D. \text{ for } \frac{3}{2} \text{ years} = Rs. 558. \]

\[ B.D. \text{ for } 2 \text{ years} = Rs. \left( 558 \times \frac{2}{3} \times 2 \right) = Rs. 744 \]

\[ T.D. \text{ for } 2 \text{ years} = Rs. 600. \]

\[ \therefore \text{Sum} = \frac{B.D. \times T.D.}{B.D. - T.D.} = Rs. \left( \frac{744 \times 600}{144} \right) = Rs. 3100. \]

Thus, Rs. 744 is S.I. on Rs. 3100 for 2 years.

\[ \therefore \text{Rate} = \left( \frac{100 \times 744}{3100 \times 2} \right) = 12\% \]

Q. 3

The banker’s discount of a certain sum of money is Rs. 72 and the true discount on the same sum for the same time is Rs. 60. The sum due is:

[A] Rs. 360
[B] Rs. 432
[C] Rs. 540
[D] Rs. 1080

Answer Option [A]

Explanation:
Q. 4  The banker's discount on a bill due 4 months hence at 15% is Rs. 420. The true discount is:

[A] Rs. 400  
[B] Rs. 360  
[C] Rs. 480  
[D] Rs. 320

Answer  Option [A]

Explanation:

\[
T.D. = \frac{B.D. \times 100}{100 + (R \times T)}
\]

\[
= \frac{420 \times 100}{100 + (15 \times \frac{1}{3})} = \frac{420 \times 100}{105} = Rs. 400.
\]

Q. 5  The true discount on a bill of Rs. 540 is Rs. 90. The banker's discount is:

[A] Rs. 60  
[B] Rs. 108  
[C] Rs. 110  
[D] Rs. 112

Answer  Option [B]

Explanation:

\[
P.W. = Rs. (540 - 90) = Rs. 450.
\]

\[
\therefore \text{S.I. on Rs. 450} = Rs. 90.
\]

\[
\text{S.I. on Rs. 540} = Rs. \left( \frac{90}{450} \times 540 \right) = Rs. 108.
\]

\[
\therefore \text{B.D.} = Rs. 108.
\]

Q. 6  The banker's discount on Rs. 1600 at 15% per annum is the same as true discount on Rs. 1680 for the same time and at the same rate. The time is:

[A] 3 months  
[B] 4 months  
[C] 6 months  
[D] 8 months

\[
\text{Sum} = \frac{B.D. \times T.D.}{B.D. - T.D.} = Rs. \left( \frac{72 \times 60}{72 - 60} \right) = Rs. \left( \frac{72 \times 60}{12} \right) = Rs. 360.
\]
Q. 7  
The banker's gain on a bill due 1 year hence at 12% per annum is Rs. 6. The true discount is:

[A] Rs. 72  
[B] Rs. 36  
[C] Rs. 54  
[D] Rs. 50

Answer Option [D]

Explanation:

\[
\text{T.D.} = \frac{\text{B.G.} \times 100}{\overline{R} \times T} = \text{Rs.} \left( \frac{6 \times 100}{12 \times 1} \right) = \text{Rs. 50.}
\]

Q. 8  
The certain worth of a certain sum due sometime hence is Rs. 1600 and the true discount is Rs. 160. The banker's gain is:

[A] Rs. 20  
[B] Rs. 24  
[C] Rs. 16  
[D] Rs. 12

Answer Option [C]

Explanation:

\[
\text{B.G.} = \left( \frac{\text{T.D.}^2}{\text{P.W.}} \right) = \text{Rs.} \left( \frac{160 \times 160}{1600} \right) = \text{Rs. 16.}
\]

Q. 9  
The banker's gain on a sum due 3 years hence at 12% per annum is Rs. 270. The banker's discount is:

[A] Rs. 960  
[B] Rs. 840  
[C] Rs. 1020  
[D] Rs. 760

Answer Option [C]

Explanation:

\[
\text{T.D.} = \left( \frac{\text{B.G.} \times 100}{\overline{R} \times T} \right) = \text{Rs.} \left( \frac{270 \times 100}{12 \times 3} \right) = \text{Rs. 750.}
\]

∴ B.D. = Rs. (750 + 270) = Rs. 1020.
Q. 10  
The present worth of a sum due sometime hence is Rs. 576 and the banker’s gain is Rs. 16. The true discount is:

[A] Rs. 36  
[B] Rs. 72  
[C] Rs. 48  
[D] Rs. 96  

Answer  Option [D]  
Explanation:  
\[
\text{T.D.} = \frac{\text{P.W.} \times \text{B.G.}}{\text{P.W.}} = \frac{576 \times 16}{576} = 96.
\]

Q. 11  
The present worth of a certain bill due sometime hence is Rs. 800 and the true discount is Rs. 36. The banker’s discount is:

[A] Rs. 37  
[B] Rs. 37.62  
[C] Rs. 34.38  
[D] Rs. 38.98  

Answer  Option [B]  
Explanation:  
\[
\text{B.G.} = \frac{(\text{T.D.})^2}{\text{P.W.}} = \frac{36 \times 36}{800} = \text{Rs. 1.62}
\]
\[
\text{B.D.} = (\text{T.D.} + \text{B.G.}) = (36 + 1.62) = \text{Rs. 37.62}
\]

Q. 12  
The banker’s gain on a certain sum due \(1\frac{1}{2}\) years hence is \(\frac{3}{25}\) of the banker’s discount. The rate percent is:

[A] \(\frac{1}{5}\) %  
[B] \(\frac{1}{9}\) %  
[C] \(\frac{1}{8}\) %  
[D] \(\frac{1}{6}\) %  

Answer  Option [B]  
Explanation:  
Let, \(\text{B.D.} = \text{Re. 1.}\)  
Then, \(\text{B.G.} = \text{Re. } \frac{3}{25} \)
\[ \text{T.D. = (B.D. - B.G.) = Re. } \left( 1 - \frac{3}{25} \right) = \text{Re. } \frac{22}{25}. \]

\[ \text{Sum} = \left( \frac{1 \times \left( \frac{22}{25} \right)}{1-(22/25)} \right) = \text{Rs. } \frac{22}{3}. \]

\[ \text{S.I. on Rs. } \frac{22}{3} \text{ for } 1 \frac{1}{2} \text{ years is Re. } 1. \]

\[ \text{\therefore Rate} = \left( \frac{100 \times 1}{\frac{22}{3} \times \frac{3}{2}} \right)\% = \frac{100}{11} = 9 \frac{1}{11} \%. \]

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The banker’s discount on a certain sum due 2 years hence is \( \frac{11}{10} \) of the true discount.

**The rate percent is:**

[A] 11%  
[B] 10%  
[C] 5%  
[D] 5.5%

**Answer** Option [C]

**Explanation:**  
Let T.D. be Re. 1.  
Then, B.D. = Rs. \( \frac{11}{10} \) = Rs. 1.10.

\[ \therefore \text{Sum} = \text{Rs.} \left( \frac{1.10 \times 1}{1.10 - 1} \right) = \text{Rs.} \left( \frac{110}{10} \right) = \text{Rs.} 11. \]

\[ \therefore \text{S.I. on Rs. } 11 \text{ for } 2 \text{ years is Re. } 1.10 \]

\[ \therefore \text{Rate} = \left( \frac{100 \times 1.10}{11 \times 2} \right)\% = 5\%. \]