The following pie-chart shows the percentage distribution of the expenditure incurred in publishing a book. Study the pie-chart and the answer the questions based on it.

Various Expenditures (in percentage) Incurred in Publishing a Book

1. If for a certain quantity of books, the publisher has to pay Rs. 30,600 as printing cost, then what will be amount of royalty to be paid for these books?

   A. Rs. 19,450   **B.** Rs. 21,200

   C. Rs. 22,950   **D.** Rs. 26,150

   Answer & Explanation
   Answer: Option **C**
   Explanation:
   Let the amount of Royalty to be paid for these books be Rs. r.

   Then, 20 : 15 = 30600 : r $\Rightarrow$ r = Rs. $\left(\dfrac{30600 \times 15}{20}\right)$ = Rs. 22,950.

2. What is the central angle of the sector corresponding to the expenditure incurred on Royalty?

   A. 15º   **B.** 24º

   C. 54º   **D.** 48º

Answer & Explanation

Answer: Option **C**

Explanation:

Central angle corresponding to Royalty = (15% of 360)º

$$= \left(\frac{15}{100} \times 360\right)^{\circ}$$

$$= 54^{\circ}.$$

3. The price of the book is marked 20% above the C.P. If the marked price of the book is Rs. 180, then what is the cost of the paper used in a single copy of the book?

  A. Rs. 36   B. Rs. 37.50

  C. Rs. 42   D. Rs. 44.25

Answer & Explanation

Answer: Option B

Explanation:

Clearly, marked price of the book = 120% of C.P.

Also, cost of paper = 25% of C.P

Let the cost of paper for a single book be Rs. n.

Then, $120 : 25 = 180 : n$ $\Rightarrow$ $\left(\dfrac{25 \times 180}{120}\right) = $ Rs. 37.50

$n = $ Rs.

4. If 5500 copies are published and the transportation cost on them amounts to Rs. 82500, then what should be the selling price of the book so that the publisher can earn a profit of 25%?

  A. Rs. 187.50   **B.** Rs. 191.50

  C. Rs. 175   **D.** Rs. 180

Answer & Explanation

Answer: Option **A**

Explanation:

For the publisher to earn a profit of 25%, S.P. = 125% of C.P.

Also Transportation Cost = 10% of C.P.

Let the S.P. of 5500 books be Rs. *x*.

Then, 10 : 125 = 82500 : *x* ⟹ *x* = Rs. $\left(\dfrac{125 \times 82500}{10}\right)$ = Rs. 1031250.

∴ | S.P. of one book = Rs. $\left(\dfrac{1031250}{5500}\right)$ = Rs. 187.50 .

5. Royalty on the book is less than the printing cost by:

   A. 5%   **B.** $33\dfrac{1}{5}\%$

   C. 20%   **D.** 25%

   Answer & Explanation

   Answer: Option **D**

   Explanation:

   Printing Cost of book = 20% of C.P.

   Royalty on book = 15% of C.P.

   Difference = (20% of C.P.) - (15% of C.P) = 5% of C.P.

   ∴ | Percentage difference = $\left(\dfrac{\text{Difference}}{\text{Printing Cost}} \times 100\right)\%$

   $= \left(\dfrac{5\% \text{ of C.P.}}{\text{Printing Cost}} \times 100\right)\% = 25\%.$

6. If the difference between the two expenditures are represented by 18º in the pie-chart, then these expenditures possibly are

   A. Binding Cost and Promotion Cost

   B. Paper Cost and Royalty

   C. Binding Cost and Printing Cost

   D. Paper Cost and Printing Cost

Answer & Explanation

Answer: Option **D**

Explanation:

Central angle of 18º = $\left(\dfrac{18}{360} \times 100\right)$% of the total expenditure

= 5% of the total expenditure.

From the given chart it is clear that:

Out of the given combinations, only in combination (d) the difference is 5% i.e.

Paper Cost - Printing Cost = (25% - 20%) of the total expenditure

= 5% of the total expenditure.

7. For an edition of 12,500 copies, the amount of Royalty paid by the publisher is Rs. 2,81,250. What should be the selling price of the book if the publisher desires a profit of 5%?

  A. Rs. 152.50   **B.** Rs. 157.50

  C. Rs. 162.50   **D.** Rs. 167.50

Answer & Explanation

Answer: Option **B**

Explanation:

Clearly, S.P. of the book = 105% of C.P.

Let the selling price of this edition (of 12500 books) be Rs. x.

Then, 15 : 105 = 281250 : x $\Rightarrow$ x = Rs. $\left(\dfrac{105 \times 281250}{15}\right)$ = Rs. 1968750.

$\therefore$ S.P. of one book = Rs. $\left(\dfrac{1968750}{12500}\right)$ = Rs. 157.50 .

8. If for an edition of the book, the cost of paper is Rs. 56250, then find the promotion cost for this edition.

  A. Rs. 20,000   **B.** Rs. 22,500

C. Rs. 25,500   **D.** Rs. 28,125

Answer & Explanation

Answer: Option **B**

Explanation:

Let the Promotion Cost for this edition be Rs. *p*.

Then, 25 : 10 = 56250 : *p* $\Rightarrow$ *p* = Rs. $\left(\dfrac{56250 \times 10}{25}\right)$ = Rs. 22,500.

9. Which two expenditures together have central angle of 108º?

   A. Biding Cost and Transportation Cost

   B. Printing Cost and Paper Cost

   C. Royalty and Promotion Cost

   D. Binding Cost and Paper Cost

Answer & Explanation

Answer: Option **A**

Explanation:

Central angle of 108º = $\left(\dfrac{108}{360} \times 100\right)$% of the total expenditure

= 30% of the total expenditure.

From the pie chart it is clear that:

Binding Cost + Transportation Cost = (20% + 10%) of the total expenditure

= 30% of the total expenditure.

∴ Binding Cost and Transportation Cost together have a central angle of 108º.