PRACTICE PAPER

ICSE CLASS 10 – MATHEMATICS

Chapter 3 : Shares and Dividend

STEP-BY-STEP SOLUTIONS & MARKING SCHEME · Maximum Marks: 40

Formulae used (N.V. = nominal value, M.V. = market value):

Premium: M.V. = N.V. + premium | Discount: M.V. = N.V. − discount | Investment = No. of shares × M.V.

Dividend on one share = rate% × N.V. | Total dividend = No. of shares × dividend on one share

Return % = $\frac{\text{Income}}{\text{Investment}} \times 100 = \frac{\text{Dividend \%} \times \text{N.V.}}{\text{M.V.}}$ | No. of shares = $\frac{\text{Investment}}{\text{M.V. of 1 share}} = \frac{\text{Total dividend}}{\text{Dividend on 1 share}}$

SECTION A (20 Marks)

Question 1 [8 × 1 = 8]

Part	Ans.	Working
(i)	**(b)** ₹ 100	M.V. = 80 + 25% of 80 = 80 + 20 = ₹ 100.
(ii)	**(a)** 360	No. of shares = $\frac{21{,}600}{60}$ = 360 (the nominal value is not needed).
(iii)	**(c)** ₹ 600	Dividend = 200 × 12% of 25 = 200 × 3 = ₹ 600.
(iv)	**(b)**	Dividend per share = 10% of 100 = 10; return = $\frac{10}{125} \times 100$ = 8%, not 10%, so (A) is false. Dividend is paid on the nominal value, so (R) is true.
(v)	**(d)** 15%	Dividend per share = 18% of 50 = 9; return = $\frac{9}{60} \times 100$ = 15%.
(vi)	**(c)** 140	Dividend per share = 9% of 100 = 9; no. of shares = $\frac{1{,}260}{9}$ = 140.
(vii)	**(d)**	M.V. (8.50) is less than N.V. (10), so the share is at a discount of 10 − 8.50 = ₹ 1.50.
(viii)	**(d)**	8% of 50 = ₹ 4, so (A) is true. (R) is also true, but it does not explain how the dividend on a share is found.

Question 2 [4 + 4 + 4 = 12]

(i)

(a) No. of shares = $\frac{33{,}000}{110}$ = **300** [1]

(b) Dividend on one share = 11% of 100 = ₹ 11; annual income = 300 × 11 = **₹ 3,300** [2]

(c) Return % = $\frac{3{,}300}{33{,}000} \times 100$ = **10%** [1]

(ii)

(a) M.V. of one share = 20 + 25% of 20 = **₹ 25**; money invested = 600 × 25 = **₹ 15,000** [2]

(b) Dividend on one share = 10% of 20 = ₹ 2; annual dividend = 600 × 2 = **₹ 1,200** [1]

(c) Return % = $\frac{1{,}200}{15{,}000} \times 100$ = **8%** [1]

(iii)

(a) Dividend on one share = 12% of 50 = **₹ 6** [1]

(b) No. of shares = $\frac{6{,}000}{6}$ = **1,000** [1]

(c) M.V. = 50 − 20% of 50 = ₹ 40; sum invested = 1,000 × 40 = **₹ 40,000** [1]

(d) Return % = $\frac{6{,}000}{40{,}000} \times 100$ = **15%** [1]

SECTION B (20 Marks) — any two questions

Question 3 [3 + 3 + 4 = 10]

(i)

Dividend on one share = 15% of 60 = ₹ 9 [1]

Return = 10% of M.V. = 9 ⇒ M.V. = 9 × $\frac{100}{10}$ = **₹ 90** [1]

M.V. (90) > N.V. (60), so the share is bought at a **premium of ₹ 30** (i.e. 50% premium). [1]

(ii)

M.V. = 100 + 25 = ₹ 125. Income on one share = 12% of 125 = ₹ 15 [1]

Dividend of ₹ 15 on N.V. ₹ 100 ⇒ rate of dividend = **15%** [1]

Income from 200 shares = 200 × 15 = **₹ 3,000** [1]

(iii)

(a) Dividend on one share = 12% of 25 = **₹ 3** [1]

(b) No. of shares = $\frac{1{,}800}{3}$ = **600** [1]

(c) Sum invested = 600 × 30 = **₹ 18,000** [1]

(d) Return % = $\frac{1{,}800}{18{,}000} \times 100$ = **10%** [1]

Question 4 [3 + 3 + 4 = 10]

(i)

First: dividend per share = 9% of 50 = 4.50; return = $\frac{4.50}{60} \times 100$ = 7.5%. Second: dividend per share = 12; return = $\frac{12}{125} \times 100$ = 9.6% [2]

The **second investment (9.6%) is better**. Income from ₹ 30,000: first = 7.5% of 30,000 = 2,250; second = 9.6% of 30,000 = 2,880; difference = **₹ 630** [1]

(ii)

(a) Dividend on one share = 14% of 10 = ₹ 1.40; gross dividend = 2,500 × 1.40 = ₹ 3,500 [1]

Income tax = 15% of 3,500 = ₹ 525; net income = 3,500 − 525 = **₹ 2,975** [1]

(b) Investment = 2,500 × 14 = ₹ 35,000; net return % = $\frac{2{,}975}{35{,}000} \times 100$ = **8.5%** [1]

(iii)

Amit: M.V. = 100 + 20% of 100 = ₹ 120.

(a) No. of shares = $\frac{30{,}000}{120}$ = 250; dividend on one share = 8; dividend received = 250 × 8 = **₹ 2,000** [2]

(b) Bimal's shares = $\frac{30{,}000}{30}$ = **1,000** [1]

(c) Dividend on one share = $\frac{2{,}000}{1{,}000}$ = ₹ 2; rate of dividend = $\frac{2}{20} \times 100$ = **10%** [1]

Question 5 [3 + 3 + 4 = 10]

(i)

(a) Dividend = 200 × 6% of 100 = 200 × 6 = **₹ 1,200** [1]

(b) Sale proceeds = 200 × 120 = ₹ 24,000; new shares = $\frac{24{,}000}{60}$ = **400** [1]

(c) New dividend = 400 × 9% of 50 = 400 × 4.50 = ₹ 1,800; change = 1,800 − 1,200 = **an increase of ₹ 600** [1]

(ii)

Amount invested = 500 × 25 = ₹ 12,500. Dividend = 500 × 10% of 20 = 500 × 2 = ₹ 1,000 [1]

Profit on selling = 500 × (28 − 25) = ₹ 1,500; total gain = 1,000 + 1,500 = ₹ 2,500 [1]

Gain % = $\frac{2{,}500}{12{,}500} \times 100$ = **20%** [1]

(iii)

(a) No. of shares = $\frac{36{,}000}{120}$ = 300; dividend = 300 × 5% of 100 = 300 × 5 = **₹ 1,500** [1]

(b) Sale proceeds = 300 × 135 = ₹ 40,500; total amount = 40,500 + 1,500 = **₹ 42,000** [1]

(c) No. of new shares = $\frac{42{,}000}{56}$ = **750** [1]

(d) New dividend = 750 × 8% of 50 = 750 × 4 = ₹ 3,000; change = 3,000 − 1,500 = **an increase of ₹ 1,500** [1]

Question 6 [3 + 3 + 4 = 10]

(i)

Let the first part (8% shares at ₹ 80) be ₹ x; the second part is ₹ (42,000 − x).

Income from first part = $\frac{x}{80} \times 8 = \frac{x}{10}$; income from second part = $\frac{42{,}000 - x}{120} \times 9 = \frac{3(42{,}000 - x)}{40}$ [1]

Equal incomes: $\frac{x}{10} = \frac{3(42{,}000 - x)}{40} \Rightarrow 4x = 1{,}26{,}000 - 3x \Rightarrow 7x = 1{,}26{,}000 \Rightarrow x = 18{,}000$ [1]

The two parts are **₹ 18,000** and **₹ 24,000** (check: each part gives an income of ₹ 1,800 ✓) [1]

(ii)

Let the sum invested in each company be ₹ x.

A: M.V. = 125; shares = $\frac{x}{125}$; income = $\frac{x}{125} \times 10 = \frac{2x}{25} = 0.08x$ [1]

B: M.V. = 100 − 20 = 80; shares = $\frac{x}{80}$; income = $\frac{x}{80} \times 12 = \frac{3x}{20} = 0.15x$ [1]

$0.08x + 0.15x = 4{,}600 \Rightarrow 0.23x = 4{,}600 \Rightarrow x = 20{,}000$. Total invested = 2 × 20,000 = **₹ 40,000** [1]

(iii)

Let the number of shares sold be x.

(a) Sale price = 50 + 20% of 50 = ₹ 60; proceeds = 60x. Dividend lost = 10% of 50 × x = 5x [1]

New shares = $\frac{60x}{30} = 2x$; new dividend = 2x × 14% of 25 = 2x × 3.50 = 7x [1]

Increase in income = 7x − 5x = 2x = 480 ⇒ x = **240 shares** [1]

(b) Original income = 800 × 5 = ₹ 4,000; new income = 4,000 + 480 = **₹ 4,480** [1]

— End of Solutions —