Q.2 (a) The unit product cost under variable costing can be determined by subtracting the fixed factory overhead rate per unit from the unit product cost under absorption costing. **Marks**

(i)

		Rs./ Unit	Marks
Cost of goods sold, Year 1	Rs.210,000		
Divided by number of units sold	÷ 7,000 units		
Absorption costing unit product cost		30 per unit	1
Unit product cost under absorption costing		30	1
Less fixed portion		10	
Unit product cost under variable costing		20	

(ii) Income statement under variable costing: **(Rupees)**

	Year 1	Year 2	Marks
Sales	350,000	450,000	
Variable cost of goods sold:			
Beginning inventory	–	20,000	
Add variable manufacturing costs (@ Rs.20 x 8,000 units)	160,000	160,000	
Goods available for sale	160,000	180,000	2
Less ending inventory (@ Rs.20 x 1,000 units)	20,000	–	
Variable cost of goods sold	140,000	180,000	
Variable selling and administrative (@ Rs.15 x 7,000 & 9,000 units)	105,000	135,000	1
Total variable cost	245,000	315,000	
Contribution margin	105,000	135,000	2
Less fixed cost:			
Factory overhead	80,000	80,000	
Selling and administrative*	20,000	20,000	
Total fixed expenses	100,000	100,000	
Net operating income	5,000	35,000	1

* Year 1: Rs.125,000 – Rs.105,000 = Rs.20,000, Year 2: Rs.155,000 – Rs.135,000 = Rs.20,000

(iii) Reconciliation of income under absorption & variable costing: **(Rupees)**

	Year 1	Year 2	Marks
Variable costing net operating income	5,000	35,000	
Add fixed factory overhead deferred in inventory under absorption costing (1,000 units × Rs.10 per unit)	10,000		1
Less fixed factory overhead released from inventory under absorption costing (1,000 units × Rs.10 per unit)		(10,000)	1
Absorption costing net operating income	15,000	25,000	1

(b) Cost of Production Report – Weighted Average Method **Marks**

Quantity schedule and equivalent units

				Marks
Units to be accounted for:				
Work in process, beginning	800			
Started into production	16,000			
Total units accounted for	16,800			2
Equivalent Units	Total	Materials	Conversion	
Units accounted for as follows:				
Transferred to next department	16,500	16,500	16,500	
Work in process, ending	300	180	210	
Total units	16,800	16,680	16,710	2
Costs per equivalent unit (Rs.)	Total Cost	Materials	Conversion	
Cost to be accounted for:				
Work in process, beginning	3,712	1,296	2,416	
Cost added during the month	544,289	47,076	497,213	
Total cost (a)	548,001	48,372	499,629	2
Equivalent units (above) (b)		16,680	16,710	
Cost per equivalent unit, (a) ÷ (b)		2.900	29.900	2
Cost per whole unit	32.800			1

		Equivalent Units		
Cost reconciliation (Rs.)	Total Cost	*Materials*	Conversion	
Cost accounted for as follows:				
Transferred out	541,200	16,500	16,500	1
Work in process, ending:				
Materials	522	180		1
Conversion	6,279		210	1
Total work in process, ending	6,801			1
Total cost	548,001			

Q.3 (a) (i) Materials price variance = (AQ × AP) – (AQ × SP)
= Rs.201,450 – (5,100 × Rs.38.00) = Rs.7,650 U 2

(ii) b. Materials quantity variance = SP(AQ – SQ*)
= Rs.38.00(4,700 – 4,692) = Rs.304 U 2

*SQ = Standard quantity per unit × Actual output
= 2.3 × 2,040
= 4,692 1

(iii) Journal entries to record the purchase and use of the raw material:

Record the purchase of the raw material:

Raw Materials	193,800		1
Materials price variance	7,650		1
Accounts payable		201,450	1

Record the use of the raw material:

Work in process	178,296		1
Materials quantity variance	304		1
Raw materials		178,600	1

Marks

(b) (i) Labour rate variance = (AH × AR) – (AH × SR)

= Rs.205,100 – (2,800 × Rs.70)
= Rs.9,100 U — 2

(ii) Labour efficiency variance = SR(AH – SH*)

= Rs.70 (2,800 – 3,360)

= Rs.39,200 F — 2

*SH = Standard hours per unit × Actual output
= 8.4 × 400
= 3,360 — 1

(iii) Journal entries to record the direct labour costs:

	Dr	Cr	Marks
Work in process	235,200		1
Labour rate variance	9,100		1
Labour efficiency variance		39,200	1
Wages payable (or cash)		205,100	1

Q.4 **(a)** (i) Variable overhead spending variance = (AH × AR) – (AH × SR)
= Rs.110,670 – (6,200 × Rs.17.55)
= Rs.1,860 U — 2

(ii) SH = Standard hours per unit × Actual output
= 0.6 × 10,200
= 6,120 — 1

Variable overhead efficiency variance = SR(AH – SH)
= Rs.17.55(6,200 – 6,120)
= Rs.1,404 U — 2

(b) **(Rupees)**

	Cost formula per unit of activity	Actual costs incurred	Budget based on actual activity	Variance		Marks
Variable costs:						
Supplies	44.60	4,050	4,460	410	F	2
Power	17.20	1,690	1,720	30	F	2
Total variable cost	61.80	5,740	6,180	440	F	
Fixed costs:						
Administration		6,240	6,200	40	U	2
Depreciation		6,280	6,200	80	U	2
Total fixed cost		12,520	12,400	120	U	
Total cost		18,260	18,580	320	F	1

Q. 5

	80%	90%	100%	**Marks**
Capacity Level	80%	90%	100%	
Direct Labour Hourse	40,000	45,000	50,000	
	Rs.	Rs.	Rs.	
Variable overhead				
Supplies	400,000	450,000	500,000	
Indirect labour (Excluding. Insp)	1,800,000	2,025,000	2,250,000	
Bonus & other benefits	6,360,000	7,155,000	7,950,000	
Heat, light & power	120,000	135,000	150,000	
Inspection	480,000	540,000	600,000	
Others	560,000	630,000	700,000	
Total variable overhead	9,720,000	10,935,000	12,150,000	
	2 +	2 +	2	6
Variable OH rate per D.L.HR	243	243	243	1
Annual fixed overehad				
Salaries, allowance & benefits				
Maintenance cost	3,600,000	3,600,000	3,600,000	
Insurance & taxes	2,400,000	2,400,000	2,400,000	
Depreciation	300,000	300,000	300,000	
Heat, light & power	900,000	900,000	900,000	
Inspection	20,000	20,000	20,000	
Others	420,000	420,000	420,000	
Total annual fixed overhead	190,000	190,000	190,000	
Fixed OH rate per D.L.HR	7,830,000	7,830,000	7,830,000	
	2 +	2 +	2	6
	196	174	157	1
Total factory overhead	17,550,000	18,765,000	19,980,000	
Total factory overhead per D.L.HR	439	417	400	1
			Presentation	1

Working Notes: **(Rupees)**

Bonus & other benefits

			Rupees	
Direct labour (50,000 hrs x Rs.750)			37,500,000	
Indirect labour (50,000 hrs x Rs.45)			2,250,000	
Total labour cost			39,750,000	
	20%		7,950,000	1

Heat, light & power

	Hours	Cost Rs.	
High	50,000	170,000	
Low	40,000	140,000	
	10,000	30,000	
Variable cost per D.L. HR.(30,000/ 10,000)		3	
Total cost		170,000	
Variable cost (50000 x 3)		150,000	1
Fixed cost		20,000	

Inspection

	Hours	Cost Rs.	
High	50,000	1,020,000	
Low	40,000	900,000	
	10,000	120,000	
Variable cost per D.L. HR.(120,000/ 10,000)		12	
Total cost		1,020,000	
Variable cost (50000 x 12)		600,000	1
Fixed cost		420,000	

Others

	Hours	Cost Rs.	
High	50,000	890,000	
Low	40,000	750,000	
	10,000	140,000	
Variable cost per D.L. HR.(140,000/ 10,000)		14	
Total cost		890,000	
Variable cost (50000 x 12)		700,000	1
Fixed cost		190,000	

Q.6 (a) **Marks**

(i) Margin = Net operating income ÷ Sales

= Rs.609,840 ÷ Rs.10,890,000

= 5.6%. 1

(ii) Turnover = Sales ÷ Average operating assets

= Rs.10,890,000 ÷ Rs.3,000,000

= 3.6 1

(iii) ROI = Net operating income ÷ Average operating assets
= Rs.609,840 ÷ Rs.3,000,000
= 20.3% 1

(iv) Residual income = Net operating income - Minimum required rate of return × Average operating assets
= Rs.609,840 – (16% × Rs.3,000,000)
= Rs.129,840 2

(b)

From the perspective of Division B, profits would increase as a result of the transfer if and only if:
Transfer price ≥ Variable cost + Opportunity cost 1

The opportunity cost is the contribution margin on the lost sales, divided by the number of units transferred:
Opportunity cost = [(Rs.18.00 - Rs.9.00 - Rs.1.00) × 3,000*]/6,000 = Rs.4.00 2

* Demand from outside customers	27,000	
Units required by Division B	6,000	
Total requirements	33,000	1
Capacity	30,000	
Required reduction in sales to outside customers	3,000	

Therefore, Transfer price ≥ Rs.9.00 + Rs.4.00 = Rs.13.00. 1

From the viewpoint of Division A, the transfer price must be less than the cost of buying the units from the outside supplier. Therefore, Transfer price ≤ Rs.17.00. 1

Combining the two requirements, we get the following range of transfer prices:

Rs.13.00 ≥ Transfer price ≤ Rs.17.00. 1

THE END