ULTIMATE CA

PYQ RTP COMPILER

Chp13 Standard Cost

Costing CA Intermediate Regular Batch Jan 2025

CA PRANAV POPAT

Past Year Questions (PYQs)

May 2018 to May 2024

PYQ Analysis

Exam	Q No.	Marks	Requirement	Special Points
PYQ - May 2024	MCQ 3	2m	Fixed OH Efficiency Variance	Basic Easy
PYQ - May 2024	MCQ 11 to 15	10m	Case Scenario MCQs 11 - LEV, FOVV, 12 - Bud MOS, 13 - Actual MOS, 14 - Actual MOS, 15 - MUV	Margin of Safety Calculations
PYQ - Nov 2023	5a	10m	VOH Expd, FOH Expd, FOH Eff, FOH Capacity Var	Cal of Actual Hours using VOH Efficieny Variance
PYQ - May 2023	5a	10m	SP and SQ of Material, MUV, LCV, LEV, FOH Cost, FOH Expd, FOH Volume	Calculation of Actual Output and Calculation of Budgeted Output assuming that AH and BH are same as no other data of BH is given
PYQ - Nov 2022	5a	10m	All material variances (multiple material)	Basic Easy
PYQ - May 2022	5b	5m	Labour Basic Variances	Basic Easy
PYQ - May 2022	6d	5m	Discuss Briefly the criticism levelled aganist Standard Costing	NA
PYQ - Dec 2021	5a	10m	VOH Cost Variance and FOH Cost, Volume and Calendar	Unit Based Calculation, Semi Variable Amount is also given, Calendar Variance Cal is Imp
PYQ - July 2021	5a	10m	All Labour Variances	Good Question having reverse calculation of SR and assumption of std mix and meaning of gang variance

PYQ Analysis

Exam	Q No.	Marks	Requirement	Special Points
PYQ - Jan 2021	5b	10m	VOH, FOH Variances and Control Ratio	Cal of Budgeted hours considering normal idle time - Rest Easy
PYQ - Nov 2020	3a	10m	FOH: Missing Data and other relevant variances	Reverse calculation of missing data. Good linkage
PYQ - Nov 2019	5b	10m	All material variances (multiple material)	% of loss on output, remaining part is normal
PYQ - May 2019	3a	10m	All Labour Variances	4 hours lost due to machine breakdown is abnormal idle time
PYQ - Nov 2018	1b	5m	All FOH Variance	Efficiency Variance is calculated using number of days
PYQ - May 2018	5a (ii)	5m	Material Basic Variances	Two decimal places used in quantity. Good presentation of symbols

PYQ May 24 – MCQ 3

3. The following information was obtained from the records of a manufacturing unit using standard costing system : 2

	Standard	Actual
Production	8,000 units	7,750 units
Machine hours	16,000 hours	15,800 hours
Fixed overheads	₹ 8,40,000	₹ 7,84,000

What is the fixed overhead efficiency variance ?

(A) ₹ 10,500 (F)

(B) ₹ 15,750 (A)

(C) ₹ 29,750 (A)

(D) ₹ 26,250 (F)

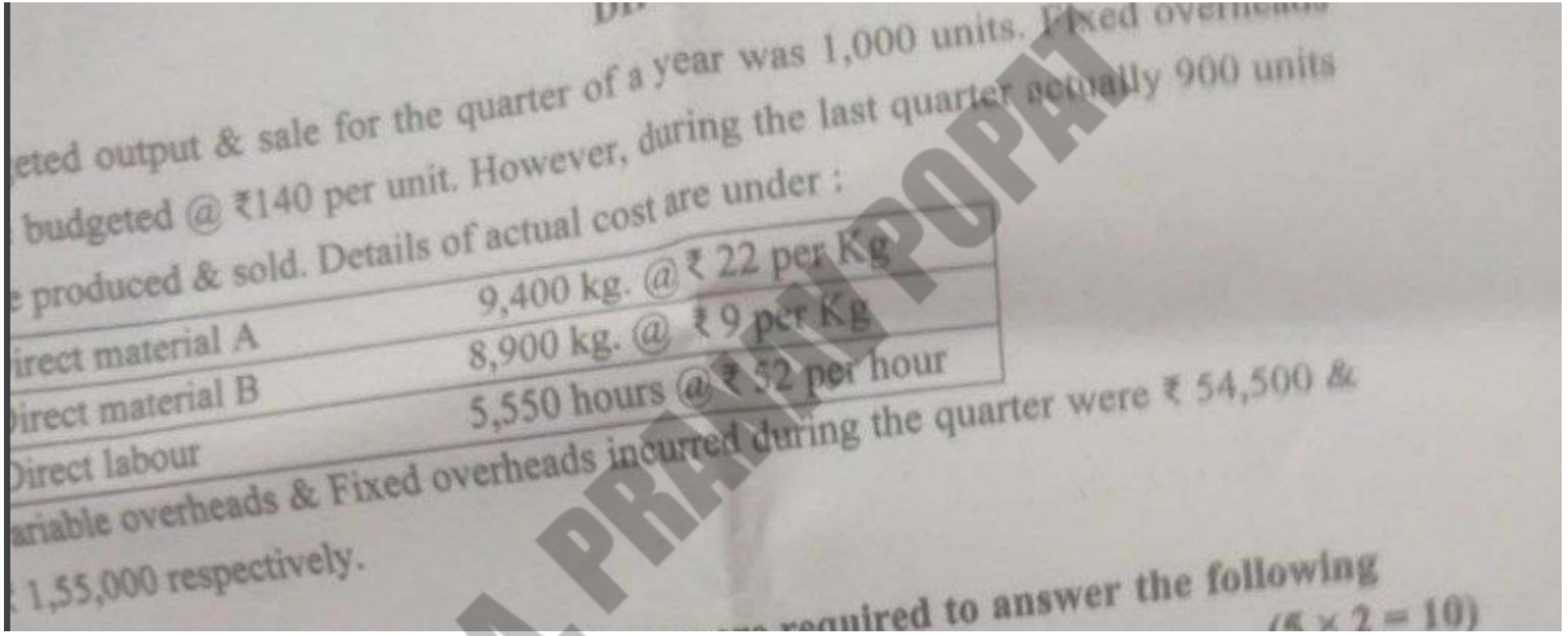
PYQ May 24 – MCQ11 to MCQ15

Case Scenario – II

AR Limited produces a product "TYN" which is sold at ₹ 1,010 per unit. The standard cost for one unit of "TYN" is as under :

	Unit cost (₹)
Direct material A 10 kg. @ ₹ 20 per Kg	200
Direct material B 10 kg. @ ₹ 10 per Kg	100
Direct labour 6 hours @ ₹ 50 per hour	300
Variable Overhead 6 hours @ ₹ 10 per hour	60
Total Variable cost	660

PYQ May 24 – MCQ11 to MCQ15



eted output & sale for the quarter of a year was 1,000 units. Fixed overheads budgeted @ ₹140 per unit. However, during the last quarter actually 900 units e produced & sold. Details of actual cost are under :

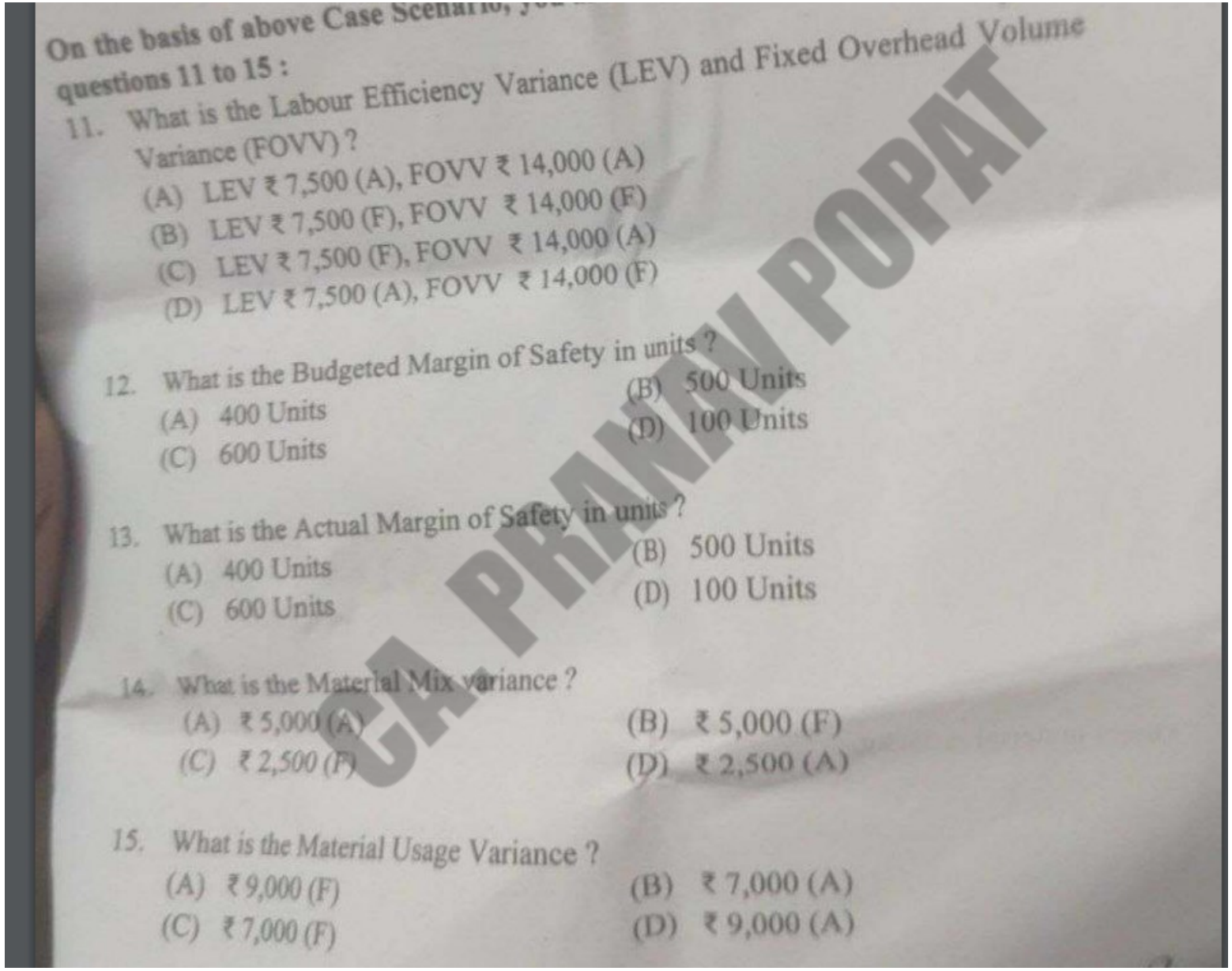
irect material A	9,400 kg. @ ₹ 22 per Kg
irect material B	8,900 kg. @ ₹ 9 per Kg
Direct labour	5,550 hours @ ₹ 52 per hour

ariable overheads & Fixed overheads incurred during the quarter were ₹ 54,500 & 1,55,000 respectively.

required to answer the following

(6 × 2 = 10)

PYQ May 24 – MCQ11 to MCQ15



On the basis of above Case Scenario, [illegible] questions 11 to 15 :

11. What is the Labour Efficiency Variance (LEV) and Fixed Overhead Volume Variance (FOVV) ?
    (A) LEV ₹ 7,500 (A), FOVV ₹ 14,000 (A)
    (B) LEV ₹ 7,500 (F), FOVV ₹ 14,000 (F)
    (C) LEV ₹ 7,500 (F), FOVV ₹ 14,000 (A)
    (D) LEV ₹ 7,500 (A), FOVV ₹ 14,000 (F)

12. What is the Budgeted Margin of Safety in units ?
    (A) 400 Units
    (B) 500 Units
    (C) 600 Units
    (D) 100 Units

13. What is the Actual Margin of Safety in units ?
    (A) 400 Units
    (B) 500 Units
    (C) 600 Units
    (D) 100 Units

14. What is the Material Mix variance ?
    (A) ₹ 5,000 (A)
    (B) ₹ 5,000 (F)
    (C) ₹ 2,500 (F)
    (D) ₹ 2,500 (A)

15. What is the Material Usage Variance ?
    (A) ₹ 9,000 (F)
    (B) ₹ 7,000 (A)
    (C) ₹ 7,000 (F)
    (D) ₹ 9,000 (A)

PYQ Nov 23 – Q5a

(a) *PQR Alloys Ltd. uses a standard costing system.*

Budgeted information for the year:

Budgeted output	*84,000 units*
Variable Factory Overhead per unit	*₹16*
Standard time for one unit of output	*0.80 machine hour*
Fixed factory overheads	*₹6,72,000*

Actual results for the year:

Actual output	*87,600 units*
Variable Overhead efficiency variance	*₹67,200 (A)*
Actual Fixed factory overheads	*₹7,05,000*
Actual variable factory overheads	*₹14,37,000*

PYQ Nov 23 – Q5a

Required:

Calculate the following variances clearly indicating Adverse(A) or Favourable (F):

(i) Variable factory overhead expenditure variance.

(ii) Fixed factory overhead expenditure variance.

(iii) Fixed factory overhead efficiency variance.

(iv) Fixed factory overhead capacity variance. ***(10 Marks)***

PYQ Nov 23 – Q5a

(a) Calculation of actual hours

$$\text{Standard rate per hour} = \frac{\text{Variable factory overhead per unit}}{\text{Standard time for one unit of output}} = \frac{₹16}{0.8} = ₹\ 20$$

Variable Overhead Efficiency Variance:

(Standard hours for actual production – Actual hours) × Standard rate per hour

Let actual hours be x

[(87,600 × 0.8) – x] ×20 = -67,200

(70,080 – x) × 20 = -67,200

x = 73,440

(i) Variable Factory Overhead Expenditure Variance:

(Variable overhead at actual hours – Actual variable overheads)

$$\left[\left(\frac{13,44,000}{67,200} \times 73,440\right) - 14,37,000\right]$$

= 31,800 F

PYQ Nov 23 – Q5a

(ii) Fixed Factory Overhead Expenditure Variance:

Budgeted fixed overhead – Actual fixed overhead.

(6,72,000 – 7,05,000)

= 33,000 A

(iii) Fixed Factory Overhead Efficiency Variance:

(Standard hours for actual production – Actual hours) × Standard rate per hour

(70,080 – 73,440) × 10 = 33,600 A

(iv) Fixed Overhead Capacity Variance:

(Actual hours - Budgeted hours) × Standard rate per hour

(73,440 - 67,200) ×10 = 62,400 F

The solution can also be presented in following way based on Quantity (units)

Calculation of standard quantity for actual hours:

Variable standard rate per unit (SR) = ₹ 16

Variable Overhead Efficiency Variance:

PYQ Nov 23 – Q5a

(SR x AQ) – (SR x standard quantity for Actual hours worked)

-67,200 = (16 x 87,600) – 16 x

-67200 = 14,01,600- 16 x

x = 14,68,800 / 16 = **91,800** (SQ for actual hours worked)

(i) Variable Factory Overhead Expenditure Variance:

(SR x SQ for actual hour worked – Actual variable overheads)

16 x 91,800 – 14,37,000 or 14,68,800 – 14,37,000

= 31,800 F

(ii) Fixed Factory Overhead Expenditure Variance:

Budgeted fixed overhead – Actual fixed overhead.

(6,72,000 – 7,05,000)

= 33,000 A

PYQ Nov 23 – Q5a

(iii) Fixed Factory Overhead Efficiency Variance:

Standard rate per unit (SR) = 6,72,000 / 84,000 = ₹ 8 per unit

(SR x AQ) – (SR x standard quantity for Actual hours)

(8 x 87,600) – (8 x 91,800)

(7,00,800 – 7,34,400) = 33,600 A

(iv) Fixed Overhead Capacity Variance:

(SR x standard quantity for Actual hours - Budgeted fixed overheads)

(8 x 91800) – (6,72,000)

(7,34,400 – 6,72,000) = 62,400 F

PYQ May 23 – Q5a

(a) *NC Limited uses a standard costing system for the manufacturing of its product 'X'. The following information is available for the last week of the month:*

- *25,000 kg of raw material were actually purchased for ₹ 3,12,500. The expected output is 8 units of product 'X' from each one kg of raw material. There is no opening and closing inventories. The material price variance and material cost variance, as per cost records, are ₹ 12,500 (F) and ₹ 1800 (A), respectively.*
- *The standard time to produce a batch of 10 units of product 'X' is 15 minutes. The standard wage rate per labour hour is 50. The company employs 125 workers in two categories, skilled and semi-skilled, in a ratio of 60:40. The hourly wages actually paid were ₹ 50 per hour for skilled workers and ₹ 40 per hour for semi-skilled workers. The weekly working hours are 40 hours per worker. Standard wage rate is the same for skilled and semi- skilled workers.*
- *The monthly fixed overheads are budgeted at ₹ 76,480 Overheads are evenly distributed throughout the month and assume 4 weeks in a month. In the last week of the month, the actual fixed overhead expenses were ₹ 19,500.*

PYQ May 23 – Q5a

Required:

(i) Calculate the standard price per kg and the standard quantity of raw material.

(ii) Calculate the material usage variance, labour cost variance, and labour efficiency variance.

(iii) Calculate the fixed overhead cost variance, the fixed overhead expenditure variance and the fixed overhead volume variance.

PYQ May 23 – Q5a

(a) (i) Calculation of Standard price per kg and the standard quantity of raw material:

Standard Price

(a) Material Price Variance = Standard Cost of Actual Quantity – Actual Cost

12,500 (F) = (SP × AQ) – ₹ 3,12,500

12,500 (F) = (SP × 25,000) – ₹ 3,12,500

SP = ₹ 13

Standard Quantity

(b) Material Cost Variance = Standard Cost – Actual Cost

1,800 (A) = SQ × ₹13 – ₹ 3,12,500

SQ = 23,900 kg.

PYQ May 23 – Q5a

(ii) Calculation of Material Usage Variance, Labour Cost Variance and Labour Efficiency Variance

(a) Material Usage Variance	=	Standard Cost of Standard Quantity for Actual Output – Standard Cost of Actual Quantity
	=	SQ × SP – AQ × SP
		Or
	=	SP × (SQ – AQ)
	=	₹ 13 × (23,900 kg. – 25,000 kg.)
	=	**₹ 14,300 (A)**
(b) Labour Cost Variance	=	Standard Cost – Actual Cost
	=	(SH × SR) – (AH × AR)
	=	₹ 2,39,000 – ₹ 2,30,000
	=	**₹ 9,000 (F)**

PYQ May 23 – Q5a

(c) Labour Efficiency Variance = Standard Cost of Standard Time for Actual Production – Standard Cost of Actual Time

= (SH × SR) – (AH × SR)

Or

= (SH – AH) × SR

= ₹ 50 × [4,780 hrs. – 5,000 hrs.]

= **₹ 11,000 (A)**

(iii) Calculation of Fixed Overhead Cost Variance, Fixed Overhead Expenditure Variance and Fixed Overhead Volume Variance:

(a) Fixed overhead cost variance = Standard Fixed Overheads – Actual Fixed Overheads

= 18,279 – 19,500

= ₹ 1,221(A)

PYQ May 23 – Q5a

(b)	**Fixed Overhead Expenditure**	=	Budgeted Fixed Overheads – Actual Fixed Overheads
	Variance	=	₹ 19,120 – ₹ 19,500
		=	**₹ 380 (A)**
(c)	**Fixed overhead volume variance**	=	(Budgeted output – Actual Output) X Budgeted rate per unit
		=	(2,00,000 – 1,91,200) 0.0956
		=	₹ 8,800 x 0.0956
		=	**₹ 841 (A)**

Alternative presentation to part (iii) (a) and (b)

(i) Fixed Overhead Cost Variance:

= Overhead absorbed for actual production – Actual overhead incurred

$= \frac{₹19,120}{2,00,000}$ x 1,91,200 – 19,500 = **₹ 1,221(A)**

PYQ May 23 – Q5a

(iii) Fixed Overhead Volume Variance:

= Absorbed overhead – Budgeted overhead

$= \frac{₹19,120}{2,00,000} \times 1,91,200 - 19,120 =$ **₹ 841(A)**

Working Notes:

1. Standard time to produce 10 units of product X is 15 minutes. Therefore we can manufacture 40 units in an hour.

Hours available in a week

125 Workers x 40 Hours = 5,000 hours

Therefore budgeted output = 5,000 x 40 units per hour = 2,00,000 units

Alternatively

$\text{Budgeted time per unit} = \frac{15 \text{ units}}{10 \text{ units}} = 1.5 \text{ minutes}$

PYQ May 23 – Q5a

So, Budgeted output = $\frac{5,000\ \text{Hours} \times 60\ \text{Minutes}}{1.5\ \text{Minutes}}$ = 2,00,000 units

Actual output = 23,900 x 8 units = 1,91,200 units

Standard hour for actual output = $1,91,200 \times \frac{0.25\ \text{Hrs}}{10\ \text{units}}$ = 4,780 Hrs

2.

Labour									
Budget			Revised standard			Actual			
Hours	Rate	₹	Hours	Rate	₹		Hours	Rate	₹
5,000	50	2,50,000	4,780	50	2,39,000	Skilled	3000	50	1,50,000
						Semi-Skilled	2000	40	80,000
							5000		2,30,000

3.

	Budget	Actual
Units	2,00,000	1,91,200
Fixed Overheads	19,120	19,500

PYQ May 23 – Q5a

4. Standard Fixed overheads:

$$\frac{19,120}{2,00,000} \times 1,91,200 = ₹18,279$$

Budgeted rate per unit:

$$\frac{19,120}{2,00,000} = ₹\ 0.0956$$

PYQ Nov 22 – Q5a

(a) *Y Lid manufactures "Product M" which requires three types of raw materials - "A", "B" & "C". Following information related to 1st quarter of the F.Y. 2022-23 has been collected from its books of accounts. The standard material input required for 1,000 kg of finished product 'M' are as under:*

Material	Quantity (Kg.)	Std. Rate per Kg. (₹)
A	500	25
B	350	45
C	250	55
	1100	
Standard Loss	100	
Standard Output	1000	

During the period, the company produced 20,000 kg of product "M" for which the actual quantity of materials consumed and purchase prices are as under:

Material	Quantity (Kg.)	Purchase price per Kg. (₹)
A	11,000	23
B	7,500	48
C	4,500	60

PYQ Nov 22 – Q5a

You are required to calculate:

(i) Material Cost Variance

(ii) Material Price Variance for each raw material and Product 'M'

(iii) Material Usage Variance for each raw material and Product 'M'

(iv) Material Yield Variance ***(10 Marks)***

Note: Indicate the nature of variance i.e. Favourable or Adverse.

PYQ Nov 22 – Q5a

(a) Basic Calculations:

	Standard for 20,000 kg.			Actual for 20,000 kg.		
	Qty.	Rate	Amount	Qty.	Rate	Amount
	Kg.	(₹)	(₹)	Kg.	(₹)	(₹)
A	10,000	25	2,50,000	11,000	23	2,53,000
B	7,000	45	3,15,000	7,500	48	3,60,000
C	5,000	55	2,75,000	4,500	60	2,70,000
Total	22,000		8,40,000	23,000		8,83,000

Calculation of Variances:

(i) Material Cost Variance = Std. Cost for actual output–Actual cost

MCV=8,40,000– 8,83,000 = ₹ 43,000(A)

(ii) Material Price Variance = (SP–AP) × AQ

A = (25 - 23) x 11,000 = 22,000 (F)

B = (45 – 48) x 7,500 = 22,500 (A)

C = (55 – 60) x 4,500 = 22,500 (A)

23000 (A)

PYQ Nov 22 – Q5a

(iii) Material Usages Variance = (SQ–AQ) × SP

A = (10,000 – 11,000) x 25 = 25,000 (A)

B = (7,000 – 7,500) x 45 = 22,500 (A)

C = (5,000 – 4,500) x 55 = 27,500 (F)

20,000 (A)

(iv) Material Yield Variance = (SQ–RSQ*) × SP

A = (10,000 – 10,454.54) x 25 = 11,363.5(A)

B = (7,000 – 7,318.18) x 45 = 14,318.1(A)

C = (5,000 – 5,227.27) x 55 = 12,500(A)

38,181.6(A)

*Revised Standard Quantity (RSQ)

$$A = \frac{10,000}{22,000} \times 23,000 = 10,454.54$$

$$B = \frac{7,000}{22,000} \times 23,000 = 7,318.18$$

PYQ Nov 22 – Q5a

$$C = \frac{5,000}{22,000} \times 23,000 = 5,227.27$$

Material Yield Variance can also be Calculated as below

Material yield variance = Standard cost per unit (Actual yield – Standard yield)

$$\text{Standard cost per unit} = \frac{₹\ 8,40,000}{20,000} = ₹\ 42$$

$$\text{New Standard Yield} = \frac{20,000}{22,000} \times 23,000 = 20,909$$

Material yield variance = ₹ 42 (20,000 – 20,909)

= ₹ 38,178 (A)

PYQ May 22 – Q5b

(b) *A manufacturing department of a company has employed 120 workers. The standard output of product "NPX" is 20 units per hour and the standard wage rate is ₹ 25 per labour hour.*

In a 48 hours week, the department produced 1,000 units of 'NPX' despite 5% of the time paid being lost due to an abnormal reason. The hourly wages actually paid were ₹ 25.70 per hour.

Calculate:

(i) Labour Cost Variance

(ii) Labour Rate Variance

(iii) Labour Efficiency Variance

(iv) Labour Idle time Variance ***(5 Marks)***

PYQ May 22 – Q5b

(b) Working Notes:

1. Calculation of standard man hours

When 120 worker works for 1 hr., then the std. output is 20 units.

$$\text{Std. man hour per unit} = \frac{120 \text{ hrs.}}{20 \text{ units}} = 6 \text{ hrs.}$$

2. Calculation of std. man hours for actual output

Total std. man hours = 1,000 units × 6 hrs. = 6,000 hrs.

Standard for actual			Actual				
Hours	Rate (₹)	Amount (₹)	Actual hrs. paid	Idle time hrs.	Production hrs.	Rate (₹)	Amount paid (₹)
6,000	25	1,50,000	5,760 (48 hrs. x 120 workers)	288	5,472	25.70	1,48,032

PYQ May 22 – Q5b

(i) Labour cost variance

= Std. labour cost – Actual labour cost

= 1,50,000 – 1,48,032 = ₹ 1,968 F

(ii) Labour rate variance

= (SR – AR) × AH_{Paid}

= (25 - 25.70) × 5,760 = ₹ 4,032 A

(iii) Labour efficiency variance

= (SH – AH) × SR

= (6,000 – 5,472) × 25 = ₹ 13,200 F

(iv) Labour Idle time variance

= Idle Hours × SR

= 288 × 25 = ₹ 7,200 A

Note: Variances can also be calculated for one worker instead of 120.

PYQ Dec 2021 – Q5a

(a) *In a manufacturing company the standard units of production for the year were fixed at 1,20,000 units and overhead expenditures were estimated to be as follows:*

Particulars	*Amount (₹)*
Fixed	*12,00,000*
Semi-variable (60% expenses are of fixed nature and 40% are of variable nature)	*1,80,000*
Variable	*6,00,000*

Actual production during the month of April, 2021 was 8,000 units. Each month has 20 working days. During the month there was one public holiday. The actual overheads were as follows:

Particulars	*Amount (₹)*
Fixed	*1,10,000*
Semi-variable (60% expenses are of fixed nature and 40% are of variable)	*19,200*
Variable	*48,000*

PYQ Dec 2021 – Q5a

You are required to calculate the following variances for the month of April 2021:

i. Overhead Cost variance

ii. Fixed Overhead Cost variance

iii. Variable Overhead Cost variance

iv. Fixed Overhead Volume variance

v. Fixed Overhead Expenditure Variance

vi. Calendar Variance ***(10 Marks)***

PYQ Dec 2021 – Q5a

(a) Working Notes

Fixed Overheads = $\frac{\text{Budgeted Fixed Overheads}}{\text{Budgeted Output}} = \frac{₹\,12,00,000}{1,20,000\ \text{units}}$	₹ 10
Fixed Overheads element in Semi-Variable Overheads i.e. 60% of ₹1,80,000	₹ 1,08,000
Fixed Overheads = $\frac{\text{Budgeted Fixed Overheads}}{\text{Budgeted Output}} = \frac{₹\,1,08,000}{1,20,000\text{units}}$	₹ 0.90
Standard Rate of Absorption of Fixed Overheads *per unit* (₹10 + ₹0.90)	₹ 10.90
Fixed Overheads Absorbed on 8,000 units @ ₹ 10.90	₹ 87,200

PYQ Dec 2021 – Q5a

Budgeted Variable Overheads	₹ 6,00,000
Add: Variable element in Semi-Variable Overheads 40% of ₹ 1,80,000	₹ 72,000
Total Budgeted Variable Overheads	₹ 6,72,000
Standard Variable Cost *per unit* = $\frac{\text{Budgeted Variable Overheads}}{\text{Budgeted Output}}$ = $\frac{₹\ 6,72,000}{1,20,000\ \text{units}}$	₹5.60
Standard Variable Overheads for 8,000 units @ ₹5.60	₹ 44,800
Budgeted Annual Fixed Overheads (₹ 12,00,000 + 60% of ₹ 1,80,000)	₹ 13,08,000
Possible Fixed Overheads = $\frac{\text{Budgeted Fixed Overheads}}{\text{Budgeted Days}} \times \text{Actual Days}$ = $\left[\frac{₹\ 1,09,000}{20\ \text{Days}} \times 19\ \text{Days}\right]$	₹ 1,03,550
Actual Fixed Overheads (₹1,10,000 + 60% of ₹ 19,200)	₹ 1,21,520
Actual Variable Overheads (₹48,000 + 40% of ₹19,200)	₹ 55,680

COMPUTATION OF VARIANCES

PYQ Dec 2021 – Q5a

i. Overhead Cost Variance = Absorbed Overheads – Actual Overheads

= (₹ 87,200 + ₹ 44,800) – (₹ 1,21,520 + ₹ 55,680)

= ₹ 45,200 (A)

ii. Fixed Overhead Cost Variance = Absorbed Fixed Overheads – Actual Fixed Overheads

= ₹ 87,200 – ₹ 1,21,520

= ₹ 34,320 (A)

iii. Variable Overhead Cost Variance = Standard Variable Overheads for Production– Actual Variable Overheads

= ₹ 44,800 – ₹ 55,680

= ₹ 10,880 (A)

iv. Fixed Overhead Volume Variance = Absorbed Fixed Overheads – Budgeted Fixed Overheads

= ₹ 87,200 – ₹1,09,000

= ₹ 21,800 (A)

v. Fixed Overhead Expenditure Variance = Budgeted Fixed Overheads – Actual Fixed Overheads

= ₹ 10.90 × 10,000 units – ₹ 1,21,520

= ₹ 12,520 (A)

PYQ Dec 2021 – Q5a

vi. Calendar Variance = Possible Fixed Overheads – Budgeted Fixed Overheads

= ₹ 1,03,550 – ₹ 1,09,000

= ₹ 5,450 (A)

OR

Calendar Variance = (Actual days – Budgeted days) x Standard fixed overhead rate per day

Standard fixed overhead rate per day = 1308000/20*12 = ₹ 5450

Fixed Overhead Calendar Variance = (19-20) x 5450 = 5450(A)

PYQ Jul 21 – Q5a

(a) *The standard output of a Product 'DJ' is 25 units per hour in manufacturing department of a Company employing 100 workers. In a 40 hours week, the department produced 960 units of product 'DJ' despite 5% of the time paid was lost due to an abnormal reason. The hourly wage rates actually paid were ₹ 6.20, ₹ 6.00 and ₹ 5.70 respectively to Group 'A' consisting 10 workers, Group 'B' consisting 30 workers and Group 'C' consisting 60 workers. The standard wage rate per labour is same for all the workers. Labour Efficiency Variance is given ₹ 240 (F).*

You are required to compute:

(i) Total Labour Cost Variance.

(ii) Total Labour Rate Variance.

(iii) Total Labour Gang Variance.

(iv) Total Labour Yield Variance, and

(v) Total Labour Idle Time Variance. **(10 Marks)**

PYQ Jul 21 – Q5a

(a) Working Notes:

1. Calculation of Standard Man hours

When 100 workers work for 1 hour, the standard output is 25 units.

$$\text{Standard man hours per unit} = \frac{100 \text{ hours}}{25 \text{ units}} = \textbf{4 hours per unit}$$

2. Calculation of standard man hours for actual output:

= 960 units x 4 hours **= 3,840 hours.**

3. Calculation of actual cost

Type of Workers	No of Workers	Actual Hours Paid	Rate (₹)	Amount (₹)	Idle Hours (5% of hours paid)	Actual hours Worked
Group 'A'	10	400	6.2	2,480	20	380
Group 'B'	30	1,200	6	7,200	60	1,140
Group 'C'	60	2,400	5.7	13,680	120	2,280
	100	**4,000**		**23,360**	**200**	**3,800**

4. Calculation of Standard wage Rate:

Labour Efficiency Variance	= 240F
(Standard hours for Actual production – Actual Hours) x SR	= 240F
(3,840 – 3,800) x SR	= 240
Standard Rate (SR)	**= ₹ 6 per hour**

PYQ Jul 21 – Q5a

(i) Total Labour Cost Variance

= (Standard hours x Standard Rate) – (Actual Hours x Actual rate)

= (3,840 x 6) – 23,360 **= 320A**

(ii) Total Labour Rate Variance

= (Standard Rate – Actual Rate) x Actual Hours

Group 'A' = (6- 6.2) 400 = 80A

Group 'B' = (6- 6) 1,200 = 0

Group 'C' = (6 – 5.7) 2,400 = 720F

640F

(iii) Total Labour Gang Variance

= Total Actual Time Worked (hours) × {Average Standard Rate per hour of Standard Gang -Average Standard Rate per hour of Actual Gang@}

@ on the basis of hours worked

$$= 3,800 \times \left(6 - \frac{3,840 \times 6}{3,800}\right)$$

= 0

PYQ Jul 21 – Q5a

(iv) Total Labour Yield Variance

= Average Standard Rate per hour of Standard Gang × {Total Standard Time (hours) - Total Actual Time worked (hours)}

= 6 x (3,840 – 3,800)

= **240F**

(v) Total Labour idle time variance

= Total Idle hours x standard rate per hour

= 200 hours x 6

= 1,200A

PYQ Jan 21 – Q5b

(b) *Premier Industries has a small factory where 52 workers are employed on an average for 25 days a month and they work 8 hours per day. The normal down time is 15%. The firm has introduced standard costing for cost control. Its monthly budget for November, 2020 shows that the budgeted variable and fixed overhead are ₹ 1,06,080 and ₹ 2,21,000 respectively.*

The firm reports the following details of actual performance for November, 2020, after the end of the month:

Actual hours worked	*8,100 hrs.*
Actual production expressed in standard hours	*8,800 hrs.*
Actual Variable Overheads	₹ 1,02,000
Actual Fixed Overheads	₹ 2,00,000

PYQ Jan 21 – Q5b

You are required to calculate:

(i) Variable Overhead Variances:

(a) Variable overhead expenditure variance.

(b) Variable overhead efficiency variance.

(ii) Fixed Overhead Variances:

(a) Fixed overhead budget variance.

(b) Fixed overhead capacity variance.

(c) Fixed overhead efficiency variance.

(iii) Control Ratios:

(a) Capacity ratio.

(b) Efficiency ratio.

(c) Activity ratio. ***(10 Marks)***

PYQ Jan 21 – Q5b

(b) Workings:

Calculation of budgeted hours

Budgeted hours = (52 x 25 x 8) x 85% = 8,840 hours

(i) Variable overheads variance

(a) Variable overhead expenditure variance

= Std. overhead for Actual hours – Actual variable Overhead

$$= \left(\frac{₹\,1,06,080}{8,840} \times 8,100\right) - ₹\,1,02,000$$

= 4800 A

(b) Variable overhead efficiency variance

Std. rate per hour × (Std. hours for actual production – Actual hours)

$$= \frac{₹\,1,06,080}{8,840} \text{ (8,800 hours – 8,100 hours)}$$

= 8400 F

PYQ Jan 21 – Q5b

(ii) Fixed overhead variances

(a) Fixed overhead budget variance

= Budgeted overhead – Actual overhead

= ₹ 2,21,000 – ₹ 2,00,000

= 21,000 F

(b) Fixed overhead capacity variance

= Std rate x (Actual hours – budgeted hours)

$$= \frac{₹\ 2,21,000}{8,840} \times (8,100 - 8,840)$$

= 18,500 A

(c) Fixed overhead efficiency variance

= Std rate x (Std hours for actual production – Actual hours)

$$= \frac{₹\ 2,21,000}{8,840} \times (8,800 - 8,100)$$

= 17,500 F

PYQ Jan 21 – Q5b

(iii) Control Ratios

(a) Capacity Ratio

$$= \frac{\text{Actual hours}}{\text{Budgeted hours}} \times 100$$

$$= \frac{8,100}{8,840} \times 100 = \mathbf{91.63\%}$$

(b) Efficiency Ratio

$$= \frac{\text{Standard hours}}{\text{Actual hours}} \times 100$$

$$= \frac{8,800}{8,100} \times 100 = \mathbf{108.64\ \%}$$

(c) Activity Ratio

$$= \frac{\text{Standard hours}}{\text{Budgted hours}} \times 100$$

$$= \frac{8,800}{8,840} \times 100 = \mathbf{99.55\%}$$

PYQ Nov 2020 – Q3a

(a) *ABC Ltd. has furnished the following information regarding the overheads for the month of June 2020 :*

(i)	*Fixed Overhead Cost Variance*	*₹ 2,800 (Adverse)*
(ii)	*Fixed Overhead Volume Variance*	*₹ 2,000 (Adverse)*
(iii)	*Budgeted Hours for June, 2020*	*2,400 hours*
(iv)	*Budgeted Overheads for June,2020*	*₹ 12,000*
(v)	*Actual rate of recovery of overheads*	*₹ 8 Per Hour*

From the above given information

Calculate:

(1) Fixed Overhead Expenditure Variance

(2) Actual Overheads Incurred

(3) Actual Hours for Actual Production

(4) Fixed Overhead Capacity Variance

(5) Standard hours for Actual Production

(6) Fixed Overhead Efficiency Variance ***(10 Marks)***

PYQ Nov 2020 – Q3a

(a) (1) Fixed Overhead Expenditure Variance

= Budgeted Fixed Overheads – Actual Fixed Overheads

= ₹ 12,000 – ₹ 12,800 (as calculated below) **= ₹ 800 (A)**

(2) Fixed Overhead Cost Variance= Absorbed Fixed Overheads – Actual Fixed Overheads

2,800 (A) = ₹ 10,000 – Actual Overheads

Actual Overheads **= ₹ 12,800**

(3) Actual Hours for Actual Production = ₹ 12,800/ ₹8 **= 1,600 hrs**.

(4) Fixed Overhead capacity Variance

= Budgeted Fixed Overheads for Actual Hours– Budgeted Fixed Overheads

= ₹ 5 x 1600 hrs. – ₹ 12,000 **= ₹ 4,000 (A)**

PYQ Nov 2020 – Q3a

(5) Standard Hours for Actual Production

= Absorbed Overheads/ Std. Rate

= ₹ 10,000/ ₹ 5 **= 2,000 hrs.**

(6) Fixed Overhead Efficiency Variance

= Absorbed Fixed Overheads – Budgeted Fixed Overheads for Actual Hours

= ₹ 10,000 – ₹ 5 x 1,600 hrs. **= ₹ 2,000 (F)**

Working Note:

(i) Fixed Overhead Volume Variance = Absorbed Fixed Overheads – Budgeted Fixed Overheads

2,000 (A) = Absorbed Fixed Overheads – ₹12,000

Absorbed Fixed Overheads = ₹ 10,000

(ii) Standard Rate/ Hour = ₹ 5 (₹ 12,000/2,400 hrs.)

PYQ Nov 2019 – Q5b

(b) *The standard cost of a chemical mixture is as follows:*

60% of Material A @ ₹50 per kg

40% Material B @ ₹60 per kg

A standard loss of 25% on output is expected in production. The cost records for a period has shown the following usage.

540 kg of Material A @ ₹60 per kg

260 kg of Material B @ ₹50 per kg

The quantity processed was 680 kilograms of good product.

From the above given information

Calculate:

(i) Material Cost Variance

(ii) Material Price Variance

(iii) Material Usage Variance

(iv) Material Mix Variance

(v) Material Yield Variance. ***(10 Marks)***

PYQ Nov 2019 – Q5b

(b) **Basic Calculation**

Material	Standard for 640 kg. output			Actual for 680 kg. output		
	Qty. Kg.	Rate (₹)	Amount (₹)	Qty Kg.	Rate (₹)	Amount (₹)
A	480	50	24,000	540	60	32,400
B	320	60	19,200	260	50	13,000
Total	800		43,200	800		45,400
Less: Loss	160	–	–	120	–	–
	640		43,200	680		45,400

Std. cost of actual output = ₹ 43,200 × 680/640 = ₹ 45,900

Calculation of Variances

(i) **Material Cost Variance** = (Std. cost of actual output – Actual cost)

= (45,900– 45,400)

= ₹ **500 (F)**

(ii) **Material Price Variance** = (SP – AP) × AQ

Material A = (50 – 60) × 540 = ₹ 5400 (A)

Material B = (60 – 50)) × 260 = ₹ 2600 (F)

MPV = **₹ 2800 (A)**

PYQ Nov 2019 – Q5b

(iii) **Material Usage Variance (MUV)** = (Std. Quantity for actual output – Actual Quantity) × Std. Price

Material A = $\left(\frac{480 \times 680}{640} - 540\right) \times 50$ = ₹ 1,500 (A)

Material B = $\left(\frac{320 \times 680}{640} - 260\right) \times 60$ = ₹ 4,800 (F)

MUV = **₹ 3,300 (F)**

(iv) **Material Mix Variance** = SP × (RAQ – AQ)

A = ₹ 50× (480 Kg – 540 Kg) = ₹ 3,000 (A)

B = ₹ 60 × (320 Kg. – 260 Kg.) = ₹ 3,600 (F)

Total = ₹ 3,000 (A) + ₹ 3,600 (F) = **₹ 600 (F)**

(v) **Material Yield Variance** = SP × (SQ – RAQ)

A = ₹ 50 × (510 Kg. – 480 Kg) = ₹ 1,500 (F)

B = ₹ 60 × (340 Kg. – 320 Kg.) = ₹ 1,200 (F)

Total = ₹ 1,500 (F) + ₹ 1,200 (F) = ₹ **2,700 (F)**

PYQ May 2019 – Q3a

(a) *A gang of workers normally consists of 30 skilled workers, 15 semi-skilled workers and 10 unskilled workers. They are paid at standard rate per hour as under:*

Skilled	*₹ 70*
Semi-skilled	*₹ 65*
Unskilled	*₹ 50*

In a normal working week of 40 hours, the gang is expected to produce 2,000 units of output. During the week ended 31st March, 2019, the gang consisted of 40 skilled, 10 semi-skilled and 5 unskilled workers. The actual wages paid were at the rate of ₹ 75, ₹ 60 and ₹ 52 per hour respectively. Four hours were lost due to machine breakdown and 1,600 units were produced.

Calculate the following variances showing clearly adverse (A) or favourable (F)

(i) Labour Cost Variance
(ii) Labour Rate Variance
(iii) Labour Efficiency Variance
(iv) Labour Mix Variance
(v) Labour Idle Time Variance

(10 Marks)

PYQ May 2019 – Q3a

(a) (i) Labour Cost Variance = Standard Cost – Actual Cost

= ₹1,14,400 – ₹1,54,400

= **40,000 (A)**

(1,600*75+400*60+200*52= ₹1,54,400)

Or

Types of workers	Standard Cost – Actual Cost	**Amount (₹)**
Skilled Workers	(30x40x70/2,000x1,600)- (40x40x75) 67,200-1,20,000	52,800 (A)
Semi- Skilled	(15x40x65/2,000x1,600)- (10x40x60) 31,200-24,000	7,200 (F)
Un-Skilled Workers	(10x40x50/2,000x1,600)- (5x40x52) 16,000-10,400	5,600 (F)
Total	1,14,400-1,54,400	**40,000 (A)**

PYQ May 2019 – Q3a

(a) (i) Labour Cost Variance = Standard Cost – Actual Cost

= ₹1,14,400 – ₹1,54,400

= **40,000 (A)**

(1,600*75+400*60+200*52= ₹1,54,400)

Or

Types of workers	Standard Cost – Actual Cost	**Amount (₹)**
Skilled Workers	(30x40x70/2,000x1,600)- (40x40x75) 67,200-1,20,000	52,800 (A)
Semi- Skilled	(15x40x65/2,000x1,600)- (10x40x60) 31,200-24,000	7,200 (F)
Un-Skilled Workers	(10x40x50/2,000x1,600)- (5x40x52) 16,000-10,400	5,600 (F)
Total	1,14,400-1,54,400	**40,000 (A)**

PYQ May 2019 – Q3a

(iii) Labour Efficiency Variance

Types of workers	Standard Rate × (Standard Hours – Actual Hours)	**Amount (₹)**
Skilled Workers	₹70.00 × (960 hours – 1,440 hours)	33,600 (A)
Semi- Skilled	₹65.00 × (480 hours – 360 hours)	7,800 (F)
Un-Skilled Workers	₹50.00 × (320 hours – 180 hours)	7,000 (F)
Total	33,600 (A) + 7,800 (F) + 7,000 (F)	**18,800 (A)**

Alternatively labour efficiency can be calculated on basis of labour hours paid

Types of workers	**Standard Rate × (Standard Hours – Actual Hours)**	**Amount (₹)**
Skilled Workers	70.00 × (960 hours – 1600 hours)	44,800 (A)
Semi- Skilled	65.00 × (480 hours – 400 hours)	5,200 (F)
Un-Skilled Workers	50.00 × (320 hours – 200 hours)	6,000 (F)
Total	33,600 (A) + 7,800 (F) + 7,000 (F)	**33,600 (A)**

PYQ May 2019 – Q3a

(iv) Labour Mix Variance

= Total Actual Time *Worked* (hours) × {*Average* Standard Rate *per hour* of Standard Gang Less *Average* Standard Rate *per hour* of Actual Gang}

@on the basis of hours worked

$$= 1{,}980 \text{ hours} \times \left(\frac{₹1{,}14{,}400}{1{,}760 \text{ hrs.}} - \frac{1{,}440\text{hrs.} \times ₹70 + 360\text{hrs.} \times ₹65 + 180\text{hrs.} \times ₹50}{1{,}980 \text{ hrs.}} \right)$$

= **₹ 4,500 (A)**

Or

Labour Mix Variance

Types of workers	Std. Rate × (Revised Actual Hours *Worked*- *Actual Hours Worked*)	**Amount (₹)**
Skilled Workers	₹70 × (1,080 hrs. – 1440 hrs.)	25,200 (A)
Semi- Skilled	₹65 × (540 hrs. – 360 hrs.)	11,700 (F)
Un Skilled Workers	₹50 × (360 hrs. – 180 hrs.)	9,000 (F)
Total	₹25,200 (A) + ₹11,700 (F) + ₹9,000 (F)	**4,500 (A)**

PYQ May 2019 – Q3a

(v) Labour Idle Time Variance

Types of workers	Standard Rate × (Hours Paid – Hours Worked)	**Amount (₹)**
Skilled Workers	₹70.00 × (1,600 hours – 1,440 hours)	11,200 (A)
Semi- Skilled	₹65.00 × (400 hours – 360 hours)	2,600 (A)
Un-Skilled Workers	₹50.00 × (200 hours – 180 hours)	1,000 (A)
Total	11,200 (A) + 2,600 (A) + 1,000 (A)	**14,800 (A)**

Verification:

Labour Cost Variance

= Labour Rate Variance + Labour Efficiency Variance + Labour Idle Time Variance

= 6,400 (A) + 18,800 (A) + 14,800 (A) = ₹ 40,000 (A)

Labour Cost Variance

= Labour Rate Variance + Labour Efficiency Variance

= 6400(A) + 33600(A)= ₹40000(A)

In this case, labour idle time variance is a part of labour efficiency variance.

PYQ May 2019 – Q3a

Working Notes:

Category	Standard Cost			Actual (1600 units)			Revised Actual Hours
	Hrs.	Rate	Amt. (₹)	Hrs.	Rate	Amt. (₹)	
Skilled	960 (30Wx40x1,600/2,000)	70.00	67,200	1,440 (40Wx36)	75.00	1,08,000	1,080 (1,980x6/11)
Semi-Skilled	480 (15Wx40 x1,600/2,000)	65.00	31,200	360 (10Wx36)	60.00	21,600	540 (1,980x3/11)
Unskilled	320 (10Wx40 x1,600/2,000)	50.00	16,000	180 (5Wx36)	52.00	9,360	360 (1,980x2/11)
Total	1,760	65	1,14,400	1,980		1,38,960	1,980

PYQ Nov 2018 – Q1b

(b) *A manufacturing concern has provided following information related to fixed overheads:*

	Standard	Actual
Output in a month	5000 units	4800 units
Working days in a month	25 days	23 days
Fixed overheads	₹ 5,00,000	₹ 4,90,000

Compute:

(i) *Fixed overhead variance*

(ii) *Fixed overhead expenditure variance*

(iii) *Fixed overhead volume variance*

(iv) *Fixed overhead efficiency variance*

PYQ Nov 2018 – Q1b

(b) Calculation of Variances:

(i) Fixed Overhead Variance: Standard fixed overhead – Actual fixed overhead

= ₹ [(5,00,000÷5000) ×4800] – ₹ 4,90,000 = ₹ 10,000 (A)

(ii) Fixed Overhead Expenditure Variances:

Budgeted fixed overhead – Actual fixed overhead

= ₹ 5,00, 000 – ₹ 4,90, 000 = ₹ 10,000 (F)

(iii) Fixed Overhead Volume Variance: Standard fixed overhead – Budgeted fixed overhead

= ₹ 4,80, 000 – ₹ 5,00, 000 = ₹ 20,000 (A)

(iv) Fixed Overhead efficiency Variance: Standard fixed overhead – Budgeted fixed overhead for Actual days

= ₹ 4,80, 000 – [(₹ 5,00, 000÷25) ×23] = ₹ 20,000 (F)

PYQ May 2018 – Q5a (ii)

(ii) *Beta Ltd. is manufacturing Product N. This is manufactured by mixing two materials namely Material P and Material Q. The Standard Cost of Mixture is as under:*

Material P 150 ltrs. @ ₹ 40 per ltr.

Material Q 100 ltrs. @ ₹ 60 per ltr.

Standard loss @ 20 of total input is expected during production.

The cost records for the period exhibit following consumption:

Material P 140 ltrs. @ ₹ 42 per ltr,

Material Q 110 ltrs. @ ₹ 56 per ltr,

Quantity produced was 195 ltrs.

Calculate:

(i) Material Cost Variance

(ii) Material Usage Variance.

(iii) Material Price Variance ***(5 Marks)***

PYQ May 2018 – Q5a (ii)

5. (a) (ii) Workings:

Take the good output of 195 ltr. The standard quantity of material required for 195 ltr. of output is

$$\frac{195}{80} \times 100 = 243.75 \text{ ltr.}$$

Statement showing computation of Standard Cost/Actual Cost/ Revised Actual Quantity

Material	Standard Cost			Actual Cost		
	Quantity [SQ] (Kg.)	Rate [SP] (₹)	Amount [SQ × SP] (₹)	Quantity [AQ] (Kg.)	Rate [AP] (₹)	Amount [AQ × AP] (₹)
A (60% of 243.75 ltr.)	146.25	40	5,850.00	140	42	5,880
B (40% of. 243.75 Kg.)	97.50	60	5,850.00	110	56	6,160
	243.75		11,700.00	200		12,040

PYQ May 2018 – Q5a (ii)

Computation of Variances:

Material Cost Variance = SQ × SP – AQ × AP

A = ₹ 146.25 ltr. × ₹ 40– 140 ltr. × ₹ 42 = ₹ 30.00 (A)

B = ₹ 97.50 ltr. × ₹ 60 – 110 ltr. × ₹ 56 = ₹ 310.00 (A)

Total = ₹ 30.00 (A) + ₹ 310.00 (A)

= ₹ 340.00 (A)

Material Usage Variance = SP × (SQ – AQ)

A = ₹ 40 × (146.25 ltr. –140 ltr.) = ₹ 250.00 (F)

B = ₹ 60 × (97.50 ltr. – 110 ltr.) = ₹ 750.00 (A)

Total = ₹ 250.00 (F) + ₹ 750.00 (A)

= ₹ 500.00 (A)

Material Price Variance = AQ × (SP – AP)

A = 140 Kg. × (₹ 40 – ₹ 42) = ₹ 280 (A)

B = 110 Kg. × (₹ 60 – ₹ 56) = ₹ 440 (F)

Total = ₹ 280 (A) + ₹ 440 (F)

= ₹ 160 (F)

Revision Test Papers (RTPs)

May 2018 to Sep 2024

RTP Analysis

Exam	Q No.	Requirement	Special Points
RTP - Sep 2024	2	Case Scenario MCQ - (i) Actual Output (ii) MPV, MCV (iii) SH, Net Actual Hours (iv) LEV, LRV (v) FOH Volume Variance	80% yield in Material, Net Actual Hours means Actual Hours worked, FOH Volume Variance Calculation
RTP - May 2024	10	MPV, MUV, MCV	Multiple FG and Multiple Material, Special Industry - Coal, Fancy Words are used, No use of Standard Stripping Ratio, Powder Factor
RTP - Nov 2023	11	AR, SH, LEV, Std Lab Cost pu, Actual Lab Cost pu	Efficiency Percent
RTP - May 2023	12	Exhaustive of Material and Labour	Normal Idle time not to be taken as idle time variance, Calculation of SH is imp
RTP - Nov 2022	12	Multiple Physical Quantities and Cost Variances	Regular Study Mat Question
RTP - May 2022	11	All Labour Variances	Same as Jul 21 PYQ
RTP - Nov 2021	12	Mat, Lab and Var OH Variance	Same as Exercise Que 16 - Page 13.61 - Star95 Mask Reverse calculation of hours
RTP - May 2021	10	Mat - all, Lab - all, Var OH & Fixed OH Cost Variance	Basic Easy

RTP Analysis

Exam	Q No.	Requirement	Special Points
RTP - Nov 2020	12	Mat - all, Lab - all, Var OH & Fixed OH Cost Variance	Same as above
RTP - May 2020	10	Exhaustive of Material and Labour	Same as May 2023 RTP
RTP - Nov 2019	12	Basic Material and Labour Variances	Cal of purchase quantity and use in price variance
RTP - May 2019	11	Exhaustive of Material and Labour	Same as May 2023 RTP
RTP - Nov 2018	12	All Variances + Reconcillation	Bud FOH and Reconciallation Statement (Avoid this Question)
RTP - May 2018	12	Exhaustive of Material and Labour	Same as May 2023 RTP

RTP Sep 24 – MCQ 2

2. ABC Pvt Ltd is engaged in the manufacture of a Product Q. The product has the following standard production requirements determined by the technical team of the company post satisfactory completion of test run.

Raw Material Z – 2 units @ ₹ 2 per unit

Skilled labour of – 2.5 hours@ ₹ 5 per hour

Fixed Overheads – ₹ 7.5 per unit

The input of Raw material Z has a yield of 80% everytime when infused into production. The actual quantity of Raw material Z consumed for production during the year was 24,000 units. The Usage variance of Material Z was 2,000 Favourable. Further the actual amount of material cost for the material consumed amounted to ₹ 45,000.

RTP Sep 24 – MCQ 2

During the said year, the actual working hours were 30,000 for which the labour cost paid by the company amounted to ₹1,20,000. The idle time variance amounted to 10,000 Adverse.

The actual fixed overheads incurred for the year amounted to ₹ 1,50,000 and the expenditure variance was ₹25,000 Favourable.

In the context of the above, the following needs to be determined:

(i) The Actual output of Product Q produced during the year is:

(a) 10,000 units

(b) 12,500 units

(c) 25,000 units

(d) 15,000 units

RTP Sep 24 – MCQ 2

(ii) The Material price and material cost variance are:

(a) Price variance – 3,000 Adverse, Cost Variance – 5,000 Adverse

(b) Price variance – 3,000 Favourable, Cost Variance – 5,000 Favourable

(c) Price variance – 3,000 Favourable, Cost Variance – 8,000 Adverse

(d) Price variance – 5,000 Adverse, Cost Variance – 3,000 Favourable

(iii) The Standard Hours, Net Actual hours and the idle time are:

(a) Standard Hours – 27,500 Net Actual Hours – 28,000 hours Idle Time – 2,000 hours

(b) Standard Hours – 22,500 Net Actual Hours – 28,500 hours Idle Time – 1,500 hours

(c) Standard Hours – 24,000 Net Actual Hours – 29,000 hours Idle Time – 1,000 hours

(d) Standard Hours – 25,000 hours Net Actual Hours –28,000 hours Idle Time – 2,000 hours

RTP Sep 24 – MCQ 2

(iv) Labour Efficiency variance and Labour rate variance are:

(a) Labour Efficiency Variance – 30,000 Favourable Labour rate Variance – 25,000 Adverse

(b) Labour Efficiency Variance – 25,000 Favourable, Labour rate Variance – 30,000 Adverse

(c) Labour Efficiency Variance – 25,000 Adverse, Labour rate Variance – 30,000 Favourable

(d) Labour Efficiency Variance – 30,000 Adverse Labour rate Variance – 25,000 Favourable

(v) Fixed Overhead volume variance is:

(a) Fixed Overhead volume variance – 1,00,000 Favourable

(b) Fixed Overhead volume variance – 50,000 Adverse

(c) Fixed Overhead volume variance – 1,00,000 Adverse

(d) Fixed Overhead volume variance – 50,000 Favourable

RTP Sep 24 – MCQ 2

2. (i) (a) 10,000 units

Usage variance of Material Z = 2,000 F

Usage Variance = SQ x SP – AQ x SP

SP = ₹ 2

AQ = 24,000 units

2 x (SQ – 24,000) = 2,000

2SQ = 50,000

Therefore SQ = 25,000

No of units of Input required per output = 2

Yield of input = 80%

= (25000/2) x 80% = 10,000 units.

(ii) (b) Price variance – 3,000 Favourable,

Cost Variance – 5,000 Favourable

Price variance = AQ x (SP-AP)

24,000 x (2-1.875) = 3,000 Favourable.

Cost variance = SQ x SP – AQ x AP

= 50,000–45,000=5,000 Favourable.

RTP Sep 24 – MCQ 2

(iii) (d) Standard Hours – 25,000 hours Net Actual Hours –28,000 hours
Idle Time – 2,000 hours

Actual output	= 10,000 units
Standard hours per unit	= 2.5
Therefore standard hours	= 10,000 x 2.5 = 25,000 hours.
Idle time variance	= SR x (Net AH – AH)
5 x (Net AH – 30,000)	= 10,000 Adverse
5 Net AH – 1,50,000	= -10,000
5 Net AH	= 1,40,000
Net AH	= 28,000 hours
Idle time	= 2,000 hours

RTP Sep 24 – MCQ 2

(iv) **(c)** Labour Efficiency Variance – 25,000 Adverse,

Labour rate Variance – 30,000 Favourable

Efficiency Variance = SR x (SH-AH)

= 5 x (25,000 – 30,000)

= 25,000 Adverse

Rate Variance = AH x (SR – AR)

= 30,000 (5 – 4) [1,20,000/30,000]

= 30,000 Favourable.

(v) **(c)** Fixed Overhead Volume variance – 1,00,000 Adverse

Overhead Volume variance = Actual OutputxSR per unit – Budgeted FOH

Budgeted FOH = Actual FOH (+/-) Expenditure variance

1,50,000 + 25,000 = 1,75,000

AO x SR = 10,000 x 7.5 = 75,000

Therefore volume variance = 75,000 – 1,75,000

=1,00,000 Adverse.

RTP May 24 – Q10

10. EML operates in coal mining through open cast mining method. Explosives and detonators are used for excavation of coal from the mines. The following are the details of standard quantity of explosives materials used for mining:

Particulars	Rate (₹)	Standard Qty. for Iron ore	Standard Qty. for Overburden (OB)
SME	40.00 per kg.	2.4 kg per tonne	1.9 kg per cubic-meter
Detonators	20.00 per piece	2 pcs per tonne	2 pcs per cubic- meter

The standard stripping ratio is 3:1 (means 3 cubic- meter of overburden soil to be removed to get one tonne of coal).

RTP May 24 – Q10

During the month of December 2023, the company produces 20,000 tonnes of coal and 58,000 cubic- meter of OB. The quantity of explosive materials used and paid for the month is as below:

Material	Quantity	Amount (₹)
SME	1,67,200 kg.	63,53,600
Detonators	1,18,400 pcs	24,27,200

Explosive suppliers are paid for the explosive materials on the basis of performance of the explosives which is termed as powder factor. One of the suppliers has presented their bill for explosive supplied for the month of December 2023. You being a bill passing officer of EML is required to COMPUTE the material price variance, material quantity variance and material cost variance.

RTP May 24 – Q10

10. Workings:

1. Calculation of Standard Qty. of Explosives and Detonators for actual output:

	Particulars	Coal	Overburden (OB)	Total
SME:				
A	Actual Output	20,000 tonne	58,000 M^3	
B	Standard Qty per unit	2.4 kg./ tonne	1.9 kg./M^3	
C	**Standard Qty. for actual production [A×B]**	**48,000 kg.**	**1,10,200 kg.**	**1,58,200 kg.**
Detonators:				
D	Standard Qty per unit	2 pcs/ tonne	2 pcs/ M^3	
E	**Standard Qty. for actual production [A × D]**	**40,000 pcs.**	**1,16,000 pcs**	**1,56,000 pcs**

RTP May 24 – Q10

2. Calculation of Actual Price per unit of materials:

Material	Quantity [A]	Amount (₹) [B]	Rate (₹) [C = B÷A]
SME	1,67,200 kg.	63,53,600	38.00
Detonators	1,18,400 pcs	24,27,200	20.50

Computation of material price variance:

Material Price Variance = Actual Qty. × (Std. Price - Actual Price)

SME = 1,67,200 kg. × (₹40 – ₹38) = ₹3,34,400 (F)

Detonators = 1,18,400 pcs × (₹20 – ₹20.5) = ₹59,200 (A)

Total = ₹2,75,200 (F)

Computation of material quantity variance:

Material Qty. Variance = Std. Price × (Std. Qty for actual output - Actual Qty.)

SME = ₹40 × (1,58,200 kg. - 1,67,200 kg.) = ₹3,60,000 (A)

Detonators = ₹20 × (1,56,000 pcs -1,18,400 pcs) = ₹7,52,000 (F)

Total = ₹3,92,000 (F)

RTP May 24 – Q10

Computation of material cost variance:

Material cost variance = Std. cost – Actual Cost

Or, (Std. Price × Std. Qty) – (Actual Price × Actual Qty.)

SME = (₹ 40 × 1,58,200 kg) – (₹ 38 × 1,67,200 kg.)

= ₹ 63,28,000 – ₹ 63,53,600 = ₹ 25,600 (A)

Detonators = (₹ 20 × 1,56,000 pcs) – (₹ 20.50 × 1,18,400 pcs)

= ₹31,20,000 – ₹24,27,200 = 6,92,800 (F)

Total = ₹6,67,200 (F)

RTP Nov 2023 – Q11

11. The following information has been provided by a company:

Number of units produced and sold	6,000
Standard labour rate per hour	₹ 8
Standard hours required for 6,000 units	-
Actual hours required	17094 hours
Labour efficiency	105.3%
Labour rate variance	₹ 68,376 (A)

You are required to calculate:

(i) Actual labour rate per hour

(ii) Standard hours required for 6,000 units

(iii) Labour Efficiency variance

(iv) Standard labour cost per unit

(v) Actual labour cost per unit.

RTP Nov 2023 – Q11

(i) Labour rate Variance = AH (SR – AR)

Or 17,094 (8 – AR) = 68,376(A)

Or 17,094 (8 – AR) = - 68,376

Or 8 – AR = -4

Or AR = ₹12

(ii) Labour Efficiency $= \frac{SH}{AH} \times 100 = 105.3$

$= SH = \frac{AH \times 105.3}{100} = \frac{17,094 \times 105.3}{100}$

= 17,999.982

= SH = 18,000 hours

(iii) Labour Efficiency Variance = SR (SH – AH)

= 8(18,000 – 17,094)

= 8 X 906

= ₹ 7,248(F)

RTP Nov 2023 – Q11

(iv) Standard Labour Cost per Unit = $\frac{18,000 \times 8}{6,000}$ = ₹ 24

(v) Actual Labour Cost Per Unit = $\frac{17,094 \times 12}{6,000}$ = ₹ 34.19

RTP May 2023 – Q12

12. XYZ Manufacturing Ltd. had prepared the following estimation for the month of January:

	Quantity	Rate (₹)	(₹)
Raw Material-DF	1,600 kg.	50	80,000
Raw Material-CE	1,200 kg.	35	42,000
Skilled labour	2,000 hours	40	80,000
Semiskilled labour	1,600 hours	25	40,000

Standard loss in the process was expected to be 10% of total input materials and an idle labour time of 5% of expected labour hours was also estimated.

At the end of the month the following information has been collected from the cost accounting department:

The company has produced 2,960 kg. finished product by using the followings:

	Quantity	Rate (₹)	(₹)
Raw Material-DF	1,800 kg.	40	72,000
Raw Material-CE	1,300 kg.	30	39,000
Skilled labour	2,400 hours	35	84,000
Semiskilled labour	1,720 hours	20	34,400

RTP May 2023 – Q12

You are required to CALCULATE:

(a)	Material Cost Variance;
(b)	Material Price Variance;
(c)	Material Mix Variance;
(d)	Material Yield Variance;
(e)	Labour Cost Variance;
(f)	Labour Efficiency Variance and
(g)	Labour Yield Variance

12. Material Variance

Raw Material	SQ (kg.)	SP	SQ × SP	RSQ (WN-2) (kg.)	RSQ × SP	AQ	AQ × SP	AP	AQ × AP
	(WN-1)	(₹)	(₹)		(₹)		(₹)	(₹)	(₹)
DF	1879	50	93,950	1771	88,550	1800	90,000	40	72,000
CE	1410	35	49,350	1329	46,515	1300	45,500	30	39,000
	3289		1,43,300	3,100	1,35,065	3100	1,35,500		1,11,000

RTP May 2023 – Q12

WN-1: Standard Quantity (SQ):

1879.365 or 1879 kg. = $\left(\frac{1,600\,kg.}{0.9 \times 2,800\,kg.} \times 2,960\,kg.\right)$

Raw Material DF = $\left(\frac{1,200\,kg.}{0.9 \times 2,800\,kg.} \times 2,960\,kg.\right)$

Raw Material CE = 1409.52 or 1410 kg. $\left(\frac{1,200\,kg.}{2,800\,kg.} \times 3,100\,kg.\right)$

WN- 2: Revised Standard Quantity (RSQ):

Raw Material DF = 1,771.43 or 1,771 kg. $\left(\frac{1,200\,kg.}{2,800\,kg.} \times 3,100\,kg.\right)$

Raw Material CE = 1,328.57 or 1,329 kg.

RTP May 2023 – Q12

(a) Material Cost Variance (A + B) = {(SQ × SP) – (AQ × AP)}

{1,43,300 –1,11,000 = 32,300(F) (F)

(b) Material Price Variance (A + B) = {(AQ × SP) – (AQ ×AP)

{1,35,500 – 1,11,000} = 24,500(F)

(c) Material Mix Variance (A + B) = {(RSQ × SP) – (AQ × SP)}

{1,35,065 – 1,35,500} = 435 (A)

(d) Material Yield Variance (A + B) = {(SQ × SP) – (RSQ × SP)}

{1,43,300 – 1,35,065} = 8,235 (F)

Labour Variances:

Labour	SH (WN-3)	SR (₹)	SH × SR (₹)	RSH (WN-4)	RSH × SR (₹)	AH	AH × SR (₹)	AR (₹)	AH × AR (₹)
Skilled	2232	40	89,280	2289	91,560	2,400	96,000	35	84,000
Semiskilled	1785	25	44,625	1831	45,775	1720	43,000	20	34,400
	4,017 hrs		1,33,905	4,120	1,37,335	4,120	1,39,000		1,18,400

RTP May 2023 – Q12

WN- 3: Standard Hours (SH):

$$\text{Skilled labour} = 2,231.746 \text{ or } 2,232 \text{ hrs} \left(\frac{0.95 \times 2,000 \text{ hr}}{0.90 \times 2,800 \text{ kg}} \times 2,960 \text{ kg} \right)$$

$$\text{Semiskilled labour} = 1785.397 \text{ or } 1785 \text{ hrs} \left(\frac{0.95 \times 1600 \text{ hr}}{0.90 \times 2,800 \text{ kg}} \times 2,960 \text{ kg} \right)$$

WN- 4: Revised Standard Hours (RSH):

$$\text{Skilled labour} = 2,288.889 \text{ or } 2,289 \text{ hrs.} = \left(\frac{2,000 \text{ hrs}}{3,600 \text{ kg}} \times 4,120 \text{ hrs} \right)$$

$$\text{Semiskilled labour} = 1831.11 \text{ or } 1831 \text{ hrs.} = \left(\frac{1,600 \text{ hrs}}{3,600 \text{ kg}} \times 4,120 \text{ hrs} \right)$$

RTP May 2023 – Q12

(e) Labour Cost Variance (Skilled + Semiskilled) = {(SH × SR) – (AH × AR)}

{1,33,905 – 1,18,400} =15,505 (F)

(f) Labour Efficiency Variance (Skilled + Semiskilled) = {(SH × SR) – (AH × SR)}

{1,33,905 – 1,39,000} = 5,095 (A)

(g) Labour Yield Variance (Skilled + Semiskilled) = {(SH × SR) – (RSH × SR)}

= {1,33,905 – 1,37,335} = 3,430 (A)

RTP Nov 2022 – Q12

12. Ahaan Limited operates a system of standard costing in respect of one of its products 'AH1' which is manufactured within a single cost centre. Details of standard per unit are as follows:

- The standard material input is 20 kilograms at a standard price of ₹ 24 per kilogram.
- The standard wage rate is ₹ 72 per hour and 5 hours are allowed to produce one unit.
- Fixed production overhead is absorbed at the rate of 100% of wages cost.

During the month of April 2022, the following was incurred:

- Actual price paid for material purchased @ ₹ 22 per kilogram.
- Total direct wages cost was ₹ 43,92,000
- Fixed production overhead cost incurred was ₹ 45,00,000

Analysis of variances was as follows:

Variances	Favourable	Adverse
Direct material price	₹ 4,80,000	-
Direct material usage	₹ 48,000	
Direct labour rate	-	₹ 69,120
Direct labour efficiency	₹ 33,120	-
Fixed production overhead expenditure		₹ 1,80,000

RTP Nov 2022 – Q12

You are required to CALCULATE the following for the month of April, 2022

(i) Material cost variance

(ii) Budgeted output (in units)

(iii) Quantity of raw materials purchased (in kilograms)

(iv) Actual output (in units)

(v) Actual hours worked

(vi) Actual wage rate per labour hour

(vii) Labour cost variance

(viii) Production overhead cost variance

RTP Nov 2019 – Q12

12. JVG Ltd. produces a product and operates a standard costing system and value material and finished goods inventories at standard cost. The information related with the product is as follows:

Particulars	Cost per unit (₹)
Direct materials (30 kg at ₹350 per kg)	10,500
Direct labour (5 hours at ₹80 per hour)	400

The actual information for the month just ended is as follows:

(a) The budgeted and actual production for the month of September 2019 is 1,000 units.

(b) Direct materials –5,000 kg at the beginning of the month. The closing balance of direct materials for the month was 10,000 kg. Purchases during the month were made at ₹ 365 per kg. The actual utilization of direct materials was 7,200 kg more than the budgeted quantity.

(c) Direct labour – 5,300 hours were utilised at a cost of ₹ 4,34,600.

Required:

CALCULATE (i) Direct material price and usage variances (ii) Direct labour rate and efficiency variances.

RTP Nov 2019 – Q12

12. Working:

Quantity of material purchased and used.

No. of units produced	1,000 units
Std. input per unit	30kg.
Std. quantity (Kg.)	30,000 kg.
Add: Excess usage	7,200 kg.
Actual Quantity	37,200 kg.

RTP Nov 2019 – Q12

Add: Closing Stock	10,000 kg.
Less: Opening stock	5,000 kg.
Quantity of Material purchased	42,200 kg.

(i) Direct Material Price Variance:

= Actual Quantity purchased (Std. Price – Actual Price)

= 42,200 kg.(₹350 – ₹365) = 6,33,000 (Adverse)

Direct Material Usage Variance:

= Std. Price (Std. Quantity – Actual Quantity)

= ₹350 (30,000 kg. – 37,200 kg.) = ₹25,20,000 (Adverse)

(ii) Direct Labour Rate Variance:

= Actual hours (Std. Rate – Actual Rate)

= 5,300 hours (₹80 – ₹82) = ₹10,600 (Adverse)

Direct Labour Efficiency Variance:

= Std. Rate (Std. hours – Actual hours)

= ₹80 (1,000 units × 5 hours – 5,300 hours) = ₹24,000 (Adverse)