Chapter 21 Alternate Demo Problem #1

**Problem #1**

**XYZ Company manufactures tables. A standard cost card for the manufacture of one table shows the following:**

**Standard Cost per Table:**

|  |  |
| --- | --- |
| **Direct material: 4 sq. ft. @ $3/sq. ft.** | **$12** |
| **Direct labor: 2 hours @ $8/hr** | **16** |
| **Total prime costs** | **$28** |
|  |  |

**In November, the company produced 1,000 tables. Actual production costs and quantities were:**

|  |  |
| --- | --- |
| **Direct material: 3,900 sq. ft. @ $3.10/sq. ft.** | **$12** |
| **Direct labor: 2,300 hours @ $7.80/hr** | **16** |

***Required:***

**Calculate the price and quantity variances for direct material and direct labor.**

**Chapter 21 Alternate Demo Problem #2**

**Atlantic Company has the following monthly flexible budget information based on an expectation of operating at 80% of the factory’s capacity or 10,000 units produced:**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Operating Levels** | | |
|  | **70%** | **80%** | **90%** |
| **Budgeted output in units** | **8,000** | **10,000** | **12,000** |
| **Budgeted labor (standard hours)** | **16,000** | **20,000** | **24,000** |
| **Budgeted overhead** |  |  |  |
| **Variable overhead** | **$ 48,000** | **$60,000** | **$ 72,000** |
| **Fixed overhead** | **40,000** | **40,000** | **40,000** |
| **Total overhead** | **$ 88,000** | **$100,000** | **$112,000** |

**During the current month, the company operated at 70% of capacity and employees worked 16,500 hours and the flowing actual overhead costs were incurred:**

|  |  |
| --- | --- |
| **Variable overhead** | **$ 47,300** |
| **Fixed overhead** | **41,000** |
| **Total overhead** | **$88,300** |

**Required:**

1. **Compute the predetermined overhead rate per direct labor hour for variable overhead, fixed overhead, and total overhead.**
2. **Compute the variable overhead spending and efficiency variances.**
3. **Compute the fixed overhead spending and volume variance.Chapter 21 Alternate Demo Problem #1: Solution**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Materials Variances** |  |  |  |  |
| **Units produced……………………………………..** | | **1,000** | **tables** |  |
| **X std. quantity of materials per unit…………..** | | **X 4** | **Sq. ft per table** | |
| **Standard quantity of materials for 1,000 tables** | | **4,000** | **Sq ft** | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **AQ** |  | **3,900** | **Sq ft.** | **AQ** |  | **3,900** | | **Sq ft.** | | **SQ** |  | **4,000** | **Sq ft.** |
| **X AP** |  | **X $3.10** |  | **X SP** |  | **X 3.00** | |  | | **X SP** |  | **X 3.00** |  |
|  |  | **$12,090** |  |  |  | **$11,700** | |  | |  |  | **$12,000** |  |
|  | | | | | | | | | | | | | |
| **Price Variance** | | | | | | | **Quantity Variance** | | | | | | |
|  |  | **($390)** | | | **U** |  | | **$300** | | | **F** |  |  |
|  |  |  | | | | | | | | | |  |  |
|  |  |  |  | **Total Materials Variance** | | | | | |  |  |  |  |
|  |  |  |  |  |  | **($90)** | | | **U** |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Labor Variances** |  |  |  |  |
| **Units produced……………………………………..** | | **1,000** | **tables** |  |
| **X standard direct labor hrs per unit…………..** | | **X 2** | **hours** | |
| **Standard quantity of hours for 1,000 tables** | | **2,000** | **hours** | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **AQ** |  | **2,300** | **Hrs.** | **AQ** |  | **2,300** | | **Hrs.** | | **SQ** |  | **2,000** | **Hrs.** |
| **X AP** |  | **X $7.80** |  | **X SP** |  | **X 8.00** | |  | | **X SP** |  | **X 8.00** |  |
|  |  | **$17,940** |  |  |  | **$18,400** | |  | |  |  | **$16,000** |  |
|  | | | | | | | | | | | | | |
| **Price Variance** | | | | | | | **Quantity Variance** | | | | | | |
|  |  | **$460** | | | **F** |  | | **($2,400)** | | | **U** |  |  |
|  |  |  | | | | | | | | | |  |  |
|  |  |  |  | **Total Materials Variance** | | | | | |  |  |  |  |
|  |  |  |  |  |  | **($1,940)** | | | **U** |  |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Material Variances:** |  |  |  |
| **Quantity Variance:** |  |  |  |
| **Standard units at standard price** | **4,000 ft @ $3.00 =** | **$12,000** |  |
| **Actual units at standard price** | **3,900 ft @ $3.00 =** | **11,700** |  |
| **Variance (favorable)** | **100 ft @ $3.00 =** |  | **$ 300** |
|  |  |  |  |
| **Price Variance:** |  |  |  |
| **Actual units at actual price** | **3,900 ft @ $3.10 =** | **$12,090** |  |
| **Actual units at standard price** | **3,900 ft @ $3.00 =** | **11,700** |  |
| **Variance (unfavorable)** | **3,900 ft @ $0.10 =** |  | **390** |
| **Direct material cost variance (unfavorable)** |  |  | **$ 90** |
|  |  |  |  |
| **Labor Variances:** |  |  |  |
| **Efficiency (Quantity) Variance** |  |  |  |
| **Actual hours at standard rate** | **2,300 hrs. @ $8.00 =** | **$18,400** |  |
| **Standard hours at standard rate** | **2,000 hrs. @ $8.00 =** | **16,000** |  |
| **Variance (unfavorable)** | **300 hrs. @ $8.00 =** |  | **$2,400** |
|  |  |  |  |
| **Rate (Price) Variance:** |  |  |  |
| **Actual hours at standard rate** | **2,300 hrs. @ $8.00 =** | **$18,400** |  |
| **Actual hours at actual rate** | **2,300 hrs. @ $7.80 =** | **17,940** |  |
| **Variance (favorable)** | **2,300 hrs. @ $0.20 =** |  | **460** |
| **Direct labor cost variance (unfavorable)** |  |  | **$1,940** |

**Chapter 21 Alternate Demo Problem #2: Solution**

1. **Compute the predetermined overhead rates**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Overhead at operating level expected (80%) or 10,000 units** | | | |  |
| **Variable Overhead Rate:** |  |  |  |  |
| **Expected Variable Overhead** | **$ 60,000** | **=** | **$ 3.00** | **per DLH** |
| **Expected Direct Labor Hours** | **20,000** |  |  |  |
| **Fixed Overhead Rate:** |  |  |  |  |
| **Expected Fixed Overhead** | **$ 40,000** | **=** | **$ 2.00** | **per DLH** |
| **Expected Direct Labor Hours** | **20,000** |  |  |  |
| **Total Overhead Rate:** |  |  |  |  |
| **Expected Total Overhead** | **$100,000** | **=** | **$ 5.00** | **per DLH** |
| **Expected Direct Labor Hours** | **20,000** |  |  |  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **2. Variable Overhead Variance Computations** | | | | | | | |  |
| **Actual Variable** | | |  |  |  | **Applied Variable** | | |
| **Overhead** | | |  |  |  | **Overhead** | | |
|  |  | |  |  |  |  |  | |
| **AH** |  | | **AH** | **16,500** |  | **SH** | **16,000** | |
| **x AVR** |  | | **x SVR** | **$ 3.00** |  | **x SVR** | **$ 3.00** | |
| **total** | **$47,300** | |  | **$49,500** |  |  | **$48,000** | |
|  |  | |  |  |  |  |  | |
|  | **Variable** | | |  |  | **Variable** | | |
|  | **Spending Variance** | | |  |  | **Efficiency Variance** | | |
|  | **$ 2,200** | **F** | |  |  | **$(1,500)** | | **U** |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | |  |
| **3. Fixed Overhead Variance Computations** | | | | | | | |  |
| **Actual Fixed** | | |  |  |  | **Applied Fixed** | | |
| **Overhead** | | |  |  |  | **Overhead** | | |
|  |  | |  |  |  | **SH** | **16,000** | |
|  |  | | **From** |  |  | **x SVR** | **$ 2.00** | |
| **Given** | **$41,000** | | **Budget** | **$40,000** |  |  | **$32,000** | |
|  |  | |  |  |  |  |  | |
|  | **Fixed** | | |  |  | **Fixed** | | |
|  | **Spending Variance** | | |  |  | **Volume Variance** | | |
|  | **($1,000)** | **U** | |  |  | **($8,000)** | | **U** |