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| "What's going on in that lab?" asked Derek Warren, chief administrator for Cottonwood Hospital, as he studied the prior month’s reports. "Every month the lab teeters between a profit and a loss. Are we going to have to increase our lab fees again?" |

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| "We can't," replied Lois Ankers, the controller. "We're getting lots of complaints about the last increase, particularly from the insurance companies and governmental health units. They're now paying only about 80% of what we bill. I'm beginning to think the problem is on the cost side." |

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| To determine if lab costs are in line with other hospitals, Mr. Warren has asked you to evaluate the costs for the past month. Ms. Ankers has provided you with the following information: |

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| a. | Two basic types of tests are performed in the lab—smears and blood tests. During the past month, 3,600 smears and 1,100 blood tests were performed in the lab. |
| b. | Small glass plates are used in both types of tests. During the past month, the hospital purchased 18,000 plates at a cost of $58,140. This cost is net of a 5% purchase discount. A total of 2,600 of these plates were unused at the end of the month; no plates were on hand at the beginning of the month. |
| c. | During the past month, 2,600 hours of labor time were used in performing smears and blood tests. The cost of this labor time was $28,860. |
| d. | The lab’s variable overhead cost last month totaled $21,320. |

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| Cottonwood Hospital has never used standard costs. By searching industry literature, however, you have determined the following nationwide averages for hospital labs: |

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| *Plates:* | Three plates are required per lab test. These plates cost $3.40 each and are disposed of after the test is completed. |
| *Labor:* | Each smear should require 0.40 hours to complete, and each blood test should require 0.80 hours to complete. The average cost of this lab time is $11.80 per hour. |
| *Overhead:* | Overhead cost is based on direct labor-hours. The average rate of variable overhead is $7.70 per hour. |

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| **Required:** |

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| **1.** | Compute the materials price variance for the plates purchased last month, and compute a materials quantity variance for the plates used last month. **(Input all amounts as positive values. Leave no cells blank - be certain to enter "0" wherever required. Indicate the effect of each variance by selecting "F" for favorable, "U" for unfavorable, and "None" for no effect (i.e., zero variance.)** |

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| Materials price variance | $ |  |
| Materials quantity variance | $ |  |
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| **2.** | For labor cost in the lab: |

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| **a.** | Compute a labor rate variance and a labor efficiency variance. **(Input all amounts as positive values. Leave no cells blank - be certain to enter "0" wherever required. Indicate the effect of each variance by selecting "F" for favorable, "U" for unfavorable, and "None" for no effect (i.e., zero variance.)** |

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| Labor rate variance | $ |  |
| Labor efficiency variance | $ |  |
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| **b.** | In most hospitals, three-fourths of the workers in the lab are certified technicians and one-fourth are assistants. In an effort to reduce costs, Cottonwood Hospital employs only one-half certified technicians and one-half assistants. Would you recommend that this policy be continued? |
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| **3a.** | Compute the variable overhead rate and efficiency variances. **(Input all amounts as positive values. Leave no cells blank - be certain to enter "0" wherever required. Indicate the effect of each variance by selecting "F" for favorable, "U" for unfavorable, and "None" for no effect (i.e., zero variance.)** |

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| Variable overhead rate variance | $ |  |
| Variable overhead efficiency variance | $ |  |
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| **3b.** | Is there any relation between the variable overhead efficiency variance and the labor efficiency variance? |
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