Part (a) Explain the meanings of the VARIABLE OVERHEAD EFFICIENCY VARIANCE and the VARIABLE OVERHEAD SPENDING VARIANCE.

Answer: The VARIABLE OVERHEAD EFFICIENCY VARIANCE is the difference between actual quantity of the cost-allocation base used and the budgeted amount of the cost allocation base that should have been used to produce the actual output, multiplied by budgeted variable overhead cost per unit of the cost-allocation base. The efficiency variance for variable overhead cost is based on the efficiency with which the cost allocation base was used to make the actual output.

The VARIABLE OVERHEAD SPENDING VARIANCE is the difference between the actual variable overhead cost per unit of the cost-allocation base and the budgeted variable overhead cost per unit of the cost-allocation base, multiplied by actual quantity of the variable overhead cost-allocation base used for actual output. The meaning of this variance hinges on an explanation of why the per unit cost of the allocation base is lower or higher than the amount budgeted. Some explanations might include different-than-budgeted prices for the individual inputs to variable overhead or perhaps more efficient usage of some of the variable overhead items.

Part (b) Why is a favourable variable overhead spending variance not always desirable?

Answer: The variable overhead spending variance is the difference between the actual variable overhead cost per unit of the cost-allocation base and the budgeted variable overhead cost per unit of the cost-allocation base, multiplied by the actual quantity of the variable overhead cost-allocation base used for the actual output. If a favourable variable overhead spending variance had been obtained by the managers of the company purchasing low-priced, poor-quality indirect materials, hired less talented supervisors, or performed less machine maintenance there could be negative future consequences. The long-run prospects for the business may suffer as the company ends up putting out a lower quality product, or it may end up having very large equipment repairs as a result of cutting corners in the short-term.

Part (c) Can the variable overhead efficiency variance
  i. be COMPUTED the same way as the efficiency variance for direct-cost items?
  ii. be INTERPRETED the same way as the efficiency variance for direct-cost items? Explain.

Answer: i. Yes, the variable overhead efficiency variance can be computed the same way as the efficiency variance for direct-cost items.
   
   ii. No, the interpretations are different. The variable overhead efficiency variance focuses on the quantity of allocation-base used, while the efficiency variance for direct-cost items focuses on the quantity of materials and labour-hours used.

Explain why there is no efficiency variance for fixed manufacturing overhead costs.
Answer: There is no efficiency variance for fixed overhead costs because a given lump sum of fixed costs will be unaffected by how efficiently machine-hours are used to produce output in a given budget period.
**Part (e) 12-33 (30 min.) 4-variance analysis**

Known figures denoted by an *

**Case A:**

<table>
<thead>
<tr>
<th>Actual Costs Incurred</th>
<th>Flexible Budget: Budgeted Input Quantity Allowed for Actual Output × Budgeted Rate</th>
<th>Allocated: Budgeted Input Quantity Allowed for Actual Output × Budgeted Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Actual Quantity × Budgeted Rate</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Variable Manuf. Overhead</td>
<td>A$120,000*</td>
<td>(6,230 × A$20)</td>
</tr>
<tr>
<td></td>
<td>A$124,600</td>
<td>A$124,000*</td>
</tr>
</tbody>
</table>

A$4600* F

Spending variance

A$600 U

Efficiency

Never a variance

Never a variance
Fixed Manuf. Overhead

A$84 920* (Lump sum)
A$88 200* (Lump sum)
(6 200* × A$14*)

A$3280 F
Spending
Never a variance
Production-volume variance

A$88 200*
A$86 800*

A$88 200*
(A$86 800* × A$14*)
A$1400 U

Total budgeted manufacturing overhead = A$124 000 + A$88 200 = A$212 200

Budgeted FMOH rate = Standard fixed manufacturing overhead allocated ÷ Standard machine-hours allowed for actual output achieved = A$86 800 ÷ 6200 = A$14

Alternatively:

(See spreadsheet)

Case B:

<table>
<thead>
<tr>
<th>Actual Costs Incurred</th>
<th>Actual Input Quantity × Budgeted Rate</th>
<th>Flexible Budget: Budgeted Input Quantity Allowed for Actual Output × Budgeted Rate</th>
<th>Allocating: Budgeted Input Quantity Allowed for Actual Output × Budgeted Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable Manuf. Overhead</td>
<td>A$45 640 (1 141 × A$42.00*) = A$47 922</td>
<td>(1 200 × A$42.00*) = A$50 400*</td>
<td>(1 200 × A$42.00*) = A$50 400</td>
</tr>
<tr>
<td>Flexible Manuf. Overhead</td>
<td>A$23 180* (Lump sum) A$20 000*</td>
<td>(Lump sum) A$20 000*</td>
<td>A$4000 F*</td>
</tr>
</tbody>
</table>

Total budgeted manufacturing overhead = A$50 400 + A$20 000 = A$70 400

Budgeted hours allowed for actual output achieved must be derived from the output level variance before this figure can be derived, or, since the fixed manufacturing overhead rate is A$20 000 ÷ 1000 = A$20, and the allocated amount is A$24 000, the budgeted hours allowed for the actual output achieved must be 1200 (A$24 000 ÷ A$20).

1200 × (A$20 000* ÷ 1000*) = A$24 000

Alternatively:

(See spreadsheet.)
Part (f) 12-36 (30 min.) Causes of indirect variances

1. **Variable overhead variance analysis for Heather’s Horse Spa for August:**

<table>
<thead>
<tr>
<th>Actual</th>
<th>Actual input</th>
<th>Budgeted input allowed for</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable Overhead</td>
<td>x Budgeted rate</td>
<td>Actual output x Budgeted</td>
</tr>
<tr>
<td>rate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A$7 500</td>
<td>(950 × 38 × A$0.2)</td>
<td>(900 × 38 × A$0.2)</td>
</tr>
<tr>
<td></td>
<td>A$7 220</td>
<td>A$6 840</td>
</tr>
</tbody>
</table>

    \[ \text{Spending variance} = \text{A$280 U} \]

    \[ \text{Efficiency variance} = \text{A$380 U} \]

2. **Fixed overhead variance analysis for Heather’s Horse Spa for August 2009:**

<table>
<thead>
<tr>
<th>Actual</th>
<th>Static Budget</th>
<th>Budgeted input allowed for</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed Overhead</td>
<td>Fixed Overhead</td>
<td>Actual output x Budgeted Rate</td>
</tr>
<tr>
<td></td>
<td>(900 × 40 × A$1.5)</td>
<td>(900 × 38 × A$1.5)</td>
</tr>
<tr>
<td>A$50 000</td>
<td>A$54 000</td>
<td>A$51 300</td>
</tr>
</tbody>
</table>

    \[ \text{Spending variance} = \text{A$4000 F} \]

    \[ \text{Production-volume variance} = \text{A$2700 U} \]

(See spreadsheet.)

3. The variable overhead spending variance arises from the fact that the cost of horse feed, shampoo, ribbons and other supplies was higher, per weighted average horse-guest week, than expected (A$7500/(950×38)kgs = A$0.208 per kg > A$0.2 per kg). Unlike the material and labour price variances, which only reflect the prices paid, the spending variance could have both a cost and usage component. HHS would have a negative spending variance if they paid more for feed than expected or if the horses ate more feed than expected.

4. The A$380 unfavourable variable overhead efficiency variance reflects the fact that the average weight of a horse was higher than expected. HHS expected horses to weigh an average of 900 kgs but during August, the horses weighed an average of 950 kgs. Larger horses are expected to consume more variable overhead, such as horse feed and shampoo, hence the unfavourable nature of the variance.

5. Fixed overhead is fixed with respect to horse weight. This does not mean that it can be forecasted with 100% accuracy. For example, salaries or actual costs for advertising may have been lower than expected, leading to the A$4000 favourable variance.

6. The production-volume variance of A$2700 exists because the fixed overhead rate was based on the forecasted number of horse guest-weeks, 40, while the fixed overhead was applied using the actual number of horse guest-weeks, 38. The overestimation of the number of horse guests in August would lead to under-absorption of fixed overhead, resulting in the unfavourable production-volume variance. If the estimate was too far off from the actual number of horses, HHS might potentially not charge enough to cover their costs.