JOB ORDER COSTING

**** PROBLEMS IN THIS MODULE INCLUDE TOPICS INCLUDED IN THE MANUFACTURING OVERHEAD MODULE ****

Key Terms and Concepts to Know

Job-Order Costing vs. Process Costing

- Job-order costing is used for companies that produce different products each period. Costs are accumulated for each job.
- Process costing is used for companies that produce many identical units of a single product for long periods of time. Costs are accumulated for each manufacturing department.

Key Job-Order Costing Documents

- Material requisitions request materials for production and support direct materials costs charged to each job.
- Time cards or time tickets record direct labor hours used in production and support direct labor costs charged to each job.
- Job cost sheets are the most important job costing document. They summarize all of the key information about the job and accumulate total direct materials costs, total direct labor costs and overhead costs applied to the job to determine the total costs for the job.

Inventory Classifications on the Balance Sheet

- Manufacturing companies have three inventory accounts: raw materials inventory, work-in-process inventory and finished goods inventory. Manufacturing companies add value (conversion cost) to the raw materials inventory before selling the finished goods.
- (Raw) Materials inventory includes all the direct and indirect materials purchased but not yet used in the manufacturing or production process.
- Work-In-Process Inventory includes all the direct materials, direct labor and manufacturing overhead costs that have been added to the manufacturing process but for which production has not been completed.
- Finished Goods Inventory includes all manufacturing costs for products that have been completed but not sold.

Key Topics to Know

Choosing a Cost System

- Companies with multiple unique products that generally have a low to moderate annual production volume use job-order costing.

Example #1

A list of common manufacturing companies follows.

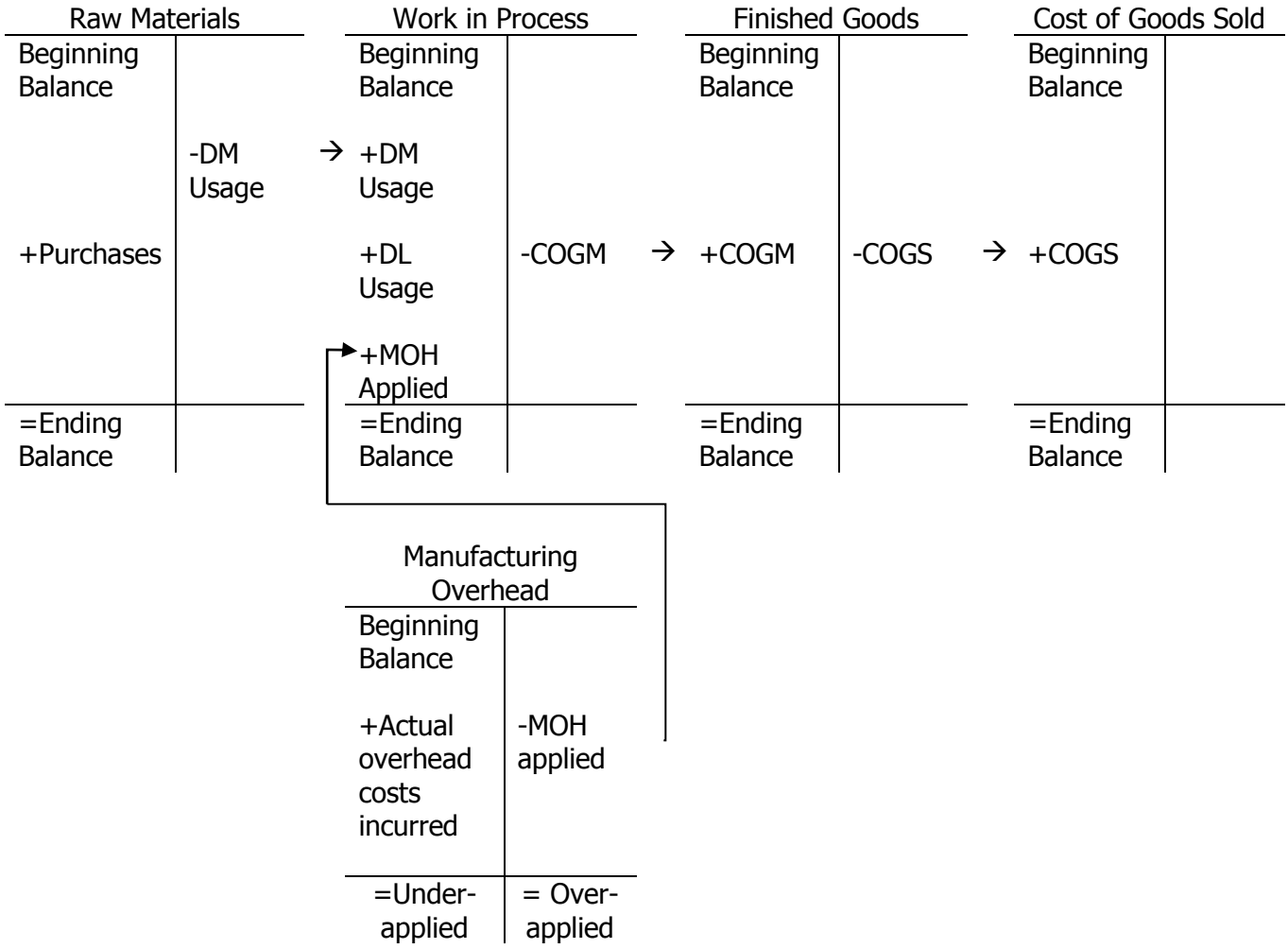
a) Cruise ship builder
b) Cornflakes factory
c) Law firm
d) Dentists office
e) Beverage bottling company

Required: Determine whether job order costing or process costing would be more appropriate for each industry.

Solution #1

a) Job-order costing (every ship is a separate job)
b) Process costing
c) Job-order costing (every case is a separate job)
d) Job-order costing (every patient visit is a separate job)
e) Process costing

Flow of Costs Through Inventory Accounts



- Actual overhead costs incurred flow through the Manufacturing Overhead account into the work-in-process inventory as overhead applied.
- Some companies may use departmental predetermined overhead rates rather than the single plant-wide predetermined overhead rate shown here in an effort to make the overhead application process more accurate.

- The journal entries to record the flow of costs through the inventory accounts are:

Purchase of raw materials		
Raw material inventory	xxx	
Accounts payable		xxx
Issue raw materials		
Work-in-process inventory (direct)	xxx	
Manufacturing overhead (indirect)	xxx	
Raw materials inventory		xxx
Labor costs incurred		
Work-in-process inventory (direct)	xxx	
Manufacturing overhead (indirect)	xxx	
Wages and salaries payable		xxx
Manufacturing overhead costs incurred		
Manufacturing overhead	xxx	
Accounts payable or cash		xxx
Manufacturing overhead	xxx	
Accumulated depreciation		xxx
Manufacturing overhead	xxx	
Prepaid expenses		xxx
Manufacturing overhead	xxx	
Accrued expenses		xxx
Manufacturing overhead applied		
Work-in-process inventory	xxx	
Manufacturing overhead		xxx
Goods are completed		
Finished goods inventory	xxx	
Work-in-process inventory		xxx
Finished goods are sold		
Cash or accounts receivable	xxx	
Sales		xxx
Cost of goods sold	Xxx	
Finished goods inventory		xxx

Close balance in overhead account

- Underapplied

Cost of goods sold	xxx	
Manufacturing overhead		xxx

OR

- Overapplied

Manufacturing overhead	xxx	
Cost of goods sold		xxx

Example #2

C Company uses job-order costing. It applies overhead cost to jobs on the basis of direct labor-hours. The following transactions took place during the year:

a) $300,000 of raw materials were purchased on account
b) Raw materials were issued into production: $90,000 direct materials and $40,000 indirect materials
c) Labor costs incurred: $40,000 direct, $130,000 indirect, sales commissions $50,000, administrative salaries $100,000
d) Utility costs for the factory were $60,000
e) Depreciation recorded was $300,000 (70% related to factory; 30% related to administrative offices)
f) Manufacturing overhead of $715,000 was applied to production. Actual direct labor-hours incurred were 22,000.
g) Jobs costing $300,000 were completed and transferred into the finished goods inventory.
h) Jobs with a cost of $150,000 were sold on account for $200,000.
i) Closed the under/overapplied overhead for the year.

Required: Prepare the necessary journal entries

Solution #2

a)	Raw materials	300,000	
	Accounts payable		300,000
b)	Work in process	90,000	
	Manufacturing overhead	40,000	
	Raw materials		130,000
c)	Work in process	40,000	
	Manufacturing overhead	130,000	
	Sales commission expense	50,000	
	Administrative salaries expense	100,000	
	Salaries and wage payable		320,000
d)	Manufacturing overhead	60,000	
	Accounts payable		60,000
e)	Manufacturing overhead	210,000	
	Depreciation expense	90,000	
	Accumulated depreciation		300,000
f)	Work in process	715,000	
	Manufacturing overhead (1)		715,000
g)	Finished goods	300,000	
	Work in process		300,000
h)	Accounts receivable	200,000	
	Sales		200,000
	Cost of goods sold	150,000	
	Finished goods		150,000
i)	Manufacturing overhead	275,000	
	Cost of goods sold		275,000

(1)

Manufacturing Overhead	
actual	applied
40,000	
130,000	715,000
60,000	
210,000	
	275,000 overapplied

Practice Problems

Practice Problem #1

Z Company makes custom motorboats. It incurred the following costs for the just-completed job B011. 500 pounds of direct materials were used at a cost per pound of $25. The job cost sheet indicates that a total of 90 direct labor-hours incurred on job B011. The workers were paid at a rate of $18 per hour. The company applies overhead based on machine hours. At the beginning of the year, it was estimated that the total amount of overhead would be $180,000 and a total of 30,000 machine hours would be incurred. Job B011 required 150 machine hours.

Required: Determine the total cost assigned to Job B011

Practice Problem #2

T Company had 3 cookie orders in production at June 30: chocolate chip, oatmeal raisin and peanut butter. Material costs for chocolate chip and peanut butter were $500 and $350. Direct labor costs per batch were $200 and $250 for chocolate chip and oatmeal raisin, respectively and $600 in total. Overhead is applied at the rate of 50% of direct materials costs. Total costs for the oatmeal raisin batch were $1,150.

Required: What was the balance in work-in-process at June 30?

Practice Problem #3

B Company, which began operations on January 1 of the current year, reported the following information:

Estimated manufacturing overhead	$600,000
Actual manufacturing overhead	639,000
Estimated direct labor cost	480,000
Actual direct labor cost	500,000
Total debits in the Work-In-Process account	1,880,000
Total credits in the Finished Goods account	920,000

B Company uses a normal cost system and applies manufacturing overhead to jobs on the basis of direct labor cost. A 60% markup is added to the cost of completed production when finished goods are sold. On December 31, job no. 18 was the only job

that remained in production. That job had direct-material and direct-labor charges of $16,500 and $36,000, respectively.

Required:
a) Determine the company's predetermined overhead rate.
b) Determine the amount of under- or overapplied overhead.
c) Compute the amount of direct materials used in production.
d) Calculate the balance the company would report as ending work-in-process inventory.
e) Prepare the journal entries needed to record B Company's sales, which are all made on account.

Practice Problem #4

S Company, which uses a job-costing system, began business on January 1, and applies manufacturing overhead on the basis of direct-labor cost. The following information relates to the first year of operations:

- Budgeted direct labor and manufacturing overhead were anticipated to be $200,000 and $250,000, respectively.
- Job nos. 1, 2, and 3 were begun during the year and had the following charges for direct material and direct labor:

Job #	Direct Materials	Direct Labor
1	$145,000	$35,000
2	320,000	65,000
3	55,000	80,000

- Job nos. 1 and 2 were completed and sold on account to customers at a profit of 60% of cost. Job no. 3 remained in production.
- Actual manufacturing overhead by year-end totaled $233,000. Rock Star adjusts all under- and overapplied overhead to cost of goods sold.

Required:
a) Compute the company's predetermined overhead application rate.
b) Compute Rock Star's ending work-in-process inventory.
c) Determine Rock Star's sales revenue.
d) Was manufacturing overhead under- or overapplied during 20x3? By how much?
e) Present the necessary journal entry to handle under- or overapplied manufacturing overhead at year-end.
f) Does the presence of under- or overapplied overhead at year-end indicate that Rock Star's accountants made a serious error?

True / False Questions

1. When raw materials are issued into production the Raw Materials account is debited.
   True False

2. Manufacturing overhead account is debited for the actual overhead costs incurred.
   True False

3. Finished Goods inventory account is credited for the amount of cost of goods manufactured during a period.
   True False

4. When direct labor costs are incurred, Work in Process is debited.
   True False

5. The cost in the ending Finished Goods inventory account consists of the direct materials, direct labor, and manufacturing overhead of all jobs still in process at the end of the period.
   True False

6. Selling expenses are applied to production using a predetermined overhead rate.
   True False

7. Indirect materials are part of manufacturing overhead.
   True False

8. Job cost sheets are used in accounting systems as a subsidiary ledger for the Work-in-Process account.
   True False

9. A company that produces cornflakes will most likely use a job-order cost system.
   True False

10. Indirect materials issued into production should be debited to Work in Process.
    True False

Multiple Choice Questions

1. XYZ company had the following data for the current year:

Work in Process, beginning balance	$420,000
Direct materials used in production	30,000
Direct labor	55,000
Actual overhead	70,000
Overhead applied	65,000
Work in Process, ending balance	40,000

Determine the amount of cost of goods manufactured during the year.

a) $155,000
b) $530,000
c) $535,000
d) $520,000

2. ABC company had the following data for the current year:

Work in Process, beginning balance	$110,000
Direct materials used in production	45,000
Actual overhead	60,000
Overhead applied	70,000
Work in Process, ending balance	30,000
Cost of goods manufactured	235,000

Determine the amount of direct labor cost incurred during the year.

a) $50,000
b) $45,000
c) $40,000
d) $35,000

3. The beginning balance of Raw Materials inventory was $10,000. During the year purchases of raw materials for $125,000 were made, but only $75,000 were paid for. The balance of Raw Materials at the end of the year was $30,000. What was the amount of raw materials used in production?

a) $55,000
b) $95,000
c) $45,000
d) 105,000

The next 2 questions refer to the following information.
Z Company uses a job-order costing system and applies overhead based on direct materials used in production. For the recent year it estimated that $150,000 of manufacturing overhead will be incurred and $100,000 of direct materials will be used. The following data were provided by the company:

	Beginning	Ending
Raw Materials (all direct)	$30,000	$10,000
Work in Process	$45,000	$35,000
Finished Goods	$20,000	$25,000

Costs incurred during the year:	
Purchases of raw materials (direct)	$90,000
Direct Labor	$40,000
Actual overhead	$150,000

4. The amount of cost of goods manufactured during the year is:
   a) $315,000
   b) $325,000
   c) $360,000
   d) $340,000

5. The cost of goods sold not (including any under or overapplied overhead) is:
   a) $335,000
   b) $320,000
   c) $325,000
   d) $305,000

6. Finished Goods inventory account is credited when:
   a) Goods are purchased on account
   b) Raw materials are purchased
   c) Goods are sold
   d) Underapplied overhead is closed

7. Nonmanufacturing costs are:
   a) Included in manufacturing overhead
   b) Not part of the product cost
   c) Deducted from Work in Process
   d) Added directly to cost of goods sold

8. Total manufacturing costs for the period consist of:
   a) Direct materials, direct labor and manufacturing overhead applied
   b) Manufacturing overhead applied and selling expenses
   c) All expenses incurred, including selling and administrative
   d) Cost of goods sold plus ending Finished Goods inventory

9. Cost of Goods Sold is derived from:
   a) Job-cost sheets
   b) Raw Materials inventory account
   c) Finished Goods inventory account
   d) Estimates for the expected level of sales

10. Dillon Corporation applies manufacturing overhead to jobs using a predetermined overhead rate of 75% of direct labor cost. Any under or overapplied manufacturing overhead cost is closed out to Cost of Goods Sold at the end of the month. During May, the following transactions were recorded by the company:

Raw materials (all direct materials):	
Purchased during the month	$38,000
Used in production	$35,000
Labor:	
Direct labor-hours worked during the month	3,150
Direct labor cost incurred	$30,000
Manufacturing overhead cost incurred	$24,500
Direct labor cost included in May 31 work in process	$4,400
Inventories:	
Raw materials (all direct), May 31	$8,000
Work in process, May 1	$9,000
Work in process, May 31	$12,000

The balance on May 1 in the Raw Materials inventory account was:
a) $11,000
b) $5,000
c) $7,000
d) $9,000

Solutions to Practice Problems

Practice Problem #1

Predetermined overhead rate: $\frac{\$180,000}{30,000 \text{ MH}}$ = $6.00 per MH

Direct materials used:	500 pounds X $25.00 =	$12,500
Direct labor cost:	90 DLH X $18.00 =	1,620
Overhead applied to job B011:	$6.00 X 150 MH =	900
Total job cost:		$15,020

Practice Problem #2

	Chocolate Chip	Oatmeal Raisin	Peanut Butter	Work in Process
Direct Materials	$500	(3) $600	$350	(6) $1,450
Direct Labor	$200	$250	(7) $150	$600
Overhead	(1) $250	(4) $300	(5) $175	(9) $725
Total Job Costs	(2) $950	$1,150	(8) $675	(10) $2,775

(1) $500 X 50% = $250
(2) $500 + $200 + $250 = $950
(3) $1,150 - $250 = $900 direct materials and overhead
$900 = 150% X direct materials
Direct materials = $600
(4) $1,150 – $600 - $250 = $300
(5) $350 X 50% = $175
(6) $500 + $600 + $350 = $1,450
(7) $600 - $200 - $250 = $150
(8) $350 + $150 + $175 = $675
(9) $250 + $300 + $175 = $725
(10 $950 + $1,150 + 675 = $2,775 or $1,450 + $600 + $725 = $2,775

Practice Problem #3

a)

Predetermined overhead rate = Estimated overhead costs $600,000 / Estimated direct labor cost $480,000 = 125% of direct labor cost

b)

Actual manufacturing overhead	$639,000
less: Applied overhead: $500,000 x 125%	625,000
Under-applied overhead	$14,000

c)

Debits to Work-In-Process	$1,880,000
less: Direct labor	500,000
Applied overhead	625,000
Direct materials used	$755,000

d)

	Job #18
Direct materials used	$16,500
Direct labor	36,000
Applied overhead at 125% of direct labor of $36,000	45,000
Total cost	$97,000

e)

Accounts receivable	1,472,000	
Sales $920,000 x 1.60		1,472,000
Cost of goods sold	920,000	
Finished goods		920,000

Practice Problem #4

a) Estimated Overhead cost $250,000 = 125% of
Estimated direct labor cost $200,000 direct labor

b) Job #3:

Direct materials	$55,000
Direct labor	80,000
Overhead applied	100,000
	$235,000

c) Jobs #1 and #2:

Direct materials	$465,000
Direct labor	100,000
Overhead applied	125,000
	$690,000

Revenue $690,000 x 160% = $1,104,000

d)

Actual manufacturing overhead	$233,000
less: Applied manufacturing overhead	225,000
Under-applied overhead	8,000

e)

Cost of goods sold	8,000	
Manufacturing overhead		8,000

f) No. Companies use a predetermined application rate for several reasons including the fact that manufacturing overhead is not easily traced to jobs and products. The predetermined rate is based on estimates of both overhead and an appropriate cost driver, and these estimated rarely equal actual overhead incurred or the actual cost driver activity. Under- or overapplied overhead typically arises at year-end.

Solutions to True / False Problems

1. False - Raw materials account is credited when raw materials are issued.
2. True
3. False – finished goods inventory is debited for cost of goods manufactured and credited for cost of goods sold
4. True
5. False – this is the definition of the balance in work-in-process inventory.
6. False - Selling expenses are expensed as incurred as a period cost.
7. True
8. True
9. False - Process costing is appropriate when all the products (the cornflakes) are essentially the same.
10. False - Indirect materials issued should be debited to Manufacturing Overhead.

Solutions to Multiple Choice Questions

1. B
2. C
3. D
4. B
5. D
6. C
7. B
8. A
9. C
10. B