

JOB COSTING AND OVERHEAD

Key Topics to Know

- Differences and similarities between job order and process costing
- Key document is the Job Cost Sheet
- Flow of product costs through inventory accounts to cost of goods sold
 - Raw materials
 - Work in process including manufacturing overhead
 - Finished goods
 - Cost of goods sold
- Flow of overhead costs:
 - How to compute predetermined overhead rates
 - Use of the Overhead account
 - How to apply overhead costs to production
 - How to compute over and under applied overhead
 - How to close it to the appropriate account
 - How to account for the under or over applied amount on the schedule of cost of goods sold.
- Flow of product costs and overhead costs through the three inventory accounts and overhead account into cost of goods sold.
- Journal entries required in a Job Order Cost system.

Problems

Problem #1

The J & M Plastics Company uses a predetermined overhead rate based on direct labor hours to apply manufacturing overhead to jobs. Estimated and actual data for direct labor and manufacturing overhead for the last year are as follows:

	<u>Estimated</u>	<u>Actual</u>
Direct labor hours	500,000	480,000
Manufacturing overhead	\$1,000,000	\$965,000

- Required:
- a) Compute the predetermined overhead rate for the year
 - b) Calculate the overhead applied for the year.
 - c) What is the amount of over-applied or under-applied overhead?
 - d) Journalize the entry to close the balance in overhead to COGS

Problem #2

Dapper Corporation had one job in process on May 1. The job had been charged with \$3,400 of direct materials, \$4,640 of direct labor, and \$9,200 of manufacturing overhead cost. The company assigns overhead cost to jobs using the predetermined overhead rate of \$23.00 per direct labor-hour. During May, the following activity was recorded:

Raw materials (all direct materials):	
Beginning balance	\$8,500
Purchased during the month	\$42,000
Used in production	\$48,500
Labor:	
Direct labor-hours worked	2,200
Direct labor cost incurred	\$25,520
Actual manufacturing overhead costs incurred	\$52,800
Inventories:	
Raw materials, May 30	?
Work in process, May 30	\$32,190

Work in process inventory on May 30 contains \$7,540 of direct labor cost. Raw materials consist solely of items that are classified as direct materials.

- Required: Compute the cost of goods manufactured for May.

Problem #3

The Jordan Company uses a job order costing system and applies overhead cost to jobs on the basis of direct labor hours. The following estimates were made for the purpose of computing the predetermined overhead rate: manufacturing overhead cost of \$360,000 and direct labor hours of 900. The following transactions took place during the year:

- a. Raw materials purchased, \$200,000.
- b. Raw materials used in production (all direct materials), \$185,000.
- c. Salary and wages incurred:

Direct labor (975 hours)	230,000
Indirect labor	90,000
Selling & administrative salaries	110,000
- d. Utility costs incurred, \$70,000 (90% related to factory operations, remainder to selling & administrative)
- e. Maintenance costs were incurred in the factory, \$54,000.
- f. Advertising costs were incurred, \$136,000.
- g. Depreciation was recorded for the year, \$95,000 (80% related to factory equipment, remainder to selling & adm equip.)
- h. Rental costs incurred on the buildings, \$120,000 (85% related to factory operations, remainder to selling & adm.)
- i. Manufacturing overhead was applied to jobs
- j. Cost of goods manufactured for the year, \$770,000.
- k. Sales on account for the year totaled \$1,200,000 with a cost to produce of \$800,000.
- l. The balances in the inventory accounts at the beginning of the year were:

Raw materials	30,000
Work in process	21,000
Finished goods	60,000

- Required:
- a) Prepare the journal entries to record the information given above.
 - b) Prepare T-accounts for Raw Materials, Work in Process, Finished Goods and Manufacturing Overhead. Post the relevant journal entries above to each T-account. Determine the ending balance in each account.
 - c) What is the amount of over or under-applied overhead?
 - d) Journalize the entry to transfer the ending in the overhead account to cost of goods sold.
 - e) Job 412 was one of the many jobs started and completed during the year. The job required \$8,000 in direct materials and 39 hours of direct labor time at a total direct labor cost of \$9,200. The job contained only four units. If the company bills at a price 60% above the unit cost on the job cost sheet, what price per unit

would have been charged to the customer?

Problem #4

Allenton Company is a manufacturing firm that uses job-order costing. At the beginning of the year, the company's inventory balances were as follows:

Raw materials.....	\$26,000
Work in process.....	\$47,000
Finished goods.....	\$133,000

The company applies overhead to jobs using a predetermined overhead rate based on machine-hours. At the beginning of the year, the company estimated that it would work 31,000 machine-hours and incur \$248,000 in manufacturing overhead cost. The following transactions were recorded for the year:

- a. Raw materials were purchased, \$411,000.
- b. Raw materials were requisitioned for use in production, \$409,000 (\$388,000 direct and \$21,000 indirect).
- c. The following employee costs were incurred: direct labor, \$145,000; indirect labor, \$61,000; and administrative salaries, \$190,000.
- d. Selling costs, \$148,000.
- e. Factory utility costs, \$12,000.
- f. Depreciation for the year was \$121,000 of which \$114,000 is related to factory operations and \$7,000 is related to selling, general, and administrative activities.
- g. Manufacturing overhead was applied to jobs. The actual level of activity for the year was 29,000 machine-hours.
- h. The cost of goods manufactured for the year was \$783,000.
- i. Sales for the year totaled \$1,107,000 and the costs on the job cost sheets of the goods that were sold totaled \$768,000.
- j. The balance in the Manufacturing Overhead account was closed out to Cost of Goods Sold.

Required: Prepare the appropriate journal entry for each of the items above (a. through j.) assuming that all transactions with employees, customers, and suppliers were conducted in cash.

Multiple Choice Questions

1. When units are completed, the cost associated with the job is debited to which account?
 - a) Raw Materials Inventory
 - b) Work in Process Inventory
 - c) Finished Goods Inventory
 - d) Cost of Goods Sold

2. Which of the following would be used to apply manufacturing overhead to production for the period?
 - a) Raw Materials Inventory would be debited
 - b) Work in Process Inventory would be debited
 - c) Manufacturing Overhead would be debited
 - d) Work in Process Inventory would be credited

3. If a company uses a predetermined overhead rate, which of the following statements is correct?
 - a) Manufacturing Overhead will be debited for estimated overhead
 - b) Manufacturing Overhead will be credited for estimated overhead
 - c) Manufacturing Overhead will be debited for actual overhead
 - d) Manufacturing Overhead will be credited for actual overhead

4. Mantilla Inc. estimated manufacturing overhead to be \$200,000 for the year along with 20,000 direct labor hours. Actual manufacturing overhead was \$215,000, and actual labor hours were 21,000. The journal entry to close the balance in the Manufacturing Overhead account would include which of the following?
 - a) Cost of Goods Sold would be credited for \$15,000
 - b) Cost of Goods Sold would be credited for \$5,000
 - c) Cost of Goods Sold would be debited for \$5,000
 - d) Cost of Goods Sold would be debited for \$15,000

5. Cost of goods sold is the amount of cost transferred
 - a) From of Finished Goods Inventory and into Cost of Goods Sold.
 - b) From of Work in Process Inventory and into Cost of Goods Sold.
 - c) From of Work in Process Inventory and into Manufacturing Overhead.
 - d) From of Work in Process Inventory and into Finished Goods Inventory.

6. Arthur Company provided the following information for the year:

Direct materials used	110,000
Direct labor used (5,000 hours)	150,000
Manufacturing overhead incurred	166,000

The predetermined overhead rate was \$35 per direct labor hour for the year. Assuming the ending balance in Work in Process Inventory is \$17,000, what was cost of goods manufactured?

- a) \$260,000
- b) \$426,000
- c) \$435,000
- d) \$418,000

7. Jackson Company had the following information for the year:

Direct materials used	190,000
Direct labor used (5,000 hours)	245,000
Manufacturing overhead incurred	273,000

Jackson Company calculated a predetermined overhead rate using estimated overhead of \$320,000 and 8000 estimated direct labor hours. Finished Goods Inventory had a balance of \$9,000 at the end of the year. What was adjusted cost of goods sold?

- a) \$715,000
- b) \$708,000
- c) \$706,000
- d) \$699,000

8. Homer Inc. had the following information for the preceding year:

	<u>Beginning balance</u>	<u>Ending balance</u>
Raw materials	0	0
Work in process	??	35,000
Finished goods	??	30,000

The following additional information is available for the year:

Direct materials used	200,000
Direct labor	150,000
Manufacturing overhead applied	160,000

Cost of goods manufactured	525,000
Cost of goods sold (unadjusted)	544,000

What was the beginning Finished Goods Inventory balance on 1/1?

- a) \$49,000
 - b) \$65,000
 - c) \$50,000
 - d) \$69,000
9. Hibshman Corporation bases its predetermined overhead rate on the estimated machine-hours for the upcoming year. At the beginning of the most recently completed year, the Corporation estimated the machine-hours for the upcoming year at 10,000 machine-hours. The estimated variable manufacturing overhead was \$6.82 per machine-hour and the estimated total fixed manufacturing overhead was \$230,200. The predetermined overhead rate for the recently completed year was closest to:
- a) \$29.84
 - b) \$23.15
 - c) \$23.02
 - d) \$6.82
10. CR Corporation has the following estimated costs for the next year:

Direct materials	\$4,000
Direct labor	\$20,000
Rent on factory building	\$15,000
Sales salaries	\$25,000
Depreciation on factory equipment	\$8,000
Indirect labor	\$10,000
Production supervisor's salary	\$12,000

CR Corporation estimates that 20,000 labor-hours will be worked during the year. If overhead is applied on the basis of direct labor-hours, the overhead rate per hour will be:

- a) \$2.25
- b) \$3.25
- c) \$3.45
- d) \$4.70

11. Sirmons Corporation bases its predetermined overhead rate on the estimated labor-hours for the upcoming year. At the beginning of the most recently completed year, the Corporation estimated the labor-hours for the upcoming year at 70,000 labor-hours. The estimated variable manufacturing overhead was \$9.93 per labor-hour and the estimated total fixed manufacturing overhead was \$1,649,200. The actual labor-hours for the year turned out to be 74,000 labor-hours. The predetermined overhead rate for the recently completed year was closest to:
 - a) \$32.22
 - b) \$9.93
 - c) \$33.49
 - d) \$23.56

12. Cribb Corporation uses direct labor-hours in its predetermined overhead rate. At the beginning of the year, the estimated direct labor-hours were 17,900 hours and the total estimated manufacturing overhead was \$341,890. At the end of the year, actual direct labor-hours for the year were 16,700 hours and the actual manufacturing overhead for the year was \$336,890. Overhead at the end of the year was:
 - a) \$22,920 underapplied
 - b) \$17,920 overapplied
 - c) \$17,920 underapplied
 - d) \$22,920 overapplied

13. The following data have been recorded for recently completed Job 323 on its job cost sheet. Direct materials cost was \$2,260. A total of 37 direct labor-hours and 141 machine-hours were worked on the job. The direct labor wage rate is \$13 per labor-hour. The Corporation applies manufacturing overhead on the basis of machine-hours. The predetermined overhead rate is \$14 per machine-hour. The total cost for the job on its job cost sheet would be:
 - a) \$3,259
 - b) \$2,741
 - c) \$2,287
 - d) \$4,715

14. Smallwood Corporation has provided the following data concerning manufacturing overhead for January:

Actual manufacturing overhead incurred	\$64,000
Manufacturing overhead applied to Work in Process	\$59,000

Cost of Goods Sold was \$223,000 prior to closing out its Manufacturing Overhead account. The Corporation closes out its Manufacturing Overhead account to Cost of Goods Sold. Which of the following statements is true?

- a) Manufacturing overhead for the month was overapplied by \$5,000; Cost of Goods Sold after closing out the Manufacturing Overhead account is \$228,000
- b) Manufacturing overhead for the month was underapplied by \$5,000; Cost of Goods Sold after closing out the Manufacturing Overhead account is \$218,000
- c) Manufacturing overhead for the month was underapplied by \$5,000; Cost of Goods Sold after closing out the Manufacturing Overhead account is \$228,000
- d) Manufacturing overhead for the month was overapplied by \$5,000; Cost of Goods Sold after closing out the Manufacturing Overhead account is \$218,000
15. Caber Corporation applies manufacturing overhead on the basis of machine-hours. At the beginning of the year, total estimated overhead was \$60,600. Actual manufacturing overhead for the year was \$59,000 and actual machine-hours were 5,900. The predetermined overhead rate for the year was \$10.10 per machine-hour. Overhead for the year was:
- a) \$1,010 underapplied
- b) \$590 overapplied
- c) \$1,010 overapplied
- d) \$590 underapplied
16. Acton Corporation, which applies manufacturing overhead on the basis of machine-hours, has provided the following data for its most recent year of operations.

Estimated manufacturing overhead	\$139,080
Estimated machine-hours	3,800
Actual manufacturing overhead	\$137,000
Actual machine-hours	3,780

The estimates of the manufacturing overhead and of machine-hours were made at the beginning of the year for the purpose of computing the company's predetermined overhead rate for the year. The applied manufacturing overhead for the year is closest to:

- a) 136,269
- b) \$138,348
- c) \$136,987
- d) \$137,630

17. Meyers Corporation had the following inventory balances at the beginning and end of November:

-	<u>November 1</u>	<u>November 30</u>
Raw Materials	\$17,000	\$20,000
Finished Goods	\$50,000	\$44,000
Work in Process	\$9,000	\$11,000

During November, \$39,000 in raw materials (all direct materials) were drawn from inventory and used in production. The predetermined overhead rate was \$8 per direct labor-hour, and direct labor workers were paid \$10 per hour. A total of 300 hours of direct labor time had been expended on the jobs in the beginning Work in Process inventory account. The ending Work in Process inventory account contained \$4,700 of direct materials cost. The Corporation incurred \$28,000 of actual manufacturing overhead cost during the month and applied \$26,400 in manufacturing overhead cost. The raw materials purchased during November totaled:

- a) \$42,000
- b) \$45,000
- c) \$36,000
- d) \$39,000

18. On March 1, Metevier Corporation had \$37,000 of raw materials on hand. During the month, the company purchased an additional \$62,000 of raw materials. During March, \$69,000 of raw materials were requisitioned from the storeroom for use in production. These raw materials included both direct and indirect materials. The indirect materials totaled \$6,000. The journal entry to record the requisition from the storeroom would include a:

- a) debit to Work in Process of \$69,000
- b) debit to Work in Process of \$63,000
- c) debit to Raw Materials of \$69,000
- d) credit to Manufacturing Overhead of \$6,000

19. Chelm Music Corporation manufactures violins, violas, cellos, and fiddles and uses a job-order costing system. What is one of the accounts that Chelm should credit when goods are sold?
- a) Finished goods
 - b) Work in Process
 - c) Cost of Goods Sold
 - d) Manufacturing Overhead
20. During February, Irving Corporation incurred \$65,000 of actual Manufacturing Overhead costs. During the same period, the Manufacturing Overhead applied to Work in Process was \$60,000. The journal entry to record the incurrence of the actual Manufacturing Overhead costs would include a:
- a) debit to Manufacturing Overhead of \$65,000
 - b) credit to Manufacturing Overhead of \$65,000
 - c) credit to Work in Process of \$60,000
 - d) debit to Work in Process of \$60,000
21. Echo Corporation uses a job-order costing system and applies overhead to jobs using a predetermined overhead rate. During the year the company's Finished Goods inventory account was debited for \$360,000 and credited for \$338,800. The ending balance in the Finished Goods inventory account was \$36,600. At the end of the year, manufacturing overhead was overapplied by \$15,900. The balance in the Finished Goods inventory account at the beginning of the year was:
- a) \$15,900
 - b) \$15,400
 - c) \$21,200
 - d) \$36,600

Solutions to Problems

Problem #1

a) Predetermined overhead rate	$\$1,000,000/500,000 \text{ dlh} =$	$\$2.00 \text{ per dlh}$
b) Overhead applied	$480,000 \text{ dlh} * \$2.00 =$	$\$960,000$
c) Under-applied overhead	$\$965,000 - 960,000 =$	$\$5,000$
d) Cost of Goods sold		$5,000$
Manufacturing overhead		$5,000$

Problem #2

Direct materials	$\$3,400$
Direct labor	$4,640$
Manufacturing overhead	<u>$9,200$</u>
Beginning work in process	$\$17,240$
Direct materials used in production	$\$48,500$
Direct labor	$25,520$
Manufacturing overhead (\$23.00 per direct labor-hour x 2,200 dlh)	<u>$50,600$</u>
Total manufacturing costs	$124,620$
Add: Beginning work in process	<u>$17,240$</u>
	$141,860$
Deduct: Ending work in process	<u>$32,190$</u>
Cost of goods manufactured	<u>$\\$109,670$</u>

Problem #3

- a) Predetermined Overhead Rate: $\$360,000/900 = \400 per direct labor hour
 Actual direct labor rate: $\$230,000/975 = \235.90 per direct labor hour

a.	Raw materials inventory	200,000	
	Accounts payable		200,000
b.	Work in process	185,000	
	Raw materials inventory		185,000
c.	Work in process	230,000	
	Manufacturing overhead	90,000	
	Salary & Wage Expense	110,000	
	Wages payable		430,000
d.	Manufacturing overhead	63,000	
	Utilities Expense	7,000	
	Accounts payable		70,000
e.	Manufacturing overhead	54,000	
	Accounts payable		54,000
f.	Advertising Expense	136,000	
	Accounts payable		136,000
g.	Manufacturing overhead	76,000	
	Depreciation Expense	19,000	
	Accumulated depreciation		95,000
h.	Manufacturing overhead	102,000	
	Rent Expense	18,000	
	Accounts payable		120,000
i.	Work in process	390,000	
	Manufacturing overhead		390,000
	(975 dlh x \$400/dlh = 390,000)		
j.	Finished goods inventory	770,000	
	Work in process		770,000
k.	Accounts receivable	1,200,000	
	Sales		1,200,000
	Cost of goods sold	800,000	
	Finished goods inventory		800,000

b)

Manufacturing OH	
90,000	390,000
63,000	
54,000	
76,000	
102,000	
	5,000

overapplied c)

Raw Materials		Work in Process		Finished Goods	
30,000	185,000	21,000		60,000	
		185,000	770,000	770,000	800,000
200,000		230,000			
		390,000			
45,000		56,000		30,000	

d)	Manufacturing overhead	5,000	
	Cost of goods sold		5,000

e)

Cost of manufacturing Job 412:

Direct materials		\$8,000
Direct labor	39 dlh x \$235.90 =	9,200
Manufacturing overhead	39 dlh x \$400.00 =	15,600
Total Cost		<u>\$32,800</u>
Units produced		4
Cost per unit		<u>\$8,200</u>
Markup %		60%
Markup		4,920
Selling price	Cost + markup =	<u>\$13,120</u>

Problem #4

Predetermined Overhead Rate: $\$248,000/31,000 = \8 per machine hour

a) Raw materials inventory	411,000	
Cash		411,000
b) Work in process	388,000	
Manufacturing overhead	21,000	
Raw materials inventory		409,000
c) Work in process	145,000	
Manufacturing overhead	61,000	
Administrative salary expense	190,000	
Cash		396,000
d) Selling expenses	148,000	
Cash		148,000
e) Manufacturing overhead	12,000	
Cash		12,000
f) Manufacturing overhead	114,000	
Depreciation Expense	7,000	
Accumulated depreciation		121,000
g) Work in process	232,000	
Manufacturing overhead		232,000
\$8 per mh x 29,000 mh = \$232,000		
h) Finished goods inventory	783,000	
Work in process		783,000
Cash	1,107,000	
Sales		1,107,000
Cost of goods sold	768,000	
Finished goods inventory		768,000
i) Manufacturing overhead	24,000	
Cost of goods sold		24,000
Overapplied overhead:		
208,000 incurred – 232,000 applied =		
24,000 overapplied		

Solutions to Multiple Choice Questions

1. C
2. B
3. C
4. C
5. A
6. D
7. D
8. A
9. A
10. A
11. C
12. C
13. D
14. C
15. B
16. B
17. A
18. B
19. A
20. A
21. B