

System Design-Job Order Costing



A primary objective of cost accounting is to determine the cost of an organization's products or services. To determine inventory valuation and cost of goods sold for a retailer, different methods are available to value inventory and calculate product cost in a manufacturing and service environment. In a manufacturing setting, the cost accounting system usually focuses on product costs-that is direct material, direct labor and manufacturing overhead-the costs that can be specifically attributed to products and are part of inventory. The method chosen depends on the product or services and the company's conversion processes. There are basically only two methods of finding cost or product costing; viz; job costing and process costing. Whatever method is adopted depending on the product or service and the company's conversion process, the resulting information plays a key role in managerial activities, such as, valuing inventory, pricing company's products, preparing financial statements, planning and control and decision making of all kinds.

This unit begins with a sequence of lessons presenting various methods of product costing. The first lesson describes the need for unit cost data and distinguishes between two primary costing systems (job order and process). The remainder of the unit focuses on the job order costing system; job order costing in service companies and Activity based costing.

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Lesson 1: Need for Unit Cost data and Types of Costing Systems

Learning objectives

After completing this lesson, you are expected to be able to:

- Identify the need for unit cost data to direct the affairs of an organization.
- Explain the methods of allocating total costs to a unit of product.
- Specify production situations where a job-order costing system is appropriate with reasons.
- Differentiate between process costing and job-order costing system and identify the kinds of firms for which each would be appropriate.

Introduction

The methods of allocating the elements of cost to cost to units of product depend upon the type of product and productive process used by the particular industry or plant. Before computing the cost of products, a determination must be made about (a) the product costing system and (b) the valuation method to be used. A product costing system accumulates the costs incurred in a production process and assigns manufacturing costs to organization's final product. On the other hand, the valuation method specifies how product cost will be measured. Management accounting evaluates the units of production/service at all stages of the production or service provision process because the way in which a product is costed can have a substantial impact on reported net income, as well as on current assets section of the balance sheet. This lesson reflects the need for unit cost data needed to direct the affairs of an organization and types of product costing system to accumulated costs for managerial use.

The Need For Unit Cost Data

One of the real benefits to be obtained from unit cost of production, an item of cost data, is the presentation of facts and figures to assist management in determining prices and to control or direct operations. Unit cost is defined as unit of quantity of output in relation to which costs are ascertained or expressed. Managers need unit cost data for a variety of reasons. A few typical examples of unit cost are given below:-

Unit cost is defined as unit of quantity of output in relation to which costs are ascertained or expressed.

Industry/Business

Automobile
Furniture making
Nursing Home
Construction
Sugar
Transport
Advertising
Word processing service

Unit Cost basis

Number
Each article
Per bed or per day
Contract
Tonne
Passenger-Kilometre
Each job
Cost page/document/format

The needs for unit cost data are given below:

- (a) Unit costs are needed in order to value inventories in financial statements. At the end of an operating period, units remaining as closing inventory (units) must have cost attached to them as the closing inventory (units) are carried forward as opening inventory (units) on the balance sheet to the next period.
- (b) Unit costs are needed to disclose the total cost by providing a comparative study of the various elements of current cost with the past results to find out the causes of variations in costs and to eliminate the adverse factors.
- (c) Unit costs enable a manufacturer to keep a close watch and control over the cost of production.
- (d) Unit costs are needed in fixing up the selling price more accurately and for determination of an operating period's net income. The cost of each unit sold during a period must be placed against total sales revenue to arrive at net income. If unit costs are incorrectly computed, then net income will be equally incorrect.
- (e) Finally, unit costs are needed managers in formulating a definite useful production policy and to assist managers in a broad range of decision making situations.

Methods or Systems of Product Costing

In computing unit costs, managers are faced with different problems. The simplest allocation of costs to a unit of product exists where the entire manufacturing process is engaged in producing one single unit of product. Under this situation all of the costs converted into one product during the operating period are assigned to it, and hence no problem arises. The other situation to be encountered to where more than one unit of the same identical product is produced during an operating period. This does not present a serious problem because, since all units are identical, it is only necessary to average the total combined cost over the number of units produced to determine the unit cost of a product. However, when one physical unit of product differs from any other finished product, some methods other than the averaging of total converted costs must be developed to find the cost of a unit of product. The way in which the computation of unit costs is carried out will depend heavily on the type of manufacturing process involved. Two costing systems have emerged in response to variation in the manufacturing process to allocate total costs to a unit of product; thus providing management with unit cost data are commonly known as process costing and job-order costing.

Process costing is the type of costing applied in manufacturing process whee there is continuous or mass production.

Process Costing: Process costing is the type of costing applied in manufacturing process whee there is continuous or mass production. This important process costing system is used by entities that produce a single, homogeneous product for long periods at a time. So the process costing system can be designed keeping the following points in view; i.e., where production processes overpower manufacturing activity, output is large, value may be small but units are homogeneous. Process

costing is appropriate for industries such as bricks, gasoline, detergent, cement, flour, fertilizer, textiles jute and processed food.

In a process costing system, product costs are accumulated for a specific period of time—a week, a month, a quarter, or a year. The total of the accumulated costs is then divided by the number of units produced to arrive at an average unit cost for the period. Process costing, in a way, can be called as "period costing" also.

$$\frac{\text{Accumulated costs of manufacturing}}{\text{Number of units produced}} = \text{Unit cost (Per gallon, tonne, kilogram, bottle etc.)}$$

Firms that use this system manufacture their products repetitively, and thus, their production is continuous. One important characteristic of process costing technique is that it makes a cost flow assumption necessary, i.e., average unit cost figure that applies to many thousands of like units flowing in an almost endless stream off the assembly or processing line.

Job-Order Costing: The other product costing system, job-order costing system, accumulates costs for a particular batch of production, which is usually referred to as a job. The basic method of allocating costs for producing multiple products or variation of the same products is known as job-order or specific-order costing system. So a job order costing system is used by entities that produce relatively small quantities or distinct batches of identifiable, unique products or services. Examples of firms that use job-order costing are aircraft manufacturer, publishing company that produces educational textbooks, ship-building, equipment manufacturer, an architectural firm that designs commercial buildings, furniture manufacturer, and a research firm that performs product development studies.

The cost accounting procedures are designed to assign costs to each job because the output of firms involved in the industries mentioned above tends to be heterogeneous, managers need a costing system in which costs can be accumulated by job or job order by client or customer and in which distinct unit cost can be determined by for each job completed. Hence, it is necessary to accumulate the three elements of cost applicable to each job in total and then to average them over the units of product produced under that particular job or order. Thus, the job-order costing system refers to the procedures to accumulate costs when work is performed pursuant to an order, and when products are manufactured or services rendered to meet individual customers' specifications.

Job-order costing system will be discussed in the next lesson and process costing system will be discussed in details in unit-4.

Process costing is appropriate for industries such as bricks, gasoline, detergent, cement, flour, fertilizer, textiles jute and processed food.

The basic method of allocating costs for producing multiple products or variation of the same products is known as job-order or specific-order costing system.

Examples of firms that use job-order costing are aircraft manufacturer, publishing company, ship-building, equipment manufacturer, an architectural firm, furniture manufacturer, and a research firm.

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Self-Assessment Questions (SAQs)

(A) True / False

1. Which of the following statements are true and which are false?
 - (i) Cost accounting systems have a twofold purpose fulfilled by their day-to-day operations: (a) to allocate costs to departments for planning and control, and (b) to allocate costs to units of product for product costing.
 - (ii) Job-order costing system is a form of specific order costing method.
 - (iii) Job-order costing system can only be used in manufacturing environments.
 - (iv) Two extremes of product costing are job-order costing and normal costing.
 - (v) In an organization when job-order costing system is used to Production order lays the foundation for collection and monitoring of costs as the job proceeds.
 - (vi) Both job-order costing and process costing system utilize averaging concepts in computing units costs.
 - (vii) A company producing furniture would probably use a job-order cost system.
 - (viii) Product costs are historical figures and therefore are of little use to manager.
 - (ix) Management can compute the per-unit cost of finished goods accurately only when a job order cost system is in use.

(B) Multiple Choice Questions

2. Choose the best answer for each of the following questions by placing the identifying letter in the space provided to the left.
 - (i) A job order cost system would be appropriate in the manufacturing of:
 - (a) Paints
 - (b) Custom-made furniture
 - (c) Breakfast cereal
 - (d) Standard-grade plywood.
 - (ii) Under a job order cost system, costs are accumulated for:
 - (a) each department in the production cycle.
 - (b) each batch of production, Known as a job or lot.
 - (c) each individual unit produced.
 - (d) each job supervision.

- (iii) In a job order cost system, the basic documents for accumulating costs by individual job is:
 - (a) the materials requisition form.
 - (b) the job cost sheet.
 - (c) the work-in-process control account.
 - (d) the labor time ticket.
- (iv) In a job order cost system, per unit costs are computed:
 - (a) as soon as the overhead application rate is determined.
 - (b) when jobs are completed.
 - (c) when units are sold, as a specified percentage of selling price.
 - (d) before accepting an order from a customer.
- (v) Which of the following is a characteristic of manufacturing overhead in a job order cost system?
 - (a) It is indirectly traceable to specific jobs or units.
 - (b) It includes the cost of all labor relating to manufacturing operations.
 - (c) It is assigned to units produced by means of an overhead application rate.
 - (d) It includes the cost of direct materials used and of indirect labor.

(c) Descriptive Questions

1. What are the main features of job-order costing?
2. List and explain three purposes of product costing.
3. In a job order costing system, what is a job?
4. What type of industry is likely to use a job order cost system? Give some examples.

Lesson 2: Job Order Costing-An Overview/Conceptual Perspective

Learning objectives

After completing this lesson, you are expected to be able to:

- Discuss the important features of job-order costing system.
- Explain the advantages and disadvantages of job-order costing.
- Describe the prerequisites for an effective job-order costing system.
- Identify the documents used to accumulate costs in a job-order costing system.
- Identify the purposes served by the basic documents used in a job-order costing system.
- Discuss why firms use estimated amounts rather than actual amounts to apply manufacturing overhead to production.
- Compute predetermined overhead rate and explain its use in job-order costing system.

Introduction

The basic aim of this lesson is to introduce to the reader theoretical understanding of job-order costing method. As we have already mentioned in the earlier lesson, job order costing is a form of specific order costing; the attribution of costs to job. It is to be mentioned here that product costing is concerned with (a) cost identification, (b) cost measurement, and (c) product cost assignment. In a job order costing method, costs are accumulated individually on a per job or per order basis. So job costing is a method of cost ascertainment in which an account is kept for each job and each job is unique and significant of value.

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Now we can start our discussion by describing features of job-order costing, advantages and disadvantages of job-order costing, distinguishing job-order costing and process costing and accumulating costs in a job-order costing system.

Features of Job-order Costing

The distinguishing features of job-order costing are as follows:

- (a) The essence of job-order costing is that as all jobs/orders are not necessarily alike, they do not pass through the same manufacturing process.
- (b) Each job has its own characteristics and hence, needs special treatment.
- (c) There is no uniformity in the flow of production from department to department, therefore careful routing and scheduling is essential for a cost ascertainment for successful completion of the job.
- (d) A separate job cost sheet is made out for each job on the basis of distinguishing number.

- (e) Direct costs are charged to the work-in-process account and are entered on the cost sheets of the production order.
- (f) Indirect costs or manufacturing expenses, are charged to the departmental accounts and do not appear, as such, in the work-in-process account or on the cost sheets of the production order.
- (g) The production cycle is short as compared to the production cycle of long-term construction contracts which often spans several accounting periods.
- (h) Finally, one of the most important features of job-order costing is the determination of profit or loss for each job.

It is followed from the above that job-order costing is, in general, appropriate in situations when each job or order is unique, easily identifiable, and can serve as a cost objective.

Advantages of Job-order Costing

Job costing system offers the following specific advantages:

- (i) It enables the management in a detail analysis of cost of materials, labor and manufacturing overheads classified by functions, departments and nature of expenses which also enable management to determine the operating efficiency of the different factors of production, production centres and the functional units by suitable comparison.
- (ii) It enables the management in distinguishing between profitable and nonprofitable jobs.
- (iii) It facilitates in the prompt finishing of prices while submitting quotations for similar jobs and fixing the selling price of special order.
- (iv) The adoption of predetermined overhead rates in job costing necessitates the application of a system of budgetary control of overhead with all its advantages.
- (v) It facilitate variance analysis at the end of the accounting period because under this system the actual overhead costs are compared with overhead applied at a predetermined rates.
- (vi) Spoilage and defective work can be easily identified with respective job or products so that responsibility may be fixed on departments or individuals to take remedial steps in reducing these to the minimum.

Disadvantages of Job-order Costing

Job-order costing has the following disadvantages:

- (i) Job-order costing system is comparatively more expensive as more clerical work is involved in identifying each element of cost to each job or work order.

- (ii) With the increase in the clerical processes, chance of error also increases.
- (iii) Job costing is a historical costing which ascertain, the cost of a job or order after it has been manufactured. It does not facilitate control of cost unless it is used with standard or estimated costing.
- (iv) If major economic changes take place, comparison of cost of a job for one period with that of another becomes meaningless. Distortion of cost also occurs when the batch qualities are different.

Requisites for Job-order Costing

Industries which manufacture products or render services against specific orders as distinct from continuous production for stock or sales, use the job-order costing technique. To ensure an effective and workable job-order costing method, the following prerequisites become necessary:

- (i) A sound system of production control;
- (ii) Preparation of the necessary documents, such as, work-order or operation tickets, bill of materials, and tool requisites etc.;
- (iii) An effective time-booking system;
- (iv) Proper materials issue pricing method;
- (v) Appropriate overhead absorption notes; and
- (vi) Clearly defined cost countries.

Accumulating Costs in a Job-order Costing System

As we have a theoretical understanding of a job-order costing system, this section discusses the work flow in accumulating costs in a job-order costing system. In a job-order costing system, costs of direct material, direct labor, and manufacturing overheads are assigned to each job. As production in a job order costing system is not a continuous process, careful planning and control is essential to avoid wastage of these three broad categories of costs that comprise inputs of the product costing system. As costs are incurred, they are added to the Work-in-Process Inventory account in the ledger. To keep track of the direct materials cost, direct labor cost, and manufacturing overhead costs assigned to each job, a subsidiary ledger is maintained. The subsidiary ledger account assigned to each job is a key document called a job-cost sheet.

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Job-Cost Sheet

Job Cost Sheet is the backbone of a job-order costing system. The focal point of a job-order cost system is the cost sheet on which charges for direct materials, direct labor, and indirect manufacturing costs can be accumulated as work on a job order progress. Depending on data requirements for planning, controlling costs and evaluating performance, additional information quality and quality of materials, machine hours, rate to be used may also be recorded in the job-cost sheet. Thus job-cost

sheet is prepared for twofold purposes: **First**, it is used to breakdown the job's costs into the components of direct materials, direct labor, and manufacturing overhead. The total costs are then divided by the number of units produced to arrive at the unit cost. **Secondly**, the job-cost sheet acts as the subsidiary ledger to the work-in-process account in the general ledger.

Normally, the job cost sheet is not prepared until the accounting department has received notification from production department that a production order has been issued for a particular job. The format of the job-cost sheet varies from firm to firm depending on their requirements. Exhibit 3.1. displays commonly used job-cost sheet.

Exhibit 3-1: Job-cost Sheet

Job-cost Sheet

Customer Name and Address _____
 Job Number _____ Description _____
 Date Started _____ Date Completed _____
 For Stock _____ Number of Units Completed _____

Direct Material

Date	Requisition Number	Quantity	Unit Price	Cost

Direct Labor

Date	Time Card Number	Hours	Rate	Cost

Manufacturing Overhead

Date	Activity Base	Quantity	Application Rate	Cost

Cost Summary

Cost Item	Amount
Total direct material	
Total direct labor	
Total manufacturing overhead	
Total cost	
Unit cost	

Shipping Summary

Date	Number of Units Shipped	Cost Balance

Source :

The work-flows to accumulated cost of direct material, direct labor, and manufacturing overhead which constitute a set of activities under job-order costing system are discussed below:

Direct Material Costs

Once the production order is issued, a material requisition form is prepared. Actually the production process begins with the transfer of raw materials, the production department supervisor completes a *material requisition form* and presents it to the storeroom supervisor. Material requisition form used to initiate or record a firm's accounting entry, is called a *source document*. Although the specific forms may vary among organizations, certain kinds of information are common to them all. raw material directly traceable to the goods being produced which are accounted separately termed as direct materials; and indirect materials, which are charged to manufacturing overhead and grouped with other indirect costs.

A material requisition form is shown in Exhibit 3-2; and it should contain places for:

- (i) The job number for which the materials are to be issued;
- (ii) A description of the raw materials needed;
- (iii) The quantity of each raw material needed;
- (iv) The unit cost of each material;
- (v) The total cost;
- (vi) Classification of materials into direct materials and indirect materials.

Exhibit 3-2 : Material Requisition Form

Material Requisition Number _____ Date _____
 Job Number to be Charged _____ Department _____
 Department Supervisor's Signature _____ Issued by _____
 Inspected by _____

Item	Quantity	Unit Cost	Amount

Source:

It should be noted here that if the product is manufactured frequently by a company, then any requisition of materials will typically be based on a bill of materials that has been prepared for the product.

Direct Labor Costs

The assignment of direct labor costs to job is in much the same way as direct materials cost. Direct labor includes those labor charges that are directly traceable to the particular job in process. By contrast, those labor charges that can be traced directly to a particular job, are treated as part of manufacturing overhead. Direct labor cost is accumulated and measured based on time tickets filled out by employees. A *time ticket* is a source document on which an employee records the amounts of time worked as a basis for adding direct labor costs to work-in-process inventory and to the job cost sheets for the various jobs in process. When a particular job is started, the employee inserts the form into the clock and punches in. When going to another job, the employee punches out on the first form and punches a new form for the new job. These job time tickets are gathered and accounting department carefully analyses each in terms of the number of hours assignable as direct labor to specific jobs and then multiplies using the employee's rate of pay. Then cost will be recorded in Work-in-Process Inventory and on the appropriate job-cost-sheets. Moreover, the total cost of employees' job time tickets is compared to the employees' time card, and any difference between them is considered idle time unless an obvious error exists. Exhibit 3-3 displays an example of a time ticket.

Direct labor includes those labor charges that are directly traceable to the particular job in process.

Exhibit : 3-3: Job Time Ticket

Employees Name		Date	
Clock No.		Department Sanding	
Operation Sanding		Time Started	
Job Number		Time Finished	
Hours	Rate of pay	Direct labor	Comments
Supervisor _____			

Source:

Manufacturing Overhead Costs

Factors of production other than direct materials and direct labor; such as indirect material, indirect labor, rent, power, various utility costs, and depreciation are necessary to transform direct materials into finished goods. It is relatively simple to trace direct materials and direct labor costs to jobs, but manufacturing overhead is not easily traced into job, so they must be appropriately assigned to all jobs. Manufacturing overheads

if bear no obvious relationship to individual jobs or units of product, they must be incurred for production to take place. However, the assignment of manufacturing overhead to units of product is often a difficult task. The assignment of manufacturing overhead involves three steps.

First, all manufacturing overhead costs are assigned to departmental overhead centres. This step is known as *cost distribution* (or sometimes *cost allocation*). For examples; the cost of electricity would be distributed among all of the departments in the factory possible in proportion to the floor space occupied by each department. So in this cost distribution step, manufacturing overhead costs are assigned to both production department and service department.

Second, all service department costs are assigned to the production department through a process called service department cost allocation. In this steps, an attempt is made to allocate service department cost on the basis of the relative proportion of each service department's output that is used by the various production departments.

After following the first two steps, all manufacturing overhead costs have been assigned to the production departments. After this the **third**, steps beings i.e. all manufacturing overhead costs accumulated in the production department is assigned to the jobs that the department has worked on. This step is called overhead application (or sometimes overhead absorption). Now we will proceed to on the process of overhead application.

Overhead Application: For production costing information to be useful, it must be provided to manager on timely basis. If actual overhead costs were used, random fluctuations of might cause overhead costs in a particular month to be distorted. And to obtain actual costs, allocation would have to be defined until the end of the fiscal year, all overhead cost would be known. This is late so far as unit cost is concerned, and all job-order cost sheets would have to remain incomplete until the end of the year, despite the fact that most jobs would be physically complete. This approach would also prevent the firm from preparing interim finical statement, since without overhead figures, the trial costs of goods manufactured and sold could not be complete. Therefore, in order to have timely data for planning, control and decision making, most firms use a predetermined overhead rate to apply manufacturing overhead to each job.

Predetermined Overhead Rate: The solution to the overhead application problem; a predetermined overhead rate based on the estimates made at the beginning of the accounting period is used. A predetermined overhead rate is based on estimates of overhead costs and the applicable activity base. The rate is called "predetermined" because it is computed before the period begins and because it is based entirely on estimated data. In traditional product costing system, some measures of productive activity i.e. *volume-base cost driver* (or *activity base*), such as direct-labor hours, direct-labor cost, or machine hours is commonly used as the basis for overhead application. Overhead is assigned to jobs by multiplying the predetermined rate by the actual measure of the activity

base that was incurred during the period and was associated with each job. The formula for computing the predetermined overhead rate (PDR) is:

$$\text{POR} = \frac{\text{Estimated total manufacturing overhead costs}}{\text{Estimated total units in the base (Machine hours, Direct labor hours etc.)}}$$

If predetermined overhead rates are used, overhead is applied at the end of the period or at completion of production, whichever is earlier. Overhead is applied at the end of each period so that Work-in-Process Inventory account contains costs for all three product elements (direct material, direct labor, and manufacturing overhead). Overhead is applied to Work-in-Process Inventory on completion so that a process product cost can be transferred to Finished Goods Inventory that will be shown in the balance sheet.

Your roommate asks your help in understanding the major steps in the flow of costs in a job order cost system. Identify the steps for your roommate.



The process of accounting the difference between the amount of overhead cost actually incurred during the period and the amount applied to products will be discussed in the following lesson.

Demonstration Problem

Problem : 3.2.1

Thasin Manufacturing Company produces special machine made to customer specification. The following data pertain to Job Order No. 1106.

Customer : Moyna Machine Shop	Date Started : 11/04/200X
Customer Order No. C 696	Date Finished : 11/18/200X
Date : October 27	Total cost to manufacture : ?
Description: 18 drilling units	Sales price : Tk. 20,425

	Week Ending 11/11	Week Ending 11/18
Materials used, Deptt. 1....	Tk. 2400	Tk. 1,300
Direct Labor rate, Deptt. 1 ...	Tk. 4.10 per hour	Tk. 4.10 per hour
Labor hour used, Deptt. 1 ...	600	400
Direct Labor rate, Deptt. 2 ...	Tk. 4.00 per hr.	Tk. 4.00 per hr.
Labor hour used, Deptt. 2...	300	140
Machine hours, Deptt. 2....	200	120
Applied Factory Overhead, Deptt...	Tk. 2 per labor hour	Tk. 2 per Labor hour

		labor hour				
11/11	2	Per machine hour	200	1.80	360	Tk.2,576
11/18	1	Per direct labor hour	400	2.00	800	
11/18	2	Per machine hour	120	1.80	216	
Direct Materials		Tk.3,700	Sales Price		Tk.20,425	
Direct Labor			Factory Cost		Tk.12,136	
Deptt. 1		Tk.4,100	Marketing and			
Deptt. 2		<u>1,760</u> Tk.5,860	Admin. Cost		<u>3,034</u>	
Applied Factory Overhead			Manufacturing &			
Deptt. 1		Tk.2,000	Operating costs		<u>15,170</u>	
Deptt. 2		<u>576</u> <u>2,576</u>	Profit		Tk.5,255	
Total Factory Cost		Tk.12,136				

Amount of profit from the Job Order No.1106 is Tk.5,255. The profit margin on Job is $\left(\frac{\text{Tk.5,255}}{\text{Tk.20,425}}\right)$ about 25.73% of the sales price. As there is no way of knowing the amount of capital invested, the return on capital employed seems to be adequate.

Problem 3:2.2:

Job Order Accumulation and Accounting for Factory Overhead: The Royal Manufacturing Company builds construction machinery as per customer specifications. On December 31, the following inventories appeared on the company's balance sheet:

Materials and factory supplies	Tk.32,300
Work-in-process	55,115
Finished goods	14,800

The work-in-process consisted of two partly completed construction jobs: Jobs No. LP4422 and OK5000 on which these costs had been incurred in previous months:

Job No.	Materials	Labor	Factory Overhead	Total
LP4422	Tk.14,800	Tk.12,300	Tk.10,455	Tk.37,555
OK5000	<u>7,200</u>	<u>5,600</u>	<u>4,760</u>	<u>17,560</u>
	<u>Tk.22,000</u>	<u>Tk.17,900</u>	<u>Tk.15,215</u>	<u>Tk.55,115</u>

The finished goods inventory consisted of one job: Job No. DU3750. The company has always applied factory overhead on a rate based on direct labor cost. Fluctuating labor costs and an attempt to attain greater control over indirect costs have led management to set up an overhead rate based on direct labor hours. The cost department estimates the total factory overhead for next year at Tk.135,000 for 75,000 direct labor hours.

In January two new orders were started. No. MA4440 and No. HA5001. For these two orders and the other work-in-process, the following costs were incurred during January:

Job No.	Materials Cost	Labor Hours and Cost	
LP 4422	Tk.2,300	825	Tk.1,980
OK 5000	5,300	2,000	4,500
MA 4440	11,200	2,600	5,980
HA 5001	9,80	2,400	5,400

During January Tk.16,400 of materials and factory supplies were purchased. At January 31 inventory of materials and supplies was Tk.17,040. The factory payroll for the month totaled Tk.20,834. Other factory overhead costs for the month were:

Power	Tk.400	Repairs	Tk.3,200
Depreciation	1,600	Taxes	350
Insurance	900		

Jobs LP4422 and OK5000 were completed and billed at Tk.75,000 and Tk.52,000 respectively. Jobs MA4440 and HA5001 were still in process on January 31.

Required: (1) The overhead rate used for the application of overhead to the jobs in process on December 31.

(2) The new overhead rate based on estimated direct labor hours.

(3) The journal entry to apply factory overhead to all jobs worked on during January (in total, not individual jobs).

(4) The amount of over- or underapplied factory overhead for January.

(5) The total cost and the gross profit on Jobs LP 4422 and OK 5000.

(6) The amount of the work-in-process inventory on January 31.

Solution to Demonstration Problem:

(1) The Overhead rate used: $\frac{\text{Tk.15,215}}{\text{Tk.17,900}} = 85\%$ of direct labor cost

(2) The new overhead rate based on estimated direct labor hours:

$$\frac{\text{Tk.1,35,000 estimated overhead}}{\text{75,000 Labor hours}} = \text{Tk.1.80 per direct labor hours}$$

(3) Work-in-Process* 1 Tk.14,085

Factory Overhead Control Tk.14,085

(4) Actual Factory Overhead:

Materials and Supplies* 2	Tk.3,580
Indirect Labor* 3	2,974
Power	400
Depreciation	1,600
Insurance	900
Repairs	3,200
Taxes	<u>350</u>
Total Factory Overhead	Tk.13,004
Applied Factory Overhead	<u>14,085</u>
Over applied Factory Overhead	<u>Tk.1,081</u>

(5)

	Job No. LP 4422	Job No. OK 5000	Total
Sales price	<u>Tk.75,000</u>	<u>Tk.52,000</u>	<u>Tk.1,27,000</u>
Production cost:			
Material	Tk.14,800	Tk.7,200	
	<u>2,300</u>	<u>5,300</u>	
Labor	Tk.17,100	Tk.12,500	Tk.29,600
	Tk.12,300	Tk.5,600	
	<u>1,980</u>	<u>4,500</u>	
Factory	Tk.14,280	Tk.10,100	Tk.24,380
	Tk.10,455 *4	Tk.4,760	
	<u>1,485 *5</u>	<u>3,600</u>	
	<u>Tk.11,940</u>	<u>Tk.8,360</u>	<u>Tk.20,300</u>
Total production cost	<u>Tk.43,320</u>	<u>Tk.30,960</u>	<u>Tk.74,280</u>
Gross Profit	<u>Tk.31,680</u>	<u>Tk.21,040</u>	<u>Tk.52,720</u>

(6)

	Job No. MA 4440	Job No. HA 5001
Materials	Tk.11,200	Tk.9,280
Labor	5,980	5,400
Factory Overhead	<u>4,680 *6</u>	<u>4,320 *6</u>
Total	Tk.21,860	Tk.19,000

Total Work-in-process inventory (Tk.21,860+Tk.19,000) = Tk.40,860.

Working:

*1 $\frac{\text{Tk.1,35,000}}{75,000 \text{ hours}} = \text{Tk.1.80 per direct labor hour.}$

$\therefore 7,825 \text{ hours} \times \text{Tk.1.80} = \text{Tk.14,085}$

*2	Beginning inventory	Tk.32,300
	Add: Purchases	16,400
		<hr/>
		Tk.48,700
	Less: Ending inventory	17,040
		<hr/>
	Total materials used	Tk.31,660
	Less: Direct materials	28,080
		<hr/>
	Indirect materials used	Tk.3,580
		<hr/> <hr/>

*3	Total payroll	Tk.20,834
	Less: Direct Labor	17,860
		<hr/>
	Indirect Labor	Tk.2,974
		<hr/> <hr/>

*4 $\text{Tk.12,300 labor cost} \times 85\% =$ Tk.10,455

*5 $825 \text{ hours} \times \text{Tk.1.80} =$ Tk.1,485

*6 $2600 \text{ hours} \times \text{Tk.1.80} =$ Tk.4,680
 $2400 \text{ hours} \times \text{Tk.1.80} =$ Tk.4,320

Self-Assessment Questions (SAQs)

A. True / False

1. Which of the following statements are true and which are false?
 - (i) A principal objective of cost accounting system is to ensure that cost reports to management are prepared in accordance with generally accepted accounting principles.
 - (ii) The job cost sheet is used to accumulate the costs chargeable to a particular job.
 - (iii) All the raw materials purchased during a period are included in the cost of goods manufactured figure.
 - (iv) Most factory overhead costs are direct costs and therefore can be easily identified with specific jobs.
 - (v) A new job cost card on Job-sheet is opened for each job at the commencement of each accounting period.
 - (vi) Actual manufacturing overhead costs are charged directly to the Work in Process account as the costs are incurred.
 - (vii) The predetermined overhead rate is computed using estimates of cost and activity.
 - (viii) The predetermined overhead rate is generally computed on a monthly basis rather than on an annual basis to increase the accuracy of unit costs.
 - (ix) The two basic types of cost accounting system are (a) completed job cost systems and (b) unfinished work in process cost systems.
 - (x) A job order cost system provides the information required to compute the number of equivalent units of production for a given period, which is necessary to determine the per-unit cost of completed product.
 - (xi) Once production is completed, the job cost sheet can be discarded.

B. Multiple Choice Questions:

- (2) Choose the best answer for each of the following questions by placing the identifying letter in the space provided to the left:
 - (i) The source documents for assigning costs to job cost sheets are:
 - (a) invoices, time tickets, and the predetermined overhead rate.
 - (b) materials requisition slips, time tickets, and the actual overhead costs.
 - (c) materials requisition slips, payroll register, and the predetermined overhead rate.
 - (d) materials requisition slips, time tickets, and the predetermined overhead rate.

- (ii) The most common treatment of under-or-over applied overhead is to close it out to:
 - (a) Work-in-Process
 - (b) Retained Earnings
 - (c) Cost of Goods Sold
 - (d) Finished Goods
- (iii) A job cost sheet usually contains a record of each of the following except:
 - (a) The cost of direct materials charged to a particular job.
 - (b) The overhead costs actually incurred on a particular job.
 - (c) The cost of direct labor charged to a particular job.
 - (d) The overhead cost applied to a particular job.
- (iv) A job cost sheet can be used to determine:
 - (a) Whether overhead was under-or-overapplied to a particular job.
 - (b) The total cost of materials purchased for a particular job.
 - (c) The per unit cost figure for a particular job.
 - (d) The actual amount, of overhead costs incurred in completing a particular job.
- (v) Last year, X company reported estimated overhead, Tk.1,00,000; actual overhead, Tk.90,000; and applied overhead Tk.92,000. The X company's overhead cost for the year would be:
 - (a) under applied Tk.10,000.
 - (b) under applied Tk.8,000
 - (c) over applied Tk.2,000.
 - (d) over applied Tk.10,000.
- (vi) If overhead is over applied for a period, it means that:
 - (a) the predetermined rate used to apply overhead cost to Work-in-Process was too low.
 - (b) the company incurred more overhead cost than it is charged to Work-in-Process.
 - (c) too much cost has been assigned to units of products.
 - (d) none of these.

C. Descriptive Questions

1. What are the principal documents used in a job order costing system and what are their purposes?

2. How is the concept of product costing applied in service industry firms?
3. "Because the costs of each job are included in the job order cost sheet, they do not need to be recorded in the general ledger". Is this statement true or false, and why?
4. What is the purpose of the job cost sheet in a job order costing system?
5. What is a job order cost sheet, and what information does it contain? How do job order cost sheets relate to control accounts for Work-in-Process, Finished Goods, and Cost of Goods Sold?
6. Why do firms use predetermined overhead rates rather than actual manufacturing overhead costs in applying overhead to jobs?
7. Differentiate between "materials inventory records" and "materials requisition slip" as used in a job order cost system.
8. Is an actual overhead application rate better than a predetermined overhead rate? Why or Why not?
9. What factors should be considered in selecting a base to be used in computing the predetermined overhead rate?
10. What creates underapplied or overapplied overhead when applying overhead to jobs?
11. Of what use to management are job order cost sheets? Why do some job order cost sheets contain columns for both budgeted and actual costs?
12. Enumerate two reasons why overhead might be underapplied in a given period.

Key to SAQs:

1. True / False : (i) F; (ii) T; (iii) F; (iv) F; (v) T; (vi) T; (vii) T; (viii) F; (ix) F; (x) (xi) F.

2. Multiple Choice Questions: (i) ; (ii) ; (iii) ; (iv) ; (v) ; (vi) ;

Lesson 3: Accounting Procedure in Job-Order Costing/Sequence of Activities in Job-Order Costing

Learning objectives

After completing this lesson, you are expected to be able to:

- Prepare journal entries to record the sequence of activities in job order costing.
- Dispose of underapplied and overapplied manufacturing overhead at the end of the accounting period.
- Prepare journal entries needed to close the underapplied and overapplied overhead balances to appropriate accounts.

Introduction

In the previous lesson, conceptual perspective of the operation of a job-order costing system and procedure of accumulating costs of direct materials, direct labor, manufacturing overhead were discussed. To manufacture a given lot of goods, an order is issued to the manufacturing division to proceed with the work; this order is known as production order. At that time, an order is also issued to cost accounting department to proceed with accumulating the cost of the work. The order to the accounting department is in the form of Job-Order Cost sheet and all costs incurred on the job are recorded therein. In this lesson to understand the sequence of activities in job order costing method, accounting entries needed to the system itself will be discussed.

Purchase of Material

Usually most of the raw materials are significantly purchased cater the specification of particular job and other drawn from the storeroom. Raw material purchases are evaluated at invoice price and materials drawn from storeroom are valued on weighted average price or any other methods (LIFO, FIFO etc.) adopted for pricing the raw material issued to production. The purchase of raw material is recorded with the following journal entry:

(1) Raw material Inventory	Tk.	
Accounts Payable		Tk.

Use of Direct Material

When materials are needed for a job, the job supervisor or any other authorized person requisitions them through a material requisition form which forms the basis for the accounting entry transferring materials from Raw Material Inventory account to the concerned job account. This form identifies the job order number and lists the type and quantity of raw materials from jobs to storeroom. Transfer of materials from one job to another etc., should be properly accounted for correct accounting. The following journal entry records the use of raw materials to production:

(2) Work-in-Process Inventory	Tk.	
Raw Material Inventory		Tk.

Use of Direct Material

The material requisition should contain special descriptions of the materials needed and distinguish between direct and indirect materials. Often, it is not prudent to assign the costs of indirect materials directly to jobs in which they are used, as their value is insignificant compared to the total cost of the job. Hence, the materials drawn are not assignable to specific jobs, then they must be charged to Manufacturing Overhead as indirect materials. The journal entry to record the use of indirect material is as follows:

(3) Manufacturing Overhead	Tk.
Manufacturing Supplies Inventory	Tk.

Use of Direct Labor

In job-order costing system, direct labor costs are payments for the services of the workers directly engaged in manufacturing activities. Labor costs are accounted to a specific job on they basis of Time Tickets, which records the number of hours spent on each job on a working day and multiplied by the wage rate established by the cost accounting department. The journal entry to record direct labor is as follows:

(4) Work-in-Process Inventory	Tk.
Wages Payable	Tk.

Use of Indirect Labor

It is important to account the elements of indirect labor cost in aggregate made to production workers. Indirect labor cost includes the cost of supervisors, foreman, maintenance, security and time keeping personnel; it also includes the costs of idle time, overtime, fringe benefits, rework time etc. The justification in including all indirect costs is to allocate these costs to all jobs throughout manufacturing overhead account. The following journal entry is made to add indirect labor costs to manufacturing overhead.

(5) Manufacturing Overhead	Tk.
Wages Payable	Tk.

It is customary to charge the overtime premium to manufacturing overhead and thereby spread the costs across all units produced. This treatment changes if the firm is not in its busy season and if the overtime is worked because the customer is willing to pay for a shorter than normal delivery time i.e., for customer's rush order. Then the cost of overtime premium should be charged to the specific job, since it can be said that the rush order caused the overtime. Moreover, if the idle time is caused due to machine breakdown or when material shortages occur randomly, then it costs should be absorbed by all production rather than by a particular product.

Incurrence of Manufacturing Overhead Costs

Unlike direct material and direct labor costs which can be wholly and exclusively be identified with specific jobs, all other costs of operating the factory are classified as manufacturing overhead costs. It is already stated that, manufacturing overheads can be charged to various jobs either at the actual overhead rate or a predetermined overhead rate. The hypothetical entry to record the incurrence of manufacturing overhead costs would be:

(6) Manufacturing Overhead	Tk.	
Rent Payable		Tk.
Accumulated Depreciation-Equipment	
Accounts payable (utilities and property taxes)	
Prepaid Insurance	

For this entry; no. 1 corresponding entry is made on any job-cost sheet, since manufacturing overhead costs are not traceable to any particular job.

Application of Manufacturing Overhead

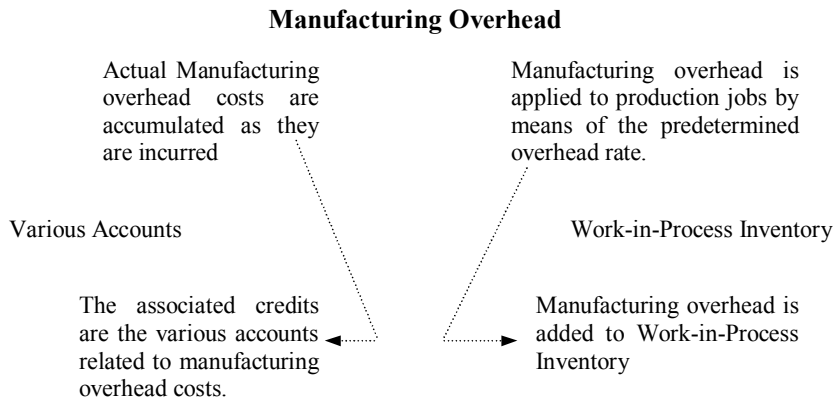
Various manufacturing overhead costs incurred were accumulating by debiting Manufacturing overhead account. However, no manufacturing overhead costs have yet been added to Work-in-Process Inventory or recorded on the job-cost sheets. The application of overhead costs to firm's product is charged to Work-in-Process by means of a predetermined absorption rate calculated in advance of production. The following journal entry is made to add applied manufacturing overhead to Work-in-Process Inventory.

(7) Work-in-Process Inventory	Tk.	
Manufacturing Overhead		Tk.

Summary of Overhead Concepts

Exhibit 3.4 shows the accounting procedures used for manufacturing overhead. The left side of Manufacturing Overhead account is used to accumulate actual manufacturing overhead costs as they incurred day by day throughout the year. The actual manufacturing overhead costs incurred include indirect material, indirect labor, factory rent, equipment depreciation, utilities, property taxes, and insurance and are recorded as debits to the account. At certain intervals during the year, usually when a job is completed, overhead cost is released from the Manufacturing Overhead account by posting to its credit and is applied to the Work-in-process account by means of the predetermined overhead rate. The sequence is shown in the following Exhibit.

Exhibit 3-4: Manufacturing Overhead Account



Source:

As emphasized earlier, the predetermined overhead rate is based entirely on estimates of what overhead costs are expected to be, and it is established before the year begins. The use of a normal predetermined overhead rate does create one problem, however, which occurs at the end of the accounting period. It is highly improbable that the amounts of the actual overhead and the applied overhead will coincide, since the applied overhead is an estimated number. Thus, at the end of the year, the overhead cost applied may be more or less than the overhead costs that is actually incurred. The difference is called **overapplied overhead** when the applied overhead is greater than the actual overhead. When the reverse is true—that is, when the actual overhead is greater than the applied overhead, the difference is refined to as **underapplied overhead**. The terms **overabsorbed overhead** and **underabsorbed overhead** are after used interchangeably with overapplied overhead and underapplied overhead, respectively.

*When the applied overhead is greater than the actual overhead. When the actual overhead is greater than the applied overhead, the difference is refined to as **underapplied overhead**.*

Disposition of Overapplied or Underapplied Overhead

It is highly unlikely that actual manufacturing overhead will coincide with applied overhead for any given period. At the end of an accounting period, the managerial accountant has two alternatives for the disposition of underapplied or overapplied overhead. Generally the most common alternative, disposition of overapplied or underapplied overhead is closed to **Cost of Goods Sold**. This is done, when the difference between the actual overhead and the applied overhead is small. The journal entry to record the underapplied overhead is shown below:

(8) Cost of Goods Sold	Tk.
Manufacturing Overhead	Tk.

If there is overapplied manufacturing overhead, the above entry would have been just reverse.

Another alternative of disposition of overapplied or underapplied overhead is to allocate the amount of underestimation or overestimation of a predetermined overhead between **Work-in-Process**, **Finished Goods**, and **Cost of Goods Sold** in proportion to the ending balances in these accounts. When underapplied or overapplied overhead is allocated among these three accounts, the process is called **proration**. Proration is

done when the amount of underapplied or overapplied overhead is large and if greater accuracy is desired. After proration, the overhead in the accounts reflects actual amounts instead of estimated amounts. To prorate underapplied overhead, the following journal entry would have been made.

(9) Work-in-Process Inventory	Tk.....	
Finished Goods Inventory	
Cost of Goods Sold	
Manufacturing Overhead		Tk.

It is to be noted that, if overhead is overapplied, a reverse of the above entry will be required, since a credit balance would have existed in the Manufacturing Overhead account.

Selling costs include the costs incurred in promoting sales and retaining customers.

Administrative costs are those costs which are incurred for formulating the policy, directing the organization and controlling the operations of an undertaking.

Selling and Administrative Cost: Selling costs include the costs incurred in promoting sales and retaining customers. Salaries, commission, allowances of salesman, representative, sales manager, marketing manager, advertising, rent of showroom, insurance of showroom etc. are the examples of selling costs. On the otherhand administrative costs are those costs which are incurred for formulating the policy, directing the organization and controlling the operations of an undertaking for example, salaries, allowances of board of directors, managing director, board staff, office rent, rates and insurance; office supplies, legal charges etc. Since these costs are not manufacturing costs, they are not added to Work-in-Process Inventory. These costs are treated as expenses of the accounting period; that is why these are period costs not product costs. The following journal entry is made to record selling and administrative costs.

(10) Selling and Administrative Expenses	Tk.	
Wages Payable		Tk.
Accounts Payable	
Rent Payable	
Office Supplies Inventory	

Completion of a Job: In a job order costing system, when a job is completed, its costs is determined by totalling direct material, direct labor, manufacturing overhead costs posted to the job-order costs sheet. But if no units in a job is completed, the total costs incurred on the job order is available from work-in-process inventory account. For a completed job, the following journal entry is made to transfer of job costs from Work-in-Process Inventory to Finished Goods Inventory.

(11) Finished Goods Inventory	Tk.	
Work-in-Process Inventory		Tk.

Many companies prepare a **schedule of cost of goods manufactured;** which shows the aggregate cost of direct material, direct labor, and manufacturing overhead applied to work-in-process. The amount representing the cost of goods manufactured in the schedule is same of the amount transferred from Work-in-Process Inventory to Finished Goods Inventory account.

Sale of Goods

As the units become finished product, they are delivered or shipped to fill the customers order. The unit cost appearing in the job-order cost sheet is used as a basis for transferring the cost of sold items from the Finished Goods account into the Cost of Goods Sold account. To record the sale of finished goods, the following journal entry is made.

(12)	Accounts Receivable	Tk.	
	Sales Revenue		Tk.
(13)	Cost of Goods Sold	Tk.	
	Finished Goods Inventory		Tk.

If there is any unsold finished goods, they remain in Finished Goods Inventory until the units are sold.

DEMONSTRATION PROBLEM

Problem: 3:3.1

Dorris Company is working on two job orders. The job cost sheets show the following:

Direct materials		- Job # 120 Tk.16,000
		Job # 121 Tk.13,600
Direct labor		- Job # 120 Tk.14,000
		Job # 121 Tk.12,000
Manufacturing Overhead		- Job # 120 Tk.14,000
		Job # 121 Tk.12,600

Prepare the three summary entries to record the assignment of costs to Work-in-Process from the data on the job costs sheet.

Solution to Demonstration Problem:

(i)	Work-in-Process Inventory (Tk.16,000+13,600)	29,600	
	Raw Materials Inventory		29,600
	(To assign raw materials to jobs)		
(ii)	Work-in-process Inventory (Tk.14,000+12,000)	26,000	
	Factory Labor		26,000
	(To assign direct labor to jobs)		
(iii)	Work-in-process Inventory (Tk.15,000+12,500)	27,500	
	Manufacturing Overhead		27,500
	(To assign overhead to jobs)		

Problem 3:3.2

During March, Dolla Manufacturing works on two jobs: Numbers A 16 and B 17. Summary data concerning these jobs are as follows:

Manufacturing Costs Incurred:

Purchased Tk.54,000 of raw materials on account.
 Factory labor Tk.76,000 plus Tk.4,000 employer payroll taxes.
 Manufacturing overhead exclusive of indirect materials and indirect labor Tk.59,800

(b)

DR		Manufacturing Overhead				CR	
Date	Particulars	J.F	Amount	Date	Particulars	J.F	Amount
March 31	Accounts payable		59,800	March 31	Work-in-Process Inventory		62,400
	Raw Materials Inventory		3,000		Balance c/d		2,400
			64,800				64,800
	Balance b/d		2,400				

Comment: Manufacturing Overhead has a debit balance of Tk.2,400.

So the manufacturing overhead is under applied for the month.

Problem 3:3.3

Journal entries for a job order cost cycle. During the month, the following transactions took place in the factory of the Chittagong Valley manufacturing Company:

- (a) Materials purchased on account, Tk.53,400.
- (b) Materials issued during the month as follows: to fill requisitions on job orders, Tk.31,750; supplies issued to the factory, Tk.1,700.
- (c) Materials issued to complete defective units, Tk.150. (Charge to Factory Overhead Control)
- (d) Freight paid for materials received, Tk.900. (Freight is not added to unit costs on materials inventory cards)
- (e) Materials not yet paid for were returned to the vendor during the month, Tk.185.
- (f) Materials were returned to the storeroom during the month as follows: from job orders, Tk.990; from supplies issued to the factory, Tk.200.
- (g) Total payroll for the month was as follows:
 Recorded as liability, than paid by check to workers, Tk.44,500.
 Withheld for income tax, Tk.8,120.
 Withheld for hospitalization plan, Tk.1,005.
 Withheld for FICA tax, Tk.4,036.
- (h) Taxes were recorded for the employer's FICA tax. State unemployment insurance for the company is 2.6% of total payroll, and the federal rate is 80%. These taxes were charged to Factory Overhead Control.
- (i) The payroll was distributed as follows: direct labor, Tk.41,250; indirect labor, balance of payroll.
- (j) Depreciation for the month: buildings, Tk.3,500; machinery, Tk.4,500.

- (k) Property taxes accrued during the month, Tk.800; insurance expired with a credit to the prepaid account, Tk.750.
- (l) Factory overhead is charged to production at a rate of Tk.1.50 per direct labor hour. Records show 20,000 direct labor hours used during the month. (Credit Applied Factory Overhead)
- (m) Close out the over-or underapplied factory overhead to Cost of Goods Sold.
- (n) Cost of job orders completed during the month, Tk.82,750.
- (o) Goods costing Tk.75,000 were sold on account during the month a sales price of Tk.95,000.

Required:

- (1) Prepare journal entries to record the transactions. Subsidiary ledger accounts need not be included.
- (2) Why does over-or underapplied factory overhead occur, and what is the effect of closing it to Cost of Goods Sold?

Solution to Demonstration Problem:

(1)

- (a)

Materials	Tk.53,400	
Accounts Payable		Tk.53,400
(Purchase of raw materials on account)		
- (b)

Work-in-Process	Tk.31,750	
Factory Overhead Control	1,700	
Materials		Tk.33,450
(To assign materials to production)		
- (c)

Factory Overhead Control	Tk.150	
Material		Tk.150
(To assign materials to complete defective units)		
- (d)

Factory Overhead Control	Tk.900	
Cash		Tk.900
(Paid for material received)		
- (e)

Accounts Payable	Tk.185	
Material		Tk.185
(Return of raw materials)		
- (f)

Materials	Tk.1,190	
Work-in-Process		Tk.990
Factory Overhead Control		200
(Materials returned to the storeroom)		
- (g) (i) Payroll

Payroll	Tk.57,661	
Income Tax Payable		Tk.8,120
Hospital Plan Withholding		1,005
FICA Tax Payable		4,036
Accrued Payroll		44,500
(To record total payroll for the month)		

(ii)	Accrued Payroll	Tk.44,500	
	Cash		Tk.44,500
	(To record payment of accrued payroll)		
(h)	Factory Overhead Control	Tk.5,996	
	IFICA Tax Payable		Tk.4,036
	State Unemployment Tax Payable (57,661×2.60%)		1,499
	Federal Unemployment Tax Payable (57,661×0.8%)		461
	()		
(i)	Work-in-Process	Tk.41,250	
	Factory Overhead Control	16,411	
	Payroll		Tk.57,661
	(To assign payroll)		
(j)	Factory Overhead Control	Tk.8,000	
	Accumulated Depreciation - Buildings		Tk.3,500
	Accumulated Depreciation – Machinery		4,500
	(To record depreciation)		
(k)	Factory Overhead Control	Tk.1,550	
	Property, Taxes Payable		Tk.800
	Prepaid Insurance		750
	(To record property, taxes and insurance)		
(l)	Work-in-Process	Tk.30,000	
	Factory Overhead (applied)		Tk.30,000
	(Factory overhead charged to production 20,000 hrs. @ 1.50)		
(m) (i)	Applied Factory Overhead	Tk.30,000	
	Factory Overhead Control		Tk.30,000
	(To record applied factory overhead to factory overhead control)		
	(ii) Cost of Goods Sold	Tk.4,507	
	Factory Overhead Control		Tk.4,507
	(To record underapplied factory overhead)		
(n)	Finished Goods	Tk.82,750	
	Work-in-Process		Tk.82,750
	(To record the transfer of completing of goods from WIP to FG)		
(o) (i)	Accounts Receivable	Tk.95,000	
	Sales		Tk.95,000
	(To record resale of goods on account)		
	(ii) Cost of Goods Sold	Tk.75,000	
	Finished Goods		Tk.75,000
	(To record the cost of the goods sold)		

- (2) During the month, overhead was charged @ Tk.1.50 per direct labor hour used in production. Actual overhead costs incurred or allocated to the months operations ere greater than the amount charged to Work-in-process by Tk.4,507. So this is under applied factory overhead Closing the underapplied overhead cost of goods sold increases it by the amount of overhead not charged to production by use of the overhead rate but actually incurred.

Self-Assessment Questions (SAQs)

(A) True / False

1. Which of the following statements are true and which are false?
 - (i) A job order cost system provides the information required to compute the number of equivalent units of production for a given period, which is necessary to determine the per-unit cost of completed product.
 - (ii) If more overhead is applied to Work in Process than is actually incurred, then overhead will be overapplied.
 - (iii) A credit balance in the Manufacturing Overhead account at the end of the period indicates that overhead has been underapplied to jobs.
 - (iv) The cost of indirect materials used in production is added to the Manufacturing Overhead account other than added directly to Work-in-Process.
 - (v) Selling and administrative expenses should be added to the Manufacturing overhead account.
 - (vi) A debit balance in the Manufacturing Overhead account at the end of a period would mean that overhead was underapplied for the period.
 - (vii) On the Schedule of Cost of Goods Manufactured, any underapplied overhead should be deducted from the actual overhead cost in order to determine the amount of overhead cost applied to Work-in-process.
 - (viii) Any balance in the Work-in-Process account at the end of a period should be closed to Cost of Goods Sold.
 - (ix) Allocating any under-or-overapplied overhead cost between Work in Process, Finished Goods, and Cost of Goods Sold is a more accurate costing approach than closing the entire under-or-overapplied amount to Cost of Goods Sold.
 - (x) Under-or-overapplied overhead is computed by finding the difference between actual overhead cost and the amount of overhead cost applied to Work-in-Process.

(B) Multiple Choice Questions:

2. Choose the best answer for each of the following questions by placing the identifying letter in the space provided to the left.
 - (i) The basic types of cost accounting systems are:
 - (a) Job order cost system and process cost systems.
 - (b) Direct cost systems and indirect cost systems.
 - (c) Completed job cost systems and work-in-process cost systems.
 - (d) Fixed cost systems and variable cost systems.

- (ii) In a job cost system, the Work-in-Process Inventory controlling account may be reconciled to the total of the:
 - (a) Employee time cards.
 - (b) Materials requisitions.
 - (c) WIP inventory records for each department of process.
 - (d) Job cost sheets.

- (ii) In recording the issuance of raw materials in a job order cost system, it would be incorrect to:
 - (a) debit Work-in-Process Inventory.
 - (b) debit Finished Goods Inventory.
 - (c) debit Manufacturing Overhead.
 - (d) Credit Raw Materials Inventory.

- (iii) When a job order cost system is in use, the Direct Labor account is debited:
 - (a) When work is performed, even if not paid immediately.
 - (b) When direct labor charges are assigned to work-in-process.
 - (c) When employees are paid.
 - (d) Instead of using Salaries Expense account.

- (iv) The entry when direct factory labor is assigned to jobs is a debit to:
 - (a) Work-in-Process Inventory and a credit to Factory Labor.
 - (b) Manufacturing Overhead and a credit to Factory Labor.
 - (c) Factory Labor and a credit to Manufacturing Overhead.
 - (d) Factory Labor and a credit to Work-in-Process Inventory.

- (v) A predetermined overhead application rate:
 - (a) Is used in a job order cost system but cannot be used in a process cost system.
 - (b) Can be determined by dividing budgeted direct labor cost by the budgeted factory overhead cost.
 - (c) Is not generally accepted for financial reporting purpose.
 - (d) Trends to avoid wide variations in per-unit overhead cost because of short-run changes in volume.

- (vi) In a job order cost system, a credit balance remaining in the Direct Labor account at the month-end:
 - (a) Represents a liability for accrued wages payable.
 - (b) Indicates that all of the direct labor costs incurred have not yet been allocated to specific jobs.
 - (c) Is closed into Income Summary.
 - (d) Should not occur; this means that the amount of direct

labor costs allocated to jobs is greater than the cost of work performed by employees during the period.

- (vii) The formula for computing the predetermined manufacturing overhead rate is estimated annual overhead costs divided by an expected annual operating activity, expressed as:
 - (a) direct labor cost
 - (b) direct labor hours
 - (c) machine hours
 - (d) any of the above

- (viii) The advantage of using a predetermined overhead application rate is that:
 - (a) Units produced are charged with a "normal" amount of manufacturing overhead regardless of whether they are produced in a high-volume month or a low-volume month.
 - (b) Overhead costs will be limited to the predetermined amount.
 - (c) Entries need not be made to record actual overhead costs incurred.
 - (d) The unit cost of production will be lower than it would be if actual overhead costs were assigned to units produced.

- (ix) All of the following are advantages of developing a predetermined overhead application rate except:
 - (a) Short-run fluctuations in volume of output are normalized.
 - (b) In a job order system, unit cost can be determined as soon as jobs are completed.
 - (c) The overhead application rate facilitates assigning overhead costs to the ending inventory of work-in-process.
 - (d) Actual overhead will always be less than applied overhead.

- (x) Underapplied overhead at the end of a month:
 - (a) Results when actual overhead costs are less than amounts applied to work-in-process.
 - (b) Indicates a poorly designed cost accounting system.
 - (c) Is represented by a debit balance remaining in the Manufacturing overhead account.
 - (d) Is represented by a credit balance remaining in the Manufacturing overhead account.

- (xi) At the end of the accounting period, applied overhead was larger than actual overhead by a material amount. The overapplied overhead should be:
 - (a) Treated as an extraordinary gain.
 - (b) Closed into Cost of Goods Sold.

- (c) Apportioned among work-in-Process Inventory, Finished Goods Inventory, and Cost of Goods Sold.
 - (d) Ignored; actual overhead is determined only for internal control purposes.
- (xii) On the Schedule of Cost of Goods Manufactured, the final Cost of Goods Manufactured figure:
- (a) represents the amount of cost charged to Work-in-Process during the period.
 - (b) represents the amount transferred from Work-in-Process to Finished Goods during the period.
 - (c) represents the amount of cost placed into production during the period.
 - (d) none of these.
- (xiii) In the Moni Company, the predetermined overhead rate is 80% of direct labor cost. During the month of August, Tk.2,10,000 of factory labor costs are incurred, of which Tk.1,80,000 is direct labor and Tk.30,000 is indirect labor. Actual overhead incurred was Tk.2,00,000. The amount of overhead debited to Work-in-Process Inventory should be:
- (a) Tk.1,20,000
 - (b) Tk.1,44,000
 - (c) Tk.1,68,000
 - (d) Tk.1,60,000
- (xiv) On August 1, Heron Company's Work-in-Process account had a balance of Tk.18,000. During the month, raw materials costing Tk.40,000 were purchased, and raw materials costing Tk.35,00 were placed into production. Direct labor cost for the year was Tk.60,000. The predetermined overhead rate for the year was set at 150% of direct labor cost. Actual overhead costs for the year totaled Tk.92,000. Jobs costing Tk.1,90,000 to manufacture were completed during the year. On August 31, the balance in the Work-in-Process Inventory account would be:
- (a) Tk.13,000
 - (b) Tk.18,000
 - (c) Tk.15,000
 - (d) Tk.8,000
- (xv) In ABC Company, Job No.26 is completed at a cost of Tk.4,500 and later sold for Tk.7,000 cash. A correct entry is:
- (a) Debit Finished Goods Inventory Tk.7,000 and credit Work-in-Process Inventory Tk.7,000.
 - (b) Debit Cost of Goods Sold Tk.7,000 and credit Finished Goods Inventory Tk.7,000.
 - (c) Debit Finished Goods Inventory Tk.4,500 and credit Work-in-Process Inventory Tk.4,500.
 - (d) Debit Accounts Receivable Tk.7,000 and credit Sales Tk.7,000.

(xvi) Milton Company's Manufactory Overhead account showed a Tk.10,000 underapplied overhead balance on December 31.

Other accounts showed the following balance on that date:

Raw materials Tk.50,000

Work-in-Process Tk.40,000

Finished Goods Tk.60,000

Cost of Goods Sold Tk.1,00,000

If the company allocates the underapplied overhead among Cost of Goods Sold and appropriate inventory accounts, the amount allocated to Work-in-Process would be:

(a) Tk.2,000

(b) Tk.4,000

(c) Tk.1,600

(d) Tk.1,800

C. Descriptive Questions:

1. What is a predetermined overhead rate, and how is it computed?
2. What relationships are involved in computing a predetermined overhead rate?
3. Explain the benefits of using a predetermined overhead rate instead of an actual overhead rate.
4. Entries to manufacturing overhead are normally made daily. Do you agree? Explain.
5. Describe one advantage and one disadvantage of prorating overapplied or underapplied overhead.
6. If a company fully allocates all of its overhead costs to jobs, does this guarantee that a profit will be earned for the period?
7. What is the cause of overapplied or underapplied overhead?
8. What adjustment is made for underapplied overhead on the schedule of cost of goods sold? What adjustment is made for overapplied overhead?
9. Briefly describe two ways of closing out overapplied or underapplied overhead at the end of an accounting period.

Answer to SAQs

1. True / False: (i), (ii), (iii), (iv), (v), (vi), (vii), (viii), (ix), (x).

2. Multiple Choice Questions

(i), (ii), (iii), (iv), (v), (vi), (vii), (viii), (ix), (x), (xi), (xii), (xiii), (xiv), (xv), (xvi), (xvii)