FW Tayolr's Scientific Management Its Principles & Its Techniques

1 Mark Questions

1. State the objective of time (All India 2014, 2010; Delhi 2010, 2008)
Ans. The main objective of time study is to determine the standard time required to perform a job.

2. What is determined by fatigue study? (Foreign 2014)
or
State the objective of fatigue study. (All India 2010; Delhi 2008)
Ans. The objective of fatigue study is to maintain the efficiency level of workers by determining the amount and frequency of rest intervals in completing a task.

3. What is the objective of 'method study' as a technique of scientific management? (Delhi 2014)
or
What is the main objetive of 'method study'? (All India 2008)
Ans. The main objective of method study is to find out the best way of doing the job.

4. State any one principle of scientific management. (Delhi 2011)
Ans. Science, not rule of thumb It advocates that there is only one best method to maximise efficiency and this method should substitute rule of thumb throughout the organisation.

5. Name the principle of scientific management which emphasises on study and analysis of methods rather than estimation.
(HOTS; Delhi 2011c)
or
Name the principle of scientific management which suggests the introduction of scientific investigation and analysis.
(HOTS; All India 2011)

Ans. Science, not rule of thumb.

6. State the objective of motion study. (All India 2010,2008; Delhi 2008)
Ans. The objective of motion study is to eliminate unnecessary and wasteful motions so that it takes less time to complete the job efficiently.

7. Which technique of Taylor differentiates between an efficient worker and an inefficient worker? (HOTS; All India 2010)
Ans. Differential piece wage system differentiates between an efficient worker and an inefficient worker

8. Which revolution involves a change in the attitude of workers and management towards one another, from competition to cooperation?(HOTS; Delhi 2010c)
or
What did Taylor want to communicate through mental revolution? (All India 2009; Delhi 2009C)
Ans. Mental revolution involves a change in the attitude of workers and management towards one another, from competition to cooperation.

9. Which technique of Taylor acts as the strongest motivator for a worker to reach standard performance?(HOTS; Delhi 2009c)
Ans. Differential piece wage system.

10. Which technique of Taylor separates planning and execution functions? (HOTS; All India 2009; Delhi 2009C)
Ans. Functional foremanship.

11. Why did Taylor developed the technique of differential piece wage system? (All India 2009; Delhi 2009C)
Ans. Taylor developed the technique to differentiate efficient and inefficient workers and to suitably reward the effecient workers.

12. Which technique of Taylor is the extension of the principle of 'division of work' and 'specialisation'? (HOTS; All India 2009C)
Ans. Functional foremanship.

13. What is the main objective of simplification in scientific management? (Delhi 2008)
Ans. The main objective of simplification is to eliminate unnecessary variety of products or forms.

14. Why do Taylor's techniques of scientific management not applicable to all types of organisations? (All India 2008)
Ans. Taylor's techniques of scientific management are not applicable to all types of organisations because they are more specific in nature and should be applied only in specific conditions.

3 Marks Questions

15. Pawan is working as a Production Manager in CFL Ltd engaged in manufacturing of CFL bulbs. There is no class-conflict between the management and workers. The working conditions are very good. The company is earning huge profits. As a policy matter, management is sharing the gains with the workers because they believe that prosperity of the company cannot exist for a long time without the prosperity of the employees.

- **State the principle of management described in the above para.**
- **Identify any two values which the company wants to communicate to the society. (Compartment 2014)**

Ans. (i) Harmony, not discord The principle advocated by FW Tay or, suggests that there should be no class conflict but there should be complete harmony between the management and the workers. For achieving this, Taylor suggested 'mental revolution'. He also emphasised that management should share the gains with the workers, if any.

(ii) The values which the company wants to communicate to the society are:

- Concern for environment (producing CFL bulbs).
- Concern for human welfare (by providing good working conditions).

16. ABC Ltd is engaged in producing electricity from domestic garbage. There is almost equal division of work and responsibility between workers and management. The management even takes workers into confidence before taking important decisions. All the workers are satisfied as the behaviour of the management is very good.

- **State the principle of management described in the above para.**
- **Identify any two values which the company wants to communicate to the society. (All India 2013)**

Ans. (i) Cooperation, not individualism The principle given by FW Taylor suggests that any form of competition should be replaced by cooperation. He also suggested that there should be an almost equal division of work and responsibility between workers and management.

(ii) The values, which the company wants to communicate to the society are: '

- Concern for environment (producing electricity from domestic garbage).
- Cooperation and team work.

17. Explain 'harmony, not discord' as a principle of scientific management? (Delhi 2013)

Ans. According to this principle, there should be a complete harmony between the management and the workers working in an organisation. To support this, Taylor advocated a complete 'mental revolution', i.e. change in the attitude of both workers and management towards one another, from competition to cooperation. Both should realise the importance of each other.

18. Explain 'Cooperation, not individualism' as a principle of scientific management? (Delhi 2013)

Ans. 'Cooperation, not individualism' is a principle of scientific management which states that there should be complete cooperation between the workers and management in an oganisation instead of individualism and competition. In the absence of constant and willing cooperation between the two sides, maximum prosperity for both the parties cannot be achieved.

19. Name and explain the technique of scientific management which helps in establishing interchangeability of manufactured parts and products. (HOTS; All India 2010; Delhi 2010)

Ans. Stan idisation is the process of setting standards for every business activity process, raw materials, time, product and machinery. Taylor advocated the standardisation of tools, and equipment, cost system and several other items.
The objectives of standardisation are:
(i) To reduce a given line or product to fixed types.
(ii) To establish interchangeability of manufactured parts and products.
(iii) To establish quality standards.
(iv) To establish performance standards of men and machines.

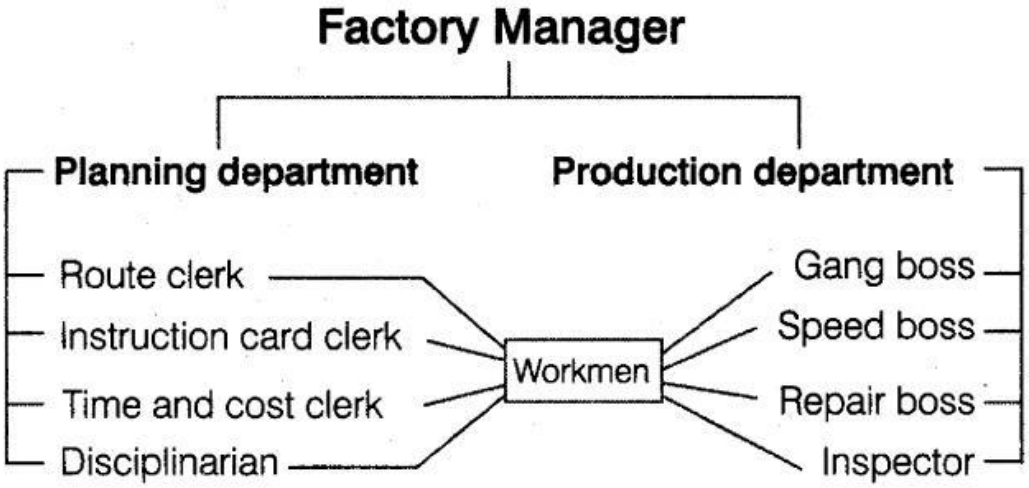
20. Name and explain the technique of scientific management which helps in eliminating unnecessary diversity of products and thus results in saving cost. (HOTS; All India 2010)

Ans. Simplification helps in eliminating unnecessary diversity of products and thus, results in saving cost.
(i) It aims at eliminating superfluous varieties, sizes and dimensions.
(ii) It leads to reduction in wastage of inventories, fuller utilisation of equipment and increased turnover.

4/5 Marks Questions

21. Explain the technique of scientific management, i.e. the extension of principle of division of work and specialisation. (HOTS; Delhi 2012,2009)

Ans. Functional foremanship It is an extension of the principles of division of work and specialisation. The term, functional foremanship means separation of planning from execution. Each worker is supervised by various specialists. For this, Taylor suggested that under the factory manager, there is a planning incharge and a production



Under planning incharge, following four personnel are appointed:
(i) Route clerk (ii) Instruction card clerk
(iii) Time and cost clerk (iv) Disciplinarian
Under production incharge, following four personnel are appointed who are concerned with the execution of the plans:
(i) Gang boss (ii) Speed boss (iii) Repair boss (iv) Inspector

22. Explain that technique of scientific management which is the strongest motivator for a worker to reach standard performance.
(HOTS; All India 2012; Delhi 2009)

Ans. Differential piece wage system is the strongest motivator for a worker to reach standard perforhnance. It is a method of wage payment in which efficient and inefficient workers are paid at different rates. In this method, increase in efficiency is co-related with an increase in the wage rate. That is why, an efficient worker gets more wages whereas, an inefficient worker gets less. Workers are paid on the basis of number of units produced. If a worker produces more than a • certain number of units (standard output), he gets higher wage per piece/units on his total output. If he produces below the standard number, he gets lower rate per piece. Because of different rates of wage for different sets of workers, this is known as differential piece rate plan.

23. Explain any two techniques of Taylor's scientific management. (All India 2011; Delhi 2011)

Ans. Two techniques of Taylor's scientific management are as follows :
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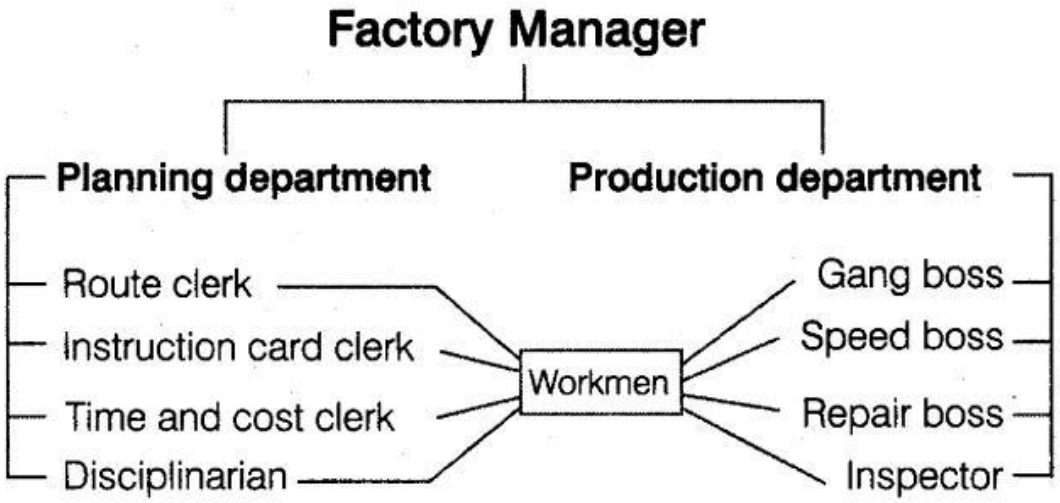

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(ii) Standardisation and simplification Standardisation refers to the process of setting standards for every business activity. It can be standardisation of process, raw material, time, product, machinery, methods or working conditions. These standards are the benchmarks which must be adhered during production.
Simplification aims at eliminating unnecessary varieties, sizes and dimensions of products. It results in saving of cost of labour, machines and tools.

24. Explain the concept of 'functional foremanship' and 'mental revolution' in scientific management as enunciated by 'Taylor'.
(Delhi 201 ic, 2008C)
or
Explain 'differential piece rate' and 'functional foremanship' as techniques of scientific management. (Delhi 2009)

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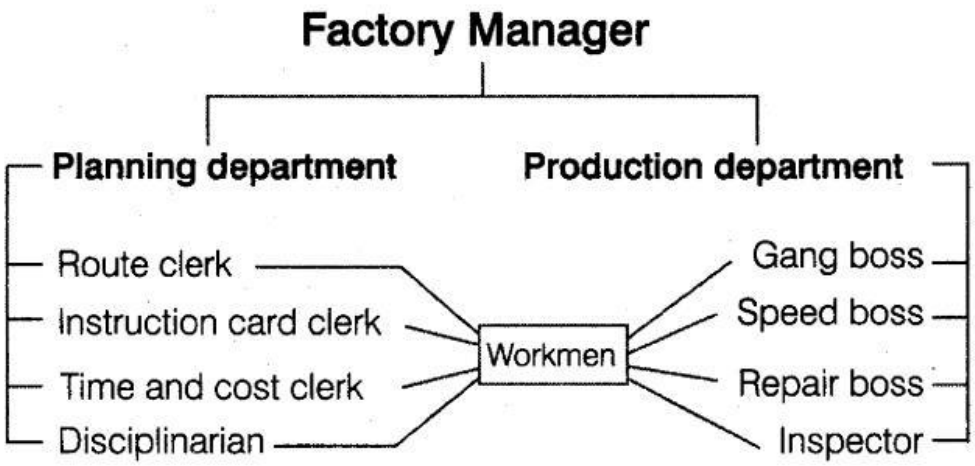

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Mental revolution Mental refers to mind and revolution refers to radical change, therefore, mental revolution refers to a change of mind. According to Taylor, a scientific management, in its essence, involves a complete mental revolution on the part of both sides to industry, viz workers and management.
No scheme of scientific management could be a success, unless and until both these groups fully cooperate with each other through developing and maintaining best friendly relations. This requires a mental revolution on the part of management and workers by giving up an attitude of hostility and enmity towards each other.

Differential piece rate Differential piece wage system is the strongest motivator for a worker to reach standard perforhnance. It is a method of wage payment in which efficient and inefficient workers are paid at different rates. In this method, increase in efficiency is co-related with an increase in the wage rate. That is why, an efficient worker gets more wages whereas, an inefficient worker gets less. Workers are paid on the basis of number of units produced. If a worker produces more than a • certain number of units (standard output), he gets higher wage per piece/units on his total output. If he produces below the standard number, he gets lower rate per piece. Because of different rates of wage for different sets of workers, this is known as differential piece rate plan.

25. Explain any five principles of scientific management.
(All India 2009; Delhi 2009)

Ans. Five principles of scientific management are as follows:
(i) Science, not rule of thumb Taylor has emphasised that in scientific management, organised knowledge should be applied, which will replace the rule of thumb. Scientific

investigations should be used for taking managerial decisions instead of making the decisions on opinions, intuitions, estimates, prejudices, likes and dislikes, etc. Under scientific management, decisions are made on the basis of facts developed by the application of scientific methods.

(ii) Harmony, not discord (Conflict) There should be harmony between the management and the workers. This requires change of mental attitudes of the workers and the management towards each other. Taylor called it mental revolution. Management should share gains of the company with workers.
They should create suitable working conditions and resolve all problems scientifically. Mental revolution on the part of workers requires that they should be disciplined, loyal and sincere in fulfilling the tasks assigned to them. Instead of fighting for dividing surplus or profit, the management and workers should cooperate to increase it.

(iii) Cooperation, not individualism There should be cooperation between workers and management. It is only through cooperation with workmen, the managers can ensure that work is carried out according to plans. Cooperation is based on mutual faith so managers should develop understanding with workers to secure the cooperation.

(iv) Development of each and every person to his/her greatest efficiency and prosperity Industrial efficiency depends upon the efficiency of workers and worker's efficiency depends upon proper training and their proper selection. Taylor suggested that due care should be taken while selecting the employees and after selecting, they must be given job according to their physical, mental and intellectual capabilities. Employees must sent for training from time to time to update their knowledge. This will ensure greatest efficiency and prosperity for both workers and management.

(v) Maximum output in place of restricted output The aim of both management and the workers should be to maximise output. This should be done by both parties in their own/self interest. For management, increased production means more profits and lower cost of production. For workers, increased output may offer attractive wages.
In this way, self interest that implies both management and the workers to achieve maximum output. Maximum output will also be in the interest of the society.

26. Explain any five techniques of scientific management.
(All India 2009)

Ans. The ultimate aim of scientific management is to maximise production at the minimum cost. Scientific management is introduced through the techniques of work study, standardisation, simplification, functional foremanship, etc.
Following are the five techniques of scientific management:

(i) Time study It refers to determine the standard time required to complete a particular activity. The standard time is determined on the basis of average time taken to complete the work. This study is conducted with the help of a stop watch. The main objective of this study is to get the estimated figure of labour cost to determine the number of

required workers and to decide the suitable incentive plan.

(ii) Motion study This is the analysis of physical movements in doing a work. Every work involves various forms of human movements such as lifting, holding, turning, etc. Under motion study, the movement will be analysed to find out easier ways of doing the work and eliminate useless motions.
Following steps are involved in motion study:

- Selection of efficient workers.
- Analysis of the motions involved in a work.
- Finding the minimum time involved in doing a work.
- Keeping record of the best moves and unnecessary/unproductive actions.

(iii) Method study It refers to identifying the most suitable way to do a particular activity. To conduct this study, process chart and operation restarch techniques are used. The main objective of this study is to minimise the cost of production and maximise the quality and level of consumer satisfaction.

(iv) Fatigue study Fatigue in work is natural. When the worker is given continuous work, he will get tired and loose speed and efficiency. He needs rest after working for a few hours. Scientific management studies the nature of work to determine the standard time for finishing the job and to find out when the workers need rest. The nature, time and period of rest are pre-determined. Necessary changes should also be made in the working methods and conditions to reduce fatigue.

(v) Functional foremanship Taylor suggested functional foremanship for better supervision of workers. Under functional foremanship, there are specialist foremen for each job. He classified specialist foremen into two departments, namely planning and production departments. Both the departments have four foremen. The names and functions of these foremen are as follows:

(a) Planning Department

Route clerk Determining the process of production and the route through which the raw materials will pass.

Instruction card clerk Laying down instructions according to which the workers are required to perform work.

Time and cost clerk Setting the tjme table for doing a job as per the pre-determined route and time schedule. He specifies the material and labour cost with respect to each operation.

Shop disciplinarian Maintaining proper discipline in the factory.

(b) Production Department
Gang boss Arranging machines, materials, tools, workers, etc for the job.

Speed boss Maintaining the planned speed of production, investigating the causes for delay and remove them.

Repair boss Maintenance of the machines and equipments, proper arrangements for their oiling, greasing, cleaning and repair, preventing misuse of machines, etc.
Inspectors Seeing that the work confirms to the standard of quality laid down by the planning department.**27. D and D Ltd Co is a large manufacturing unit.**

Recently, the company had conducted the time and motion studies and concluded that on an average, a worker could produce 120 units per day. However, it has been noticed that average daily production of a worker is in the range of 80-90 units.
What steps will you suggest to ensure that the actual performance is in accordance with the performance as per time and motion studies? (HOTS; All India 2008)

Ans. Following steps should be taken to ensure the actual performance is in accordance with the performance as per time and motion studies:
(i) Deciding how much time is normally required to perform a certain job.
(ii) Determining a fair day's work.
(iii) Determining the number of workers to be employed according to the amount of work.
(iv) Study the movements of an operator of a machine involved' in a task with a view to eliminate useless/superfluous movements.