Q.P. CODE: 35907

(Three Hours) **Total Marks: 80**

Instructions:

- *Q. 1 is compulsory.*
- *Attempt any **THREE** questions from the remaining question.*
- *Assume suitable data wherever necessary*
- *Figures to the right indicate full marks.*

Q.1 Write short notes on. **(Any Four).** 20

a. Contributions of Frank Gilbreth

b. Value analysis and its significance

c. Importance of Anatomy in Ergonomics

d. Primary and secondary questions in critical examination

e. Symptoms of poor layout

f. Elements of cost

Q.2 a. Describe the development of Industrial engineering. What is scientific management? Explain the contributions of F. W. Taylor in the development of scientific management. 10

b. What is value analysis? What are its objectives? How does it differ from value engineering? 10

Q.3 a. Define value. State how it can be increased? Describe various types of values. 10

b. Explain the following factors in relation to the selection of job for method study. 10

i) Economic considerations, ii) Human considerations.

Q.4 a. What is work measurement? Enlist various techniques of work measurement and explain PMTS in detail. 10

b. The work study engineer carries out the work sampling study. The following observations were made for the machine shop. Compute the standard time for the job. 10

The duration of study	120 hours
Total number of observations	7000
No. of working activities	1200
Ratio of manual to machine element	2 : 1
Average rating factor	120 %
Total no. of jobs produced during study	800 units
Rest and personal allowances	17 %

Q.5	a.	Define Ergonomics and discuss its scope. Explain ergonomics design considerations in relation to work.	10
	b.	'An effective job evaluation program can help in improving productivity', Explain the statement by using any one method of job evaluation.	10
Q. 6	a.	What is facility location decision? Describe the factors which influence the location decisions while setting up a mall.	10
	b.	A chemical piping system was installed at the cost of Rs.18000. A life of six years estimated with zero salvage value. Depreciation was calculated by straight line method. At the end of four year, it had deteriorated so badly that it was replaced. i)What was the estimated annual depreciation? ii)What was the actual depreciation? iii)What was the sunk cost at the time of replacement?	10

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