ME / Civil / Sem I / CBSGS

MPPC

30/11/15

Q.P. Code : 31771

(3 Hours) **[Total Marks : 80**

Note: **1. Attempt any 4 Questions** **2. All questions carry equal (20) marks**
3. Figures to the right indicate marks **4. Attempt sub questions in order**
5. Assume any data, if required, and state them clearly

1. a) What is the necessity of job evaluation and merit rating systems? [6]
   b) What is meant by "Management By Objectives"? How can it be used for performance appraisal of a Construction Manager? Explain with suitable example. [6]
   c) Write a descriptive note on softwares available for construction project planning? [8]

2. a) Why are incentive schemes created? Elaborate with an example how would you administer an incentive scheme for employees, who are consistently giving better outputs than the rest. [10]

2. b) What is training? What are the objectives of training programmes? How training for construction supervisor and executives is carried out in big projects? [10]

3. a) Explain in details - Project Life Cycle and its aspects related with construction [8]
   b) State the various necessary documentation for major works like Dams, multi-storeyed structures & tunnels. [8]
   c) Differentiate between Resource levelling & Resource smoothening. [4]

4. a) What is Productivity? How productivity can be improved by "Work Study". Explain with the help of suitable example related with construction. [8]
   b) Define "Method Study" and "Work Measurement". What are the techniques involved for "Method Study"? Explain any one in detail. [7]
   c) Find the difference in production rate (8 hrs per day) for tiling work when the standard time is 2 minute 50 seconds and policy allowances are 8% and 10% at site 1 and site 2 respectively. [5]

5. a) The following data refers to time motion study of a dumper loader operation for earth moving activity: [10]

Obs No	Time reqd fo adjustment (sec.)	Time reqd to excavate and fill bucket (sec.)	Time reqd for swing (sec.)	Time reqd for lifting, positioning (sec.)	Time reqd to fill the dumper (sec.)
1	35	50	13	26	144.3
2	14.5	27	10.5	45.5	128.7
3	18.5	42	15.5	86.5	73.4
4	17	41.5	14	59.4	124.5
5	38	20	16.5	34.6	56.7

Based on statistical analysis (measures of dispersion), determine which sub-activity is most efficiently performed and which is least consistently performed. Comment on what may be the possible reasons for the poor performance of the sub-activity. Also apply the factors to obtain standard time for the activity

[TURNOVER

5. b) For the construction of a section of the river portion of the bridge, 3 sand suppliers; viz. Falcon Sand Suppliers, Surve Sand Company and Katmale Traders, supplied sand during the construction. It was observed that, during the last 6 months, Falcon Sand Suppliers had delivered 444 brass of sand, out of which 32 brass was found to be reddish in colour and hence was not used for the intended purpose. Rate at which they supplied sand was Rs. 3700/ brass. Out of the 444 brass received, 410 brass was received as promised.

Surve Sand Company, who furnished with 300 brass, during the same period, charged Rs. 3750/ brass. No defect whatsoever was found in their sand quality, however, due to lack of manpower, they could not supply 120 brass out of the 300 promised on time.

Katmale Traders, who supplied 750 brass, were the lowest price suppliers at Rs. 3675/ brass. However, 42 brass of the total supplied was too coarse than desired and 34 brass was reddish sand, which contained high amounts of salts and minerals, and was not suitable for construction. Katmale Traders were late with 27 deliveries of 2 brass each.

Select a proper rating indices for the above analysis. Which vendor would you select for your project. Justify your decision. [10]

6. You are the materials manager of a very reputed construction company. On a prestigious construction project, your company requires 2 lakh cement bags annually. Cement bag cost including taxes and transportation is Rs. 350/- per bag. Ordering cost is Rs. 15,000/- per order. Inventory carrying cost is 18% of average annual inventory. Overstocking cost may be computed as follows:

Duration of overstock in months	% of Basic unit price
upto 3, inclusive	2
3.1 to 6	2.5
beyond six	4.5

Under-stocking cost may be considered as 5% of the cost of the total cement bags causing the under-stocking.

The monthly consumption of cement is as follows:

Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
8000	12000	16000	20000	24000	32000	26000	22000	16000	12000	8000	4000

Decide suitable order Quantity.

[20]