

IV B.Tech. II Semester Supplementary Examinations, July -2005
CONSTRUCTION MANAGEMENT AND PLANNING
(Civil Engineering)

Time: 3 hours**Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. Construction sector play an important role in the development of a country. Explain this statement.
2. What are the objectives of organization planning in a construction company?
3. (a) What do you mean by 'bar chart'?
 (b) Explain the features which make it a widely accepted tool as well as its limitations.
4. Explain the basic concept of resource management. Support your answer with a flow diagram and an example.
5. A firm has applied to a bank for a short term loan. The loan officer has collected the ratios for for the last two years for the firm and the similar industry averages which are shown below. Write a small report to recommend the loan. Show reasons in your recommendation.

| Financial Ratios | | | | |
|------------------|---------------------------|-------|-------|-------------------|
| | Ratio | 1986 | 1987 | Industry Standard |
| Liquidity | | | | |
| | Current ratio | 1.33 | 1.44 | 1.50 |
| | Acid test ratio | 0.94 | 1.00 | 1.00 |
| | Basic Defensive Interval | 58.92 | 48.35 | 58 days |
| | Receivable turnover ratio | 13.15 | 14.80 | 14.60 times |
| | Average collection period | 27.76 | 24.66 | 25.00 days |
| | Inventory turnover ratio | 10.07 | 10.82 | 10.72 times |
| Leverage | | | | |
| | Debt ratio | 0.54 | 0.53 | 0.49 |
| | Long term debt ratio | 0.22 | 0.26 | 0.24 |
| | Interest coverage ratio | 3.59 | 3.24 | 3.41 |
| Profitability | | | | |
| | Gross profit margin | 0.34 | 0.32 | 0.33 |
| | Net profit margin | 0.019 | 0.016 | 0.017 |
| | Return on total asset | 0.037 | 0.032 | 0.017 |
| | Return on common equity | 0.081 | 0.068 | 0.067 |
| | Operating income margin | 0.050 | 0.044 | 0.045 |

6. The Indian construction industry requires a comprehensive legislation for the safety and welfare of its workmen. Discuss this statement.
7. Write a detailed note on how the working capital policy of a company affects the rate of return on equity.
8. What are the objectives of the Industrial Disputes Act and how does it apply to the construction industry?

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1. What are the differences in the construction projects taken up by private and public sectors? Explain the advantages and disadvantages of each.
2. Write short notes on:
 - (a) Insurance requirements at a construction site.
 - (b) Safety precautions
3. How does the progress report help the project analyst in decision making? What are the methods of analyzing progress? Give the advantages and disadvantages of each.
4. What is inventory control? Why is it important for material management? Explain with sketches the basic principles of inventory control.
5. (a) What do you understand by depreciation in accounting? Why is it an important element?
 (b) Describe any two methods for calculating depreciation.
6. Compute control limits for the following 4 days and state whether the percentage defective falls within the control limits for each day.

| Date | No. of T.V. Components Inspected | No. of defectives |
|---------------|----------------------------------|-------------------|
| Aug. 3, 2002 | 100 | 15 |
| Aug. 8, 2002 | 160 | 14 |
| Aug. 13, 2002 | 200 | 19 |
| Aug. 23, 2002 | 170 | 21 |

7. Draw a flow diagram of cost-benefit analysis and discuss it briefly. Describe its significance.
8. (a) What is the responsibility of the contractor in connection with insurance on the site?
 (b) What is a contract labour? What are the important facilities to be provided to the contract labour?

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1. (a) What are the main objectives of construction management?
 (b) Describe the main approaches to how these objectives can be achieved.
2. What are the different types of supervision required for the progress of work in a construction project and who is responsible for them?
3. A project has the following characteristics:

| Activity | Most optimistic time in weeks | Most likely time in weeks | Most pessimistic time in weeks | Predecessors |
|----------|-------------------------------|---------------------------|--------------------------------|--------------|
| A | 0.5 | 1 | 2 | None |
| B | 1 | 2 | 3 | A |
| C | 1 | 3 | 5 | A |
| D | 3 | 4 | 5 | B |
| E | 2 | 3 | 4 | C |
| F | 3 | 5 | 7 | C |
| G | 4 | 5 | 6 | D,E |
| H | 6 | 7 | 8 | F |
| I | 2 | 4 | 6 | G,H |
| J | 5 | 6 | 8 | G,H |
| K | 1 | 2 | 3 | I |
| L | 3 | 5 | 7 | J |

Construct a PERT network and compute the probability that the project will be completed within 30 weeks.

4. In an out-of-town site, the project manager notices that work is being disrupted for want of fuel. An investigation reveals the following data:
 - a) Fuel is brought to site five times a month.
 - b) Probabilities of fuel usage during reorder period.

The out-of-stock cost of diesel is estimated at Rs.50/- per litre, and carrying cost is Rs.10/- including losses. Estimate the optimum level of safety stock.
5. (a) Does the accounting system reflect all important aspects of a firm?
 (b) Explain why an owner's equity is shown in the liabilities side of the balance sheet of a firm.

| Demand in litres during reorder period | No. of times | Probabilities |
|--|--------------|---------------|
| 150 | 3 | 0.03 |
| 200 | 4 | 0.04 |
| 250 | 6 | 0.06 |
| 300 | 68 | 0.68 |
| 350 | 9 | 0.09 |
| 400 | 7 | 0.07 |
| 450 | 3 | |
| | 100 (Total) | |

6. (a) Why is safety an important consideration on construction work sites?
(b) List the types of legal requirements for safety in the construction industry.
7. List and describe briefly the items to be included in cost analysis for a construction project.
8. (a) How is the risk of a construction labour covered by insurance?
(b) What are the basic provisions of the Employees State Insurance Act?

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1. Construction sector play an important role in the development of a country. Explain this statement.
2. What is the purpose of maintaining a record of costs incurred at the work site and how is it done?
3. (a) Explain PERT and its utility in detail.
(b) Discuss the problems associated with using PERT to schedule activities of uncertain duration.
4. (a) What do you understand by labour productivity and site productivity?
(b) How do non-productive activities affect labour productivity?
5. Describe some of the basic concepts on which accounting systems are based.
6. (a) What is a sampling plan?
(b) List the control charts used in quality control and describe any one in detail.
7. Draw a flow diagram of cost-benefit analysis and discuss it briefly. Describe its significance.
8. (a) What are the rules determining the sum payable to a workman under the Minimum Wages Act?
(b) A contractor was paying the unskilled workers at the rate of Rs.25/- per day and an additional Rs.4/- per day for traveling allowances while the minimum wages as per act were Rs.27/- per day. What is the legal position?
