| Reg. No. | | | | | | | | | | |
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# MANIPAL INSTITUTE OF TECHNOLOGY
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## VI SEMESTER B.TECH. (CIVIL ENGINEERING)
## END SEMESTER EXAMINATIONS, APRIL/MAY 2017
## SUBJECT: RESOURCE MANAGEMENT [CIE 4004]
### REVISED CREDIT SYSTEM

**(29/04/2017)**

Time: 3 Hours MAX. MARKS: 50

**Instructions to Candidates:**

- Answer **ALL** the questions.
- Missing data may be suitable assumed.

**1A.** List the various integrated material management functions to be performed in *planning*, *purchase* and *inventory management* area. Explain how each of these functions are optimized to call it as an integrated material management. **04**

**1B.** Conduct ABC analysis for the following items and plot the result on graph. Also, suggest the monitor and control policy for each type of Item based on the results. **06**

| Material code | Unit Price ($x10^3$INR) | Quantity consumed for project ($x\ 10^3$) |
|---|---|---|
| CM 001 | 0.01 | 50 |
| CM 002 | 1 | 80 |
| CM 003 | 0.002 | 20 |
| CM 004 | 32 | 1 |
| CM 005 | 20 | 10 |
| CM 006 | 0.01 | 5 |
| CM 007 | 0.05 | 10 |
| CM 008 | 0.15 | 1 |
| CM 009 | 0.001 | 70 |
| CM 010 | 0.3 | 15 |

**2A.** Emphasize the importance of i) Inventory management ii) Selective control. **03**

**2B.** A time series data for two years is tabulated below for a construction material. Suggest a price forecasting technique between moving average with N=3 and exponential smoothening with N=3 and $\alpha$=0.1 **07**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Year-1** | 613 | 712 | 645 | 602 | 800 | 708 | 737 | 651 | 669 | 754 | 780 | 636 |
| **Year-2** | 679 | 672 | 610 | 723 | 798 | 747 | 720 | 670 | 758 | 732 | 706 | 655 |

**3A.** With the help of relevant figures, list distribution types of histogram **03**

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**3B.** Compute the total cost of the steel bar for the entire project period using conservative and hindsight strategy for monthly requirement of 250 units and optimal storage capacity of 2 months requirements. Comment on the results obtained. **07**

| Month | Price | Month | Price |
|---|---|---|---|
| 1 | 15350 | 13 | 15400 |
| 2 | 15500 | 14 | 15300 |
| 3 | 15900 | 15 | 15200 |
| 4 | 16150 | 16 | 15000 |
| 5 | 15900 | 17 | 15750 |
| 6 | 16300 | 18 | 16500 |
| 7 | 16900 | 19 | 17000 |
| 8 | 17100 | 20 | 17000 |
| 9 | 15900 | 21 | 16900 |
| 10 | 15400 | 22 | 16700 |
| 11 | 16200 | 23 | 16800 |
| 12 | 15700 | 24 | 16900 |

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**4A.** Explain Deming cycle of TQM implementation. **03**

**4B.** Evaluate the profitability of the following equipment types (A and B) using Internal Rate of Return method r = 6% and 5%. Take salvage value at 5% of capital investment for both equipment. Comment on the results obtained. **07**

| **Capital Investment in Lakhs of INR** | | **GAR in Lakhs of INR** | | **ADED in Lakhs of INR** | | **Economic life** | |
|---|---|---|---|---|---|---|---|
| | | **A** | **B** | **A** | **B** | **A** | **B** |
| **A** | **B** | 40 | 28 | 25 | 13 | 8 | 5 |
| | | 41 | 29 | 23 | 14 | | |
| | | 39 | 27 | 25 | 13 | | |
| | | 38 | 30 | 25 | 14 | | |
| 85 | 68 | 40 | 27 | 24 | 14 | | |
| | | 38.5 | | 22 | | | |
| | | 39.5 | | 23 | | | |
| | | 37 | | 22 | | | |

**5A.** What are the benefits of implementing TQM philosophy against not implementing? Explain any five dimensions of quality. **05**

**5B.** How quality assurance is different from quality control? Explain the activities that are performed in quality assurance system. **05**