| 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 2018**

SUBJECT: RESOURCE MANAGEMENT [CIE 4004]

**REVISED CREDIT SYSTEM**
**( / / 2019)**

Time: 3 Hours MAX. MARKS: 50

**Instructions to Candidates:**

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

**1A.** (M: 2+3, CO: 1)

Discuss how the concept of materials management is different in construction industry from manufacturing industry. Explain how the 'integrated' approach addresses the issues of 'constraints' and 'freedoms' in contrast to classical approach?

**1B.** (M: 5, CO: 2)

Perform ABC analysis on the following data.

| Item. No | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Unit Price (×100 ₹) | 0.14 | 0.20 | 0.02 | 0.37 | 7.33 | 0.05 | 0.07 | 1.27 | 0.05 | 0.07 |
| Quantity Consumed Annually | 4704 | 3804 | 30372 | 20052 | 20040 | 77700 | 78864 | 764 | 61968 | 60300 |

**2A.** (M: 4, CO: 3)

Forecast the prices for the Year-2 using linear regression technique for the following time series data. Calculate the deviation index.

| Month | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Year-1 | 321 | 354 | 370 | 356 | 322 | 323 | 316 | 367 | 337 | 360 |
| Year-2 | 317 | 331 | 344 | 352 | 310 | 362 | 325 | 329 | 347 | 323 |

**2B.** (M: 1+5, CO: 2)

Define work breakdown structure. Give an Illustration for a multi-storey residential building project.

**3A.** (M: 6, CO: 3)

Develop a purchase strategy using hindsight approach. Monthly requirement is 10 units and maximum inventory capacity is three months' requirement.

| Month | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Price | 385 | 425 | 444 | 427 | 386 | 388 | 379 | 440 | 404 | 432 | 385 | 530 |
| Month | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
| Price | 380 | 397 | 413 | 422 | 372 | 434 | 390 | 395 | 416 | 388 | 426 | 446 |

**3B.** (M: 4, CO: 3)

A construction firm is planning an investing on capital purchase of ₹ 100 lakhs. Average annual returns expected out of the purchase is ₹ 18.5 lakhs and average annual expenditure on equipment is ₹ 3.35 lakhs. Taking service life of 8 years and expected salvage value at 10% on the initial investment, perform an economic analysis using

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| | Internal Rate of Returns method with r=5.5 **%** and 6.5 %. Give your comments. | | |
| **4A.** | With relevant sketch, explain the 'economics of quality of conformance'. | **5** | **4** |
| **4B.** | Explain any five barriers to implementing total quality management. | **5** | **4** |
| **5A.** | What is a cause-and-effect diagram? With the help of a neat sketch, explain its structure. How does this help in solving problems? | **4** | **5** |
| **5B.** | Draw the relationship matrix for 'house of quality'. List the steps in building the 'house of quality'. | **1+2** | **5** |
| **5C.** | Draw and label different types of histogram. | **3** | **5** |