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MANIPAL INSTITUTE OF TECHNOLOGY
MANIPAL
(A constituent unit of MAHE, Manipal)

II SEMESTER M.TECH. (PRINTING AND MEDIA TECHNOLOGY)

END SEMESTER EXAMINATIONS, APRIL 2018

PE - I PRINT PRODUCTION AND BUSINESS MANAGEMENT

[PME 5238]

REVISED CREDIT SYSTEM
(23/04/2018)

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

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

1A. What is meant by needs assessment? Explain with an example related to Print or Media industry.

1B. A digital printing unit started textile printing two years ago. Low inventory turnover is squeezing profit margins and causing cash-flow problems. One of the top-selling items is the T-shirt. Sales are 100 units per week and supplier charges Rs. 150 per unit. The cost of placing an order with the supplier is Rs. 55. An annual holding cost is 20 % of the unit cost and the shop operates 52 weeks per year. Management chose a 400 unit lot size so that new orders could be placed less frequently.

1. What is the annual cost of the current policy of using a 400 - unit lot size?
2. Calculate EOQ
3. How frequently will the order be placed?

1C. How can TOC be applied to printing industry? Explain briefly with different steps involved in TOC.

[03 + 03 + 04]

2A. Briefly explain any four ways by which the companies can respond to the need for flexibility.

2B. Which are the strategic issues to be considered during layout preparation? Briefly explain.

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2C. Explain different types of operations management decisions.

[02 + 04 + 04]

3A. Briefly explain any one type of qualitative forecasting technique.

3B. A retailer must decide whether to build a small or a large facility at a new location. Demand can either be small or large, with the probabilities estimated to be 0.4 and 0.6 respectively. If a small facility is built and demand is high, the manager may choose not to expand (payoff = $223,000) or expand (payoff = $270,000). However, if demand is low, there is no reason to expand (payoff = $200,000). If a large facility is built and demand is low, the retailer can do nothing (Payoff = $40,000) or stimulate demand by advertising. Advertising is estimated to have a 0.3 chance of a modest response ($20,000) and a 0.7 chance of a large response (Payoff = $220,000). If a large facility is built and demand is high, the payoff is $800,000.

Construct a Decision Tree for the above scenario.

3C. Student tuition fee at MA university is Rs. 10,000 per semester course (3 credit hour). The state supplements school fee by matching tuition fee. Average class size for a typical three-credit course is 50 students. Labour costs are Rs. 3000 per class, materials cost are Rs. 20 per student per class and overhead costs are Rs. 25,000 per class.

a. Find multifactor productivity ratio.

b. If an instructor works an average of 14 hours per week for 16 weeks for each three-credit class of 50 students, what is labour productivity ratio?

[02 + 04 + 04]

4A. Briefly explain with an example of the application of ABC Prioritization in the printing industry.

4B. A hospital is considering a new procedure to be offered, billed at $200 per patient. The fixed cost per year is $100,000, with variable costs at $100 per patient. How many patients do they need to cover their costs? Give both numerical and graphical solution.

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4C. The monthly demand for offset blanket, manufactured by M/s Raj Blanket is given below. Calculate the absolute percentage error for each month from June through December and the MAD and MAPE of forecast error as of the end of December.

Month	**Units**	**Month**	**Units**
May	100	September	105
June	80	October	110
July	110	November	125
August	115	December	120

[02 + 04 + 04]

5A. With an example related to print industry, give the application of Linear programming.

5B. How are Gantt workstation and progress chart applicable to printing or media industry? Illustrate with a suitable example for both.

5C. The manager of the M/s Royal Bookbinders, need a quarterly forecast of the number of customers expected next year. The book binding business is seasonal, with a peak in the third quarter and a trough in the first quarter. The manager wants to forecast customer demand for each quarter of year 5.

Following are the quarterly demand data from the past four years.

Quarter	Year1	Year2	Year3	Year4
1	45	70	100	100
2	335	370	585	725
3	520	590	830	1160
4	100	170	285	215
Total	1000	1200	1800	2,200

[02 + 04 + 04]