Ref. No.: Ex/PROD/HS/B/T/321/2025

**B.E. PRODUCTION ENGINEERING THIRD YEAR SECOND SEMESTER EXAM – 2025**
**Subject: PRODUCTION ECONOMICS & FINANCIAL MANAGEMENT**
**Time: Three Hours** **Full Marks: 100**

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**Answer any Five Questions**

1. (a) Explain the law of diminishing marginal returns and provide an example of this phenomenon.
(b) What is MRP in Production Economics? Elaborate the significance of this MRP.
Explain total product functions with respect to Production Surface.

(10 + 5 + 5)

2. (a) Explain the Production Isoquant and Production Isocosts with suitable (graphical) sketch in detail.
(b) The production function for Excel Ltd. is $Q = 20K^{0.5}L^{0.5}$ where marginal product functions are dQ/dL & dQ/dk. Capital stock fixed at 16 units. If the price of output (P) is Rs. 600 per unit, and the wage rate (w) is Rs. 200 per unit, determine the optimal or profit maximizing rate of labor to be hired. What labor rate is optimal if the wage rate increased to Rs. 300 per unit?

(10 + 10)

3. (a) Explain the Risk-return trade-off.
(b) Elaborate the agency problem.
(c) Compare the various business forms briefly.

(5 + 5 + 10)

4. (a) How does discounting and compounding help in determining the sinking fund and capital recovery? Derive the sinking fund factor (SFF).
(b) SB Limited is planning to create a sinking fund to retire its Rs. 800,000/- preference share capital that matures on 31 May 2018. The company plans to put a fixed amount into the fund at the end of each year for eight years. The first payment will be made on 31 May 2011 and the last on 31 May 2018. The company expects that the fund will earn 12 per cent a year. What annual contribution must be made to accumulate to Rs. 800,000/- as of 31 May 2018? What would be your answer if the annual contribution is made in the beginning of the year, the first payment being made on 31 May 2010?

(10 + 10)

5. (a) Outline the circular flow of economic activity. Derive the suitable value factor for the problem given below and use the same to solve it (5.b).
(b) Which alternative would you choose: (*a*) an annuity of Rs. 5,000 at the end of each year for 30 years; (*b*) an annuity of Rs. 6,600 at the end of each year for 20 years; (*c*) Rs. 50,000, in cash right now? In each case, the time value of money is 10 per cent.

(10 + 10)

6. (a) What is a "Balance Sheet"? How the balance sheet differs from "Profit and Loss" account?
(b) "In secondary market, existing securities are bought and sold. Transactions in these Already existing securities do not provide additional funds to finance capital investment" – Explain.
(c) What is "Ratio Analysis" for financial analysis? Highlight the utility of ratio analysis

(5 + 8 + 7)

7. Write the short notes on the following (Any Five):
(a)Operating Risks (b) CSR (c) Different Preference Shares (d) Risk-Return Trade-off (e) Dividend Growth Model (f) IRR (g) EIR

(5 × 4)

END