

**B.E. PRODUCTION ENGINEERING THIRD YEAR SECOND SEMESTER EXAM – 2024****Subject: PRODUCTION ECONOMICS & FINANCIAL MANAGEMENT****Time: Three Hours****Full Marks: 100****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) Trading securities in Secondary Market adds no new funds to the original issuers – Explain.  
(b) List the Financial Instruments with their respective features.  
(10 + 10)
4. (a) Differentiate nominal interest rate and effective interest rate. How will you formulate Effective Interest Rate (EIR)? What is NPV of a financial decision?  
(b) The XYZ bank pays 12 percent interest and compounds interest quarterly. If one puts Rs. 1,000 initially into a savings account, how much will it have grown in 7.5 years? If the bank compounds monthly, how much will it have grown in 7.5 years?  
(c) Illustrate the concept of internal rate of return.  
(6 + 8 + 6)
5. (a) What is Annuity Due? Derive the compound value factor for annuity (CVFA). Derive the Compound Value Factor (CVF).  
(b) Suppose, you want to get Rs. 100,000 in cash after nine years. You want to know two things:  
(i) If you decide to make annual payments into a fund after one year, how much will each have to be if the fund pays 8 per cent? (ii) If you decide to invest a lump sum in the account after one year and let it compound annually, how much will the lump sum be? (iii) If in (i) the payments are made in the beginning of the year, how much will be the value of annuity?  
(10 + 10)
6. (a) Show the organization of the financial management functions.  
(b) What is a "Balance Sheet"? How the balance sheet differs from "Profit and Loss" account?  
(b) What is "Ratio Analysis" for financial analysis? What are the types of Ratios? Explain.  
(5 + 10 + 5)
7. Write the short notes on the following (Any Five):  
(a) Substitutability, returns to scale & returns to a factor (b) Capital Budgeting (c) Forms of business organizations (d) Book Building (e) agency problem (f) Operating & Non-operating Revenues and Expenses (g) Financial Markets.  
(5 × 4)

END