MECHANICAL ENGINEERING DEPARTMENT

MAJOR TEST QUESTION PAPER

Subject : Value Engineering and LCC: MCL - 771

Attempt all questions **Time allowed : 2 hours** **Max Marks : 40**

Q 1. a) What are the different criteria of directional search for cost reduction and value improvement in a Value Analysis project? Explain.

b) What is the role of utility transformation functions in decision matrix? What functions would you propose for the following attributes and why :

i) Cost

ii) Product appearance 4+4 = 8 marks

Q 2. Differentiate between :

a) Investigation Phase **and** Evaluation Phase
b) False savings **and** Real savings
c) Cut - off point **and** Break - even point
d) Creative thinking **and** Creative judgment 8 marks

Q 3. Consider the following before-tax-cash-flow (BTCF) for a proposal:

year	BTCF (Rs)
0	-2,00,000
1 to 3 (each)	60,000
3 (salvage value)	40,000

The corporate income tax rate is 50%. What is the after-tax internal-rate-of-return (ATIRR) for this proposal if SYD method of depreciation is used. Assume that losses are carried forward to subsequent years.

8 marks

Q 4. A machining center requires an initial investment of Rs 10 lakhs and its salvage value at the end of 10 years' life is expected to be Rs one lakh. If the minimum acceptable rate of return after tax is 15%, what should be the annual profit from the machining center? Assume that incremental tax rate is 50%.
Use declining balance method of depreciation. 8 marks

Please turn over