ADDIS COLLEGE

COTM 6301: Construction Economics and Financial Management

First Semester 2019/20 (2012 E.C) Date April…. 2020

Group 4 Final Examination

Note: ***Exam is Open book***

Attempt all questions

Date of Submission ……

1. Why is it necessary that the debt ratio for a company be low? Explain the concept and give examples. What is the recommended amount?
2. An engineer is planning for a 15-year retirement. In order to supplement his pension and offset the anticipated effects of inflation, he intends to withdraw $5000 at the end of the first year, and to increase the withdrawal by $1000 at the end of each successive year. How much money must the engineer have in his savings account at the start of his retirement, if money earns 6% per year, compounded annually?
3. A Company is building a new plant, whose equipment maintenance costs are expected to be $500 the first year, $150 the second year, $200 the third year, $250 the fourth year, etc., increasing by $50 per year through the 10th year. The plant is expected to have a 10-year life. Assuming the interest rate is 8O%, compounded annually, how much should the company plan to set aside now in order to pay for the maintenance?
4. A construction subcontractor is considering the purchase of a new machine that will last 5 years and cost $50 000; maintenance will cost $6000 the first year, decreasing by $1000 each year to $2000 the fifth year. If the interest rate is 8% per year, compounded annually, how much money should the company set aside for this machine?
5. A new factory is to be established to produce reinforcement bars for the construction industry. This will require an initial investment of $10 million. It is expected that after three years of operation an additional investment of $5 million will be required; and after six years of operation, another investment of $3 million. Annual operating costs will be $3 million and annual revenues will be $8 million. The life of the plant is 10 years. If the interest rate is 15% per year, compounded annually,

a. what is the NPV of this plant?
b. Is it a worthy investment? Why?