CEL 464		CONSTRUCTION AND CONTRACT MANAGEMENT	MINOR I	
Time allowed	1 hour		Maximum Marks	25
Venue	VI 301		Date	28.08.2014

ASSUME MISSING DATA SUITABLY IF REQUIRED.

Q1 A contractor has a contract to construct a 3,600 metre long tunnel in 30 months. He is trying to decide whether to do the job with his own forces or subcontract the job. You are to calculate the equivalent monthly cost under each alternative. His i = 1.00 % percent per month. Production under both alternatives will be 120 m per month. *8*

Alternative A: Buy a tunneling machine and work with own force.

a) Cost of tunneling machine = Rs 20 million
b) Salvage value of machine at end of month 30 = Rs 8 million
c) Cost of labour and material = Rs 10,000/m for the first 10 months, Rs. 11,000/m for month 11 to 20, and Rs. 12,000/m for month 21 to 30.

Alternative B: Subcontract the work. Cost is Rs 16,000 per metre of tunnel.

Q2 An asset having a first cost of Rs. 11,50,000 is expected to have a life of 12 years with a salvage value of Rs. 100,000. In what year does the depreciation by the straight line method first exceed the depreciation charge allowed by the double declining balance method? Show your calculations for both methods from the switchover year and also clearly indicate the switch over year. *4*

Q3 In a project, a contractor needs an earth-excavating equipment, which he has the option of buying from manufacturer M/s XYZ Equipment, M/s EFG Equipment, or M/s ABC Equipment. M/s XYZ makes it under brand name A and M/s EFG under brand name B and M/s ABC under Brand name C. For your convenience, assume that technically, there is no difference among them, and the decision has to be based purely on financial considerations. Some of the information that may be required in order to be able to make the decision is summarized in the following table *8*

Analyse and recommend which equipment you are going to buy. You can assume a minimum rate of return of 15 per cent per annum.

Table: Data for question 3

Item	A	B	C
Cost of new equipment	Rs 500,000	Rs 400,000	Rs. 600,000
Service life (years)	6	6	6
Salvage value at the end of year 6	Rs 200,000	Rs 150,000	250,000
Annual operating disbursement consisting of operating and maintenance costs	Rs 250,000	Rs 275,000	225,000

Assume tax rate 50% and Straight line method of depreciation. All expenses are admissible for tax benefits.

Q4 Explain briefly (in 2-3 sentences): *5*

(a) Mobilisation advance, (b) Liquidated Damage,(c)Front end loading, (d)Defect Liability Period, and (e) Retention money

Relevant formula

$$(P/F, i, n) = \frac{1}{(1+i)^n}$$

$$(P/A, i, n) = \frac{(1+i)^n - 1}{i \times (1+i)^n}$$