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WS March 08 254

Con. 3426-08.

K.E. (CIVIL) VI (REV)
Construction Engg.

(REVISED COURSE)

(3 Hours)

9/6/08

CO-3277

[Total Marks : 100

MASRAN

N.B. : (1) Question No. 1 is **compulsory**.
(2) Attempt any **four** out of remaining **six** questions.

1. (a) A 1km long tunnel with 40 sq.m c/s area is required for a highway. Explain the 'heading and benching' method of tunnelling, discussing the process of excavation, equipments needed and the procedure of muck removal. 12
(b) Discuss different methods of under water concreting. 8
2. (a) Suggest suitable machinery for the following works. Justify the use of each equipment. 12
(i) 5 km long cement concrete road construction.
(ii) Construction of a 500m span flyover bridge using precast girders.
(iii) Concreting for a high rise building-30 storeyed.
(b) What is meant by lining of a tunnel ? Discuss different methods of lining. 8
3. (a) Determine the probable cost of owning and operating an equipment purchased for Rs. 50 lakhs. It has a useful life of 15000 hrs. Salvage value is estimated at 10% of the purchase cost. The equipment is powered by a 150 bhp diesel engine. The equipment works for 1500 hrs in a year. The operating factor is 0.75. The maintenance and repairs cost is estimated at 80% of depreciation. The operators salary is Rs. 12000/- per month. 12
(b) Discuss different excavating equipment, with their suitability. 8
4. (a) What is a cofferdam ? Discuss different types of cofferdams. 10
(b) What is vacuum concrete ? Explain step by step method of vacuum concreting. 10
5. (a) Discuss cast in situ pile construction by auger boring. 10
(b) Draw neat sketches for : 10
(i) Sand drains
(ii) Diphragm wall construction.
6. (a) Discuss different cost compacting equipment, stating operations and suitability. 10
(b) Explain liner plate method of tunneling in soft soils. 10
7. Write short notes on : (any four) 20
(a) Grouting and its applications
(b) Tunnel boring machine
(c) Cranes
(d) Selection of construction equipment
(e) Depreciation.