BE – Sem – VII – CBSGS – Civil – QSEV

19/5/1

(Revised Course)

(4 Hours)

[Total Marks : 80

NB: 1) Question No.01 is compulsory.
2) Out of remaining questions, attempt any three questions.
3) In all four questions to be attempted.
4) All questions carry equal marks.
5) Answer to each new question to be started on a fresh page.
6) Figures in brackets on the right hand side indicate full marks.
7) Assume Suitable data if necessary.

Q.1 1) Work out the quantities of below mentioned items of work from given plan and section provided in fig (1) .
    (a) 1ST Class BW in cement mortar 1:3 in foundation up to plinth   05
    (b) External plastering , 20 mm thick in C.M (1:2) (including plinth steps)   05
    (c) 150 mm thick DPC in cement concrete 1:1.5:3   05
    (d) R.C.C M 25 grade in slab, lintels and plinth steps.   05

Q.2 (a) Perform rate analysis for internal plastering 15 mm thick in cement mortar 1:4 including scaffolding.   06
   b)   Prepare the abstract sheet for quantities calculated in question number 1.   06
   (b)   Enumerate the different types of specifications for items of construction work? Write the detailed specification for External plastering , 20 mm thick in C.M (1:4).   08

Q.3 (a) Prepare approximate estimate for G+6 R.C.C residential building consisting of four flats per floor and each flat has a carpet area of 80 sq mt. Assume area occupied by walls and columns etc as 8.5 % of built up area and area of circulation as 25% of built up area. Assume cost of construction of superstructure as Rs 10,000/- per sq mt. Assume suitable percentages for services, contingencies and work establishment charges.   08
   (b)   What is an unbalanced tender? Explain BOT contract type? Explain void and voidable contract? What are the essentials of a valid contract?   12

Q.4 (a) Draft a tender inviting notice for civil works of construction of flyover over express highway for an estimated amount of Rs 180 crores and project duration of 15 months.   08
   (b)   Work out the Earthwork quantities in embankment and cutting for the chainage length of 600 mtrs.   12
    The particulars are:
    Formation width = 20mts. Side slopes:= in embankment:= 2:1 (H:V) & in cutting : = 1.5:1 ((H:V)
    There is no transverse slope.
    Rising gradient of 1 : 250 upto 250 mt chainage
    Rising gradient of 1 : 100 upto 600 mt chainage

TURN OVER

Meters Chainage	0	50	100	150	200	250	300
R.L of ground	152.0	152.35	152.6	152.80	153.0	152.65	152.2
R. L of Formation		151.6					

Meters Chainage	350	400	450	500	550	600
R.L of ground	151.50	151.20	150.55	150.35	150.50	150.75
R. L of Formation					155.40	

Estimate the cost of earthwork by considering existing District Schedule Rates.

Q.5 (a) Work out the quantity of steel in a 7.0 meter long simply supported beam of size   08
350 x 600 mm overall. Bottom bar: 4 – 12 mm diameter straight bars. Anchor
bar: 2 – 12mm diameter straight bars, stirrups 10mm diameter @ 250 mm c/c
throughout the length of the beam. Clear cover as 25 mm on all sides. Refer fig 2.

(b) Explain the following   12
1) Liquidated damages for delay and un liquidated damages
2) Price escalation/ variation clause
3) Contingencies and work establishment charges
4) Security deposit and Earnest money deposit

Q.6 (a) A building newly constructed including services costs Rs 20 lacs over a plot of   08
land costing Rs 7 lacs.
Workout monthly standard rent per flat from the following data:-
1) Expected net return from building at 8.5 %
2) Expected net return from land at 5 %
3) Rate of interest on sinking fund: 4 %
4) Design life of building : 80 years
5) Salvage value: 10% of the cost of building
6) Annual repairs and maintenance: ½ % of building cost
7) Taxes and other outgoings: 28.5 % of gross rent

(b) Write short notes on the following (any four)   12
i) Specify the rules for deduction for openings as per IS 1200 for items of work as
plastering to walls.
ii) Explain lease hold property and free hold property.
iii) Arbitration and Conciliation Act 1996.
iv) Belting Method of valuation
v) CBRI method of approximate estimate

TURN OVER

2 – 12mm

Clear cover 25 mm

4 – 12 mm

10mm diameter @

250 mm c/c

7.0 meters

Fig 2

8.10

Section of a wall

0.15

R.C Slab

3.0

0.3

DPC

P

G

0.4

0.5

0.6

Conc.
6:18

0.3 0.4 0.4

0.9

6.0

Room 1
3.60 x 3.0

Room 2
3.60 x 3.0

W

D

D

D

Room 3

2.40

W

3.60

1.8

W1

Steps

All walls   30cm
D   1.20 x 2.10m
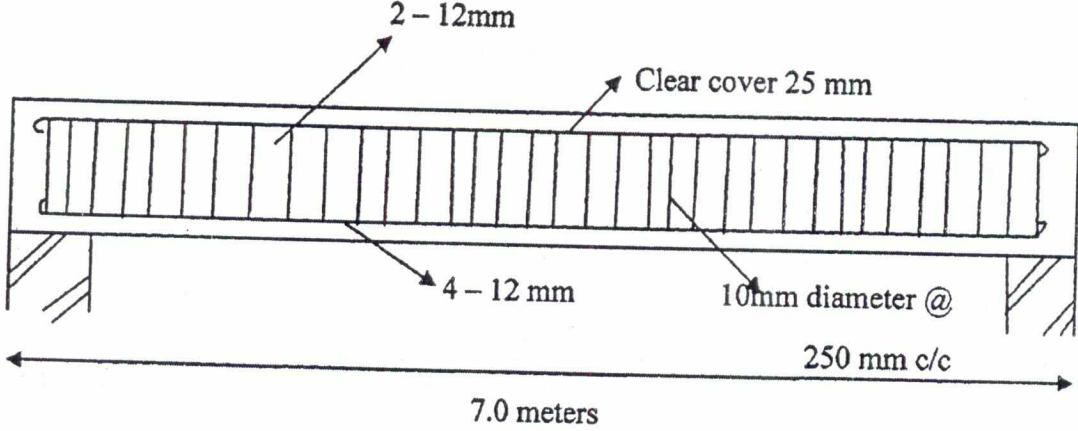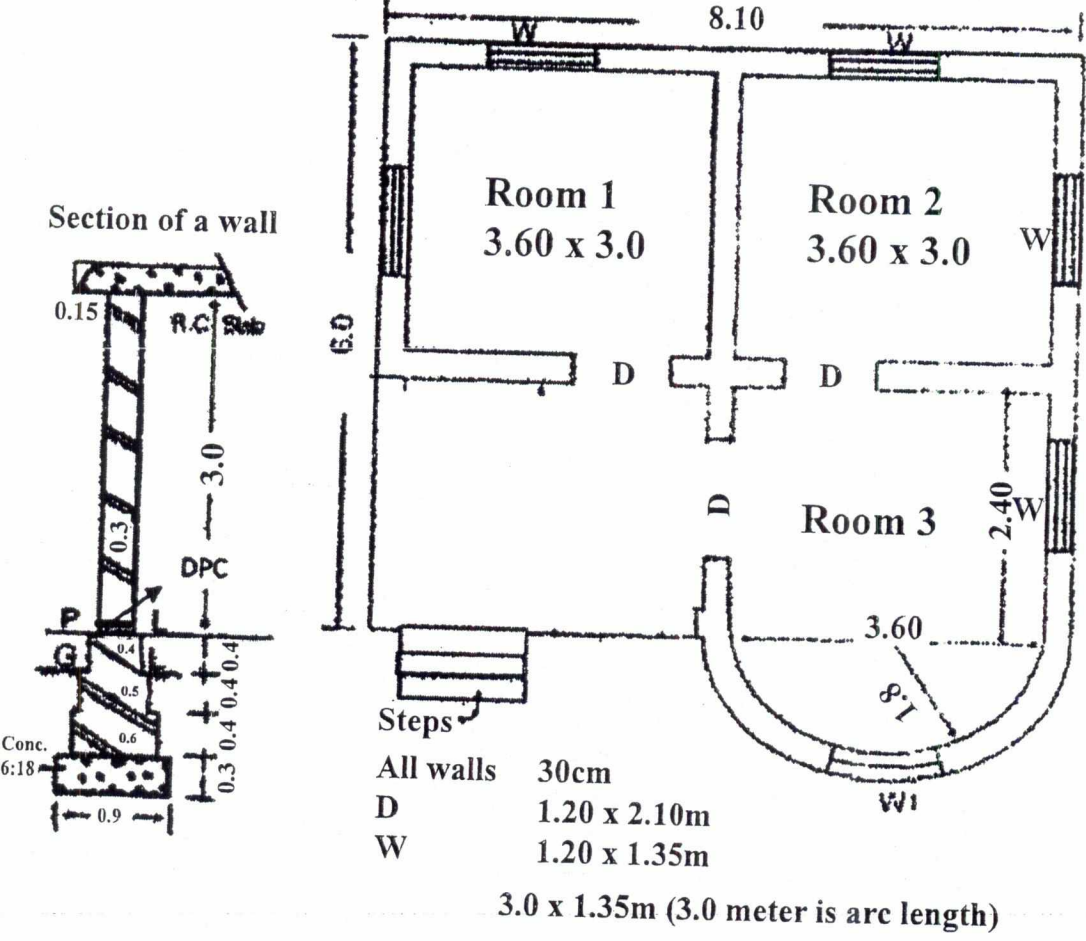W   1.20 x 1.35m

3.0 x 1.35m (3.0 meter is arc length)

TURN OVER

All dimensions are in meters in plan and section

No chajia is provided

Riser for plinth steps: 10 cm

Tread for plinth steps: 30 cm

Lintel bearing: 15cms on the load bearing walls

DPC is 100 mm thick

RCC slab is 100 mm thick

RCC slab projection beyond wall edge is 150 mm

Width of plinth steps is 1.5 meters

Lintel thickness is 150 mm

(Fig 1)

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T4327 / T1252 IRRIGATION ENGINEERING

Q.P.Code:13407

(3 hours)

Max.Marks: 80

Note: (1) Question no.1 is compulsory
       (2) Solve any 3 questions out of remaining
       (3) Assume data wherever necessary and clearly mention the assumptions made.
       (4) Draw neat figures as required.

Q1	Answer any four out of the following	20
a	Write a short note on Techniques of water distribution to the farm	05
b	What are the factors affecting duty? How can duty be improved.	05
c	What do you understand by precipitation? Explain various types of precipitation.	05
d	Define the terms Aquifer, Aquiclude, Aquifuge , Aquitard and Perched aquifer	05
e	What are the factors on which the selection of site of reservoir depends?	05
f	Discuss the various forces acting on gravity dam.	05

Q2 a Explain the different types of Irrigation efficiencies in detail 06

b A water course has CCA of 1200 ha. The intensity of irrigation fro crop A is 40% and for crop B is 35 %, both the crops being Rabbi crops. Crop A has kor period of 20 days and crop B has kor period of 15 days. Calculate the discharge of water course if the kor depth for Crop A is 10 cm and for crop B is 16 cm 07

c What is Hydrograph and Unit Hydrograph? Draw a single peaked hydrograph and explain its components 07

Q3 a What is Runoff? What are the factors affecting runoff and methods of calculation of runoff 10

b The ordinates of a 3 hr unit hydrograph are given below: 10

Time (hr)	0	3	6	9	12	15	18	21	24	27	30
Ordinates (m³/s)	0	10	25	20	16	12	9	7	5	3	0

Find the ordinates of 6 hr unit hydrograph for the same basin, analytically. Also sketch this unit hydrograph. What is the peak value of discharge in this unit hydrograph.

Q4 a Explain the Recuperation test in detail with neat sketch. 10
b Derive an expression for discharge from a well fully penetrating an confined aquifer. 10

Q5 a Explain the various types of reservoirs. what do you understand by multipurpose reservoir 08
b Write a note on stability requirement of gravity dam 08
C Discuss advantages and disadvantages of buttress dam 04

Q6 a What are the causes of failure of earthen dam 10
b Write a short note on following: 10
   1. Cross Drainage Works.
   2. Canal lining

(3 Hours)   [Total Marks: 80]

N. B.   i. Q. No. 1 is compulsory

ii. Attempt any 3 out of remaining 5 question.

iii. Draw the sketches if necessary.

Q1   Answer the following   (20)

A Write a note on tertiary treatment of wastewater.

B. What is impact of BOD and pH in waste treatment.

C Define settling velocity, surface loading, detention period .

D. Explain ventilation of sewers.

Q2   A. Write a note on oxygen sag curve   (06)

B Explain the construction and working of sludge digester   (08)

C Write a detailed note on crown corrosion   (06)

Q3   A The 5 day BOD of sewage sample is 170mg/l at 35^0 c. Calculate it's 5 day 20 c BOD   (06)

Take K20=0.1

B What are the effects of particulate matter on human body?   (06)

C Design a septic tank for a 100 people. Assume data necessary and mention same.   (8)

Q4   A   Determine the size of secondary and primary sendimentaion tank for treating activated
          sludge of 10 mld flow .   (10)

B . Explain operation and maintenance of trickling filter   (06)

C   Define Noise , State the method to measure and prevent noise in a building.   (04)

Q5   A What is activated sludge. Explain types of aeration system used in the treatment process. 08)

B .Explain the working of sludge Drying Beds   (06)

C Write a short note on Aerated Lagoon   (06)

Turn over

Q6   A Explain types of sewers and sewer appurtenances   (08)

     B Explain working of grit chamber   (06)

     C Write a note on Drop Manhole   (06)