

GANPAT UNIVERSITY

B. TECH. SEMESTER 7th (CIVIL), REGULAR EXAMINATION – NOV/DEC:- 2011

C:701 –DESIGN OF CONCRETE STRUCTURE

TIME: 3 HOURS

TOTAL MARKS: 70

Instructions: - (1) Answer to the two sections must be written in separate answer books.

(2) Figures to the right indicate full marks.

(3) Assume suitable data if required.

Section - I

Q.1 (A) What are general notes are consider in structural detailing? (05)

(B) What are the graphical symbol are using in detail drawing. (05)

OR

Q.1 (A) Draw detail sketch of Beam column joint and Beam. (05)

(B) Give the Symbols Relating to Shape of the Bar along its Lengths. (05)

Q.2 Attempt the following

(A) Differentiate singly and doubly reinforced beam with sketch. (06)

(B) Describe continuous beam and slab with figure. (06)

OR

Q.2 A T-beam floor consists of 15cm thick RC slab monolithic with 30cm beams. The beams are spaced at 3.5 m c/c and their effective span is 6 m as shown in **figure- 1. If the superimposed load on the slab is 5kN/m^2 , design an intermediate beam. Use M20 and Fe -250. (12)**

Q.3 Attempt the following

(A) Why we provide combine footing. (06)

(B) What is combine footing? Explain their types. (06)

Section – II

- Q.4 Design a Combined footings for two columns loads $C_1=750$ kN and $C_2=950$ kN (12)
Spaced at 3.8 m With of footing is restricted up to 2.5m. The S.B.C of soil is 190kN/m^2 footing materials are M20 grade concrete and FE415 steel. Take column size 300 X 300mm D) One way shear check & BM diagraph. A) Soil design B) Analysis and find SF & BM diagram C) Reinforcement D) One way shear check

OR

- Q.4 Design of interior slab panel for flat slab system as show in figure -2 the grade of concrete is M20 and reinforcement grade Fe 415 for office building. (12)

- Q.5 A concrete column circular in section with diameter 300mm and reinforced with 8 Nos-20 dia bar is braced and hinged at ends the column carries an axial load cultivate $p_u=800\text{kN}$ M-20 Fe-415 effective cover 50mm length 6 mm check safety of the column. (12)

OR

- Q.5 A roof of industrial building $8\text{m} \times 32\text{m}$ in plan is to be covered by series of fixed base portal frame. Live load $=3\text{kN/m}^2$ prepare structural layout and design and detail all component (12)

- Q.6 (A) Attempt the following(Any two) (12)

I Draw figure of types of retaining wall

II Explain the importancy of providing counter fort wall over the cantilever retaining wall

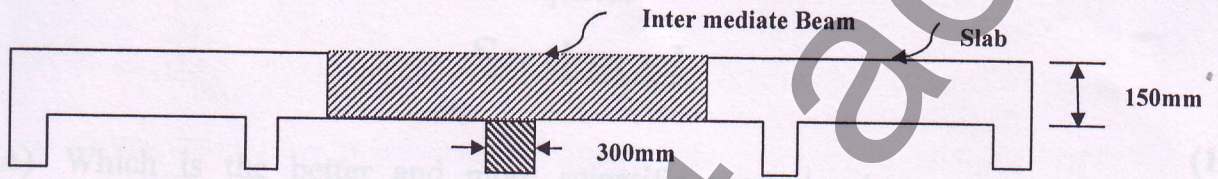
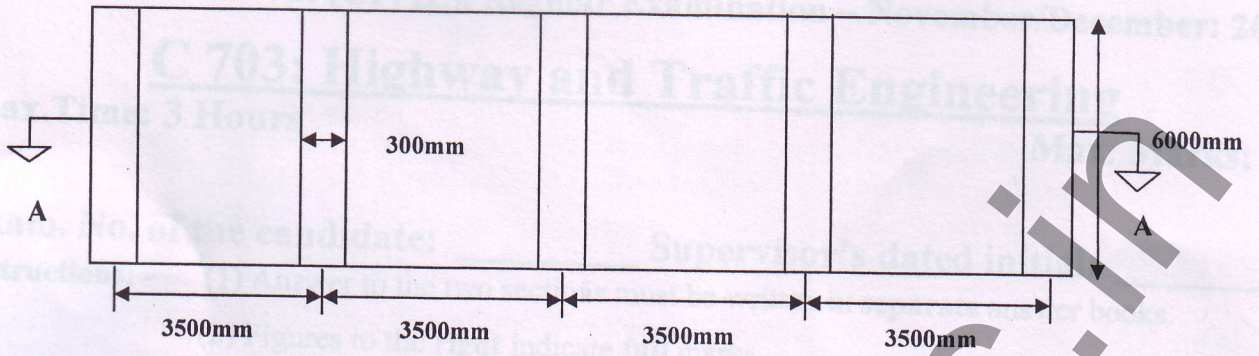
III Explain Earth pressure on Retaining wall in detail.

OR

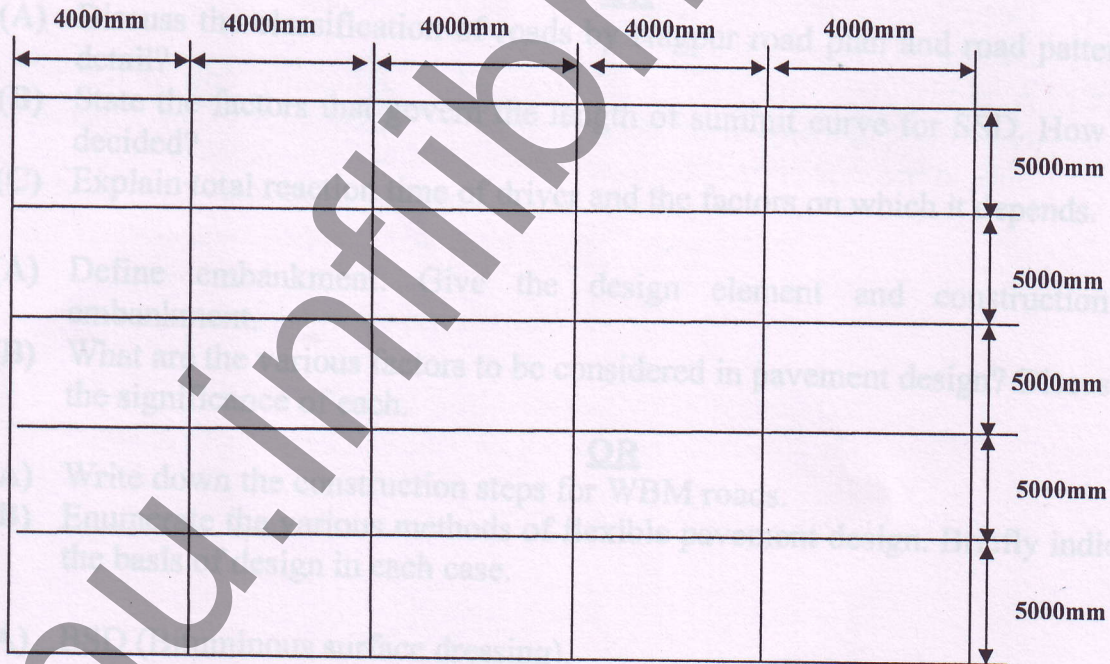
- (B) Design a retaining wall to retain the earth 4 m high. The top surface is horizontal behind the wall the soil behind the wall is well drained medium dense sand with following Unit weight $=17$ kN/m³, angle of internal friction $\phi = 30^\circ$ The material under wall base is the same as above with a safe bearing capacity of 150kN/m^2 the coefficient of friction between base and soil is 0.55 designs the wall using M20 grade concrete and HYSR reinforcement of grade Fe 415. A) fix the dimension of retaining wall B) wall stability analysis c) Design of stemp D) Design Toe and Heel (12)

“END OF PAPER”

Examinee's Roll No. _____
 Instructor's Signature _____



Section A-A
 Fig. 1 T-Beam



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