Reinforced Concrete Design (2)… **Test No. (1)**…Date: 28/10/2024

**الزمن: ساعتان**

Q1.A **simply** supported slab of **clear** panel size (7x4) m, 180 mm thick, is to carry IL of 15 kN/m2, fcu=30 N/mm2, fy=500 N/mm2. Steel reinforcement diameter 20mm, cover 25mm. The slab is simply supported on all **four** sides, width of supporting beams is 300 mm. The moment coefficients are: α,sx= 0.11 & α,sy= 0.036.

a) Determine the effective spans Lx & Ly, and prove that the slab is spanning in two directions.

b) Design the slab.

c)Draw plan & section showing dimensions & reinforcement.

Q2. An interior slab panel of clear panel size (7x4) m, 180 mm thickness, is to carry IL of 15 kN/m2,fcu=30 N/mm2,fy=500N/mm2. Width of supporting beams is 300 mm. Steel reinforcement diameter 20mm, cover 25mm. Coefficients for negative moments at supports are: β,sx= 0.057, β,sy=0.031, and for positive moments at midspan: β,sx=0.043, β,sy=0.023, and for shear at continuous edges: β,vx=0.47, β,vy= 0.32.

a) Design the slab.

b) Draw plan & section showing dimensions & reinforcement.

Q3.A flat slab is supported by columns 7.5 m centers in each direction, and the slab supports IL of 4.5 kN/m2, overall depth is 220 mm, drop panels are 2.6 m square and 120 mm deep. The column heads are 1.7 m in diameter. If fcu=30 N/mm2, fy= 460 N/mm2:a) Design the flat slab.b) Draw plan & sections showing dimensions & reinforcement.

**يجب إرسال الحل عند انتهاء الزمن المحدد الى واتساب د.كمال ساتى 00249901235478**

