EX/PG/ARCH/T/128B/2018

MASTER OF ARCHITECTURE EXAMINATION, 2018

(M. Arch. 2nd Semester)

SUBJECT: BUILDING TECHNOLOGY

Time : Three hours **Full Marks: 100**

Instructions: Answer for 100 marks

Use sketches wherever necessary.

01. In light of rising demands of construction in the Egyptian and Roman Civilizations, citing a few examples, describe the achievements made by these civilizations in advancements in materials and building technology. 25

02. Discuss how does a set of Building Foundation Piles work. What are the differences between 'Friction Piles" and "End bearing Piles". Describe under what conditions a building construction requires Piling for its foundation. Draw and describe a pile foundation with a pile cap covering two columns. 25

03. Describe a few structural typologies adopted in construction of tall buildings. Describe in brief the structural systems propounded by Fazlur Rahman Khan for sky scraper buildings. 25

04. Describe 'Vibrofloation' (or Vibrocompaction) as a method for compaction of non-cohesive soil for ensuring higher bearing pressure. Using suitable sketches, also please explain the method adopted for 'Vibrofloation'. Describe the utilities and roles of various construction equipment for earthwork in construction. 25

05. With the help of suitable sketches, describe how a construction of concrete tunnel is made below a road or railway track without disturbing movement of vehicles or trains using "Box Jacking" method. 25

06. Describe how an intermediate load bearing wall could be replenished using temporary supports along with needle beams and permanent insertion of steel or concrete beams. Use sketches wherever necessary.

    Describe how issues of foundation settlements could be resolved using "Underpinning". Use sketches wherever necessary. 25

07. Describe any use of 'Pre-stressing' and 'Post-tensioning'. Describe in simple words the methodology adopted in Segmental Bridge construction technique using pre cast post-tensioned types of structural units. 25

08. Write short notes on (any five) (5 X 5)= 25

(i) Steining (wall); (ii) Caisson; (iii) Sheet Piling; (iv) Stranded wire rope; (v) Slip form; (vi) Long spanning; (vii) Roman aqueducts; (viii) Cable stayed bridges; (ix) Pneumatic Structures; (x) RMC