(University of Choice)

MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY (MMUST)

MAIN CAMPUS

UNIVERSITRY EXAMINATIONS 2022/2023 ACADEMIC YEAR

THIRD YEAR SECOND SEMESTER EXAMINATIONS

FOR THE DEGREE OF BACHELOR OF TECHNOLOGY IN BUILDING CONSTRUCTION

COURSE CODE: BTB 314

COURSE TITLE: CONSTRUCTION AND ENGINEERING MATERIALS II

DATE: 20TH APRIL 2023 **TIME:** 3 – 5 P.M

INSTRUCTIONS:

1. This paper contains **SIX** questions.
2. **Question ONE (1) is Compulsory.**
3. **Attempt a total of FOUR questions in this booklet.**
4. Marks for each question are indicated in the parenthesis.
5. No unauthorized materials are allowed in the examination room.

Examination duration is **2 Hours**

MMUT observes ZERO tolerance to examination cheating

This Paper Consists of 6 Printed Pages. Please Turn Over.

Type of cement	Type of coarse aggregate	Compressive strengths (N/mm²) Age (days) 3	7	28	91
Ordinary Portland (OPC) or sulphate-resisting Portland (SRPC)	Uncrushed	22	30	42	49
	Crushed	27	36	49	56
Rapid-hardening Portland (RHPC)	Uncrushed	29	37	48	54
	Crushed	34	43	55	61

1 N/mm² = 1 MN/m² = 1 MPa (see footnote on earlier page).

Table 1. Approximate compressive strength (N/mm²) of concrete mixes made with a free-water/cement ratio of 0.5

Slump (mm) Vebe time(s)		0-10 >12	10-30 6-12	30-60 3-6	60-180 0-3
Maximum size aggregate (mm)	Type of aggregate				
10	Uncrushed	150	180	205	225
	Crushed	180	205	230	250
20	Uncrushed	135	160	180	195
	Crushed	170	190	210	225
40	Uncrushed	115	140	160	175
	Crushed	155	175	190	205

Table 2. Approximate free-water contents (kg/m³) required to give various levels of workability

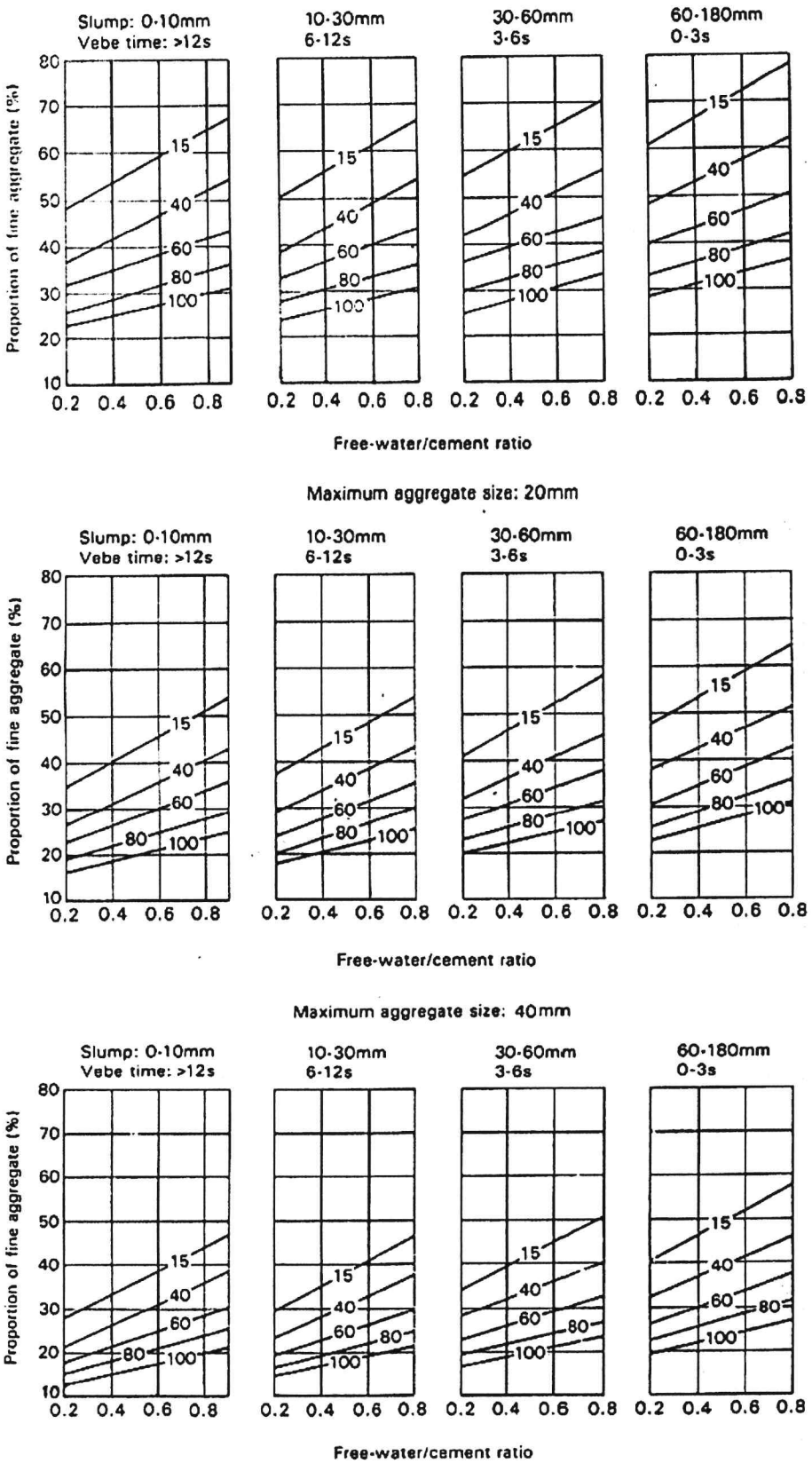

Figure 3. Recommended proportions of fine aggregate according to percentage passing a 600 µm sieve