



আন্তর্জাতিক ইসলামী বিশ্ববিদ্যালয় চট্টগ্রাম
الجامعة الإسلامية العالمية شيتاغونغ
International Islamic University Chittagong
Department of Civil Engineering, FSE

Mid Term

SEMESTER- Autumn- 2022 SESSION
CE- 1205- Engineering Materials

Programme	: Bachelor of Civil Engineering	Level of Study	: UG 1
Time	: 2.30 pm – 4.00 pm	Date	: 20 th September 2022
Duration	: 1 hour 30 minutes		
Course Code	: CE1205	Section(s)	: 1
Course Title	: Engineering Materials		

This Question Paper Consists of 2 (two) Printed Pages (Including Cover Page) with
3 (Three) Questions.

Course Learning Outcome(CLO)	
CLO1	Understanding of concepts, theories and computational methodologies.
CLO2	Describe Imperfections in Solids: What are the solidification of mechanisms? What types of defects arise in solids? How do defects affect material properties?
CLO3	Derive and describe, formulate, and solve diffusion problems: How does diffusion occur? How does diffusion depend on structure and temperature?

Bloom's Levels of the Questions					
Letter Symbol	R	A	ANA	E	C
Meaning	Remember (5)	Apply(5)	Analysis(5)	Evaluation(10)	Create (5)

INSTRUCTION(S) TO CANDIDATES

DO NOT OPEN UNTIL YOU ARE ASKED TO DO SO

- This is a Closed Book, Closed Notes Examination.
- Do not open until You Are Asked to Do So.
- Attempt All Questions. All Questions Carry Equal Marks.
- Show All Your Work And Draw The Free Body Diagram Where Necessary To Get Maximum Credit.
- Use of Programmable or Graphical Calculator is Strictly Not Allowed.
- Mobile Phones and Other Electronic Devices are Prohibited in the Exam Hall.
- **Work Can Be Done Using Pencil Or Pen, But The Final Answer Must Be Written In Pen**

Note: Any form of cheating or attempt to cheat is a serious offence, which may lead to dismissal

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QUESTION 1 (10 marks)_

- a) Enumerate various properties of Engineering materials. Define: Hardness and Creep. 4 marks
- b) Name the compounds found in cement. Explain false setting of cement. 3 marks
- c) Explain the different steps in wet process of manufacturing Portland cement with a neat flow diagram. 3 marks

QUESTION 2 (10 marks)_

- a) What are the benefits we engineer get by using concrete as building materials for constructing modern structures? 4 marks
- b) Sieve analysis of two different varieties of sands, one from Durgapur and other from Kumira are given below. Weight of each sample is 500 gm. Calculate the amount of each variety of sand in a mixture of 20 kg to obtain the combined fineness modulus of 2.58. 6 marks

	Durgapur Sand	Kumira Sand
Sieve Size	Weight Retained (gm.)	Weight Retained (gm.)
No. 4	21	18
No. 8	58	41
No. 16	105	65
No. 30	115	85
No. 50	102	112
No. 100	90	137
Pan	9	42

QUESTION 3 (10 marks)_

- a) What will happen, if curing is not done as per specifications? 4 marks
- b) Explain critically segregation & bleeding of concrete. 3 marks
- c) What are the conventional systems followed in brick manufacturing? 3 marks

End of the Mid Term Questions