REF NO.-EX/CE/PC/B/T/216/2024 (S)

B.E.C.E. 2ND YEAR EXAMINATION, 2024

1ST SEMESTER SUPPLEMENTARY

SUBJECT: BUILDING MATERIALS & CONSTRUCTION

TIME: THREE HOURS FULL MARKS:100

USE A SEPARATE ANSWER-SCRIPT FOR EACH PART

No. of Questions	Part-I (Full Marks 60)	Marks
	For Section-A, answer Question number 1 (Compulsory) and any one from the rest. For Section-B, answer Question number 4 (Compulsory) and any three from the rest. All the drawings should be in pencil.	
	Section-A (CO-1)	
Q1.	With a neat labelled sketch of section of a load bearing wall marked the following components of building: Plinth level, lintel, Chajja, PCC, brick coping	5+1×5
Q2.	Mention the applications and or positions of the following structural components mentioning the purpose and or reason of applications: DPC, Raft foundation, friction pile, pointing work, subgrade in mosaic floor	2 × 5
Q3. (a)	Discuss the classification of water supply piping system for a building.	1×4
(b)	Discuss the classification of trap based on purpose, position and shape in plumbing system.	1×6
Q4.	**Section-B (CO-2)**	
	Fill in the blanks	1×10=10
	i. The nominal dimension of modular brick recommended for 1st class brick in India is----------	
	ii. The volume of one bag of good quality cement is----------	
	iii. Brown rot of wood is due to _____	
	iv. The recommended specific surface area for ordinary OPC is _____	
	v. The organic content present in sand is tested using _____	
	vi. The cement sand ratio recommends for plastering work for ceiling plaster is_____	
	vii. The flexibility of ferrous metal used as building material mainly depends on_____ content.	
	viii. Increase in alumina % in brick earth will result in _____in brick.	
	ix. _____is commonly used as base material for wood work.	
	x. Method of reduction of moisture content for getting good quality of wood is named as_____	
Q5. (a)	(i) With neat sketch define: Queen closure, lapping in brick bond and rubble masonry work	2×5
	(ii) What is sound test for brick?	
(b)	Define bulking of sand.	
Q6.	How will you differentiate heart wood with soft wood? If outer bark of a living tree will be removed what will happen? Mention the conditions for which these defects occur for wood: star shake, knot, burl, honey combing and rindgall. Name one method of conversion of timber.	2×2+ 1×6

[Turn over

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1ST SEMESTER SUPPLEMENTARY

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TIME: THREE HOURS FULL MARKS:100

USE A SEPARATE ANSWER-SCRIPT FOR EACH PART

No. of Questions	Part-I (Full Marks 60)	Marks
Q7. (a)	Write the full name and chemical formula of Bough compounds present in cement clinker.	1×4
(b)	Identify the major Bough compounds that should be added or replaced to convert OPC to the following special cement: Rapid hardening cement, slow setting cement, low heat Portland cement, white cement and sulfate resisting cement	1×6
Q8.	Why flyash can be used as ingredient of cement? Define scaffolding. Give one examples of each: low cost mortar, light weight mortar, thinner, vehicle, surface finishing element on rough surface and anticorrosive metal	2×2 +1×6

Ref. No. : Ex/CE/PC/B/T/216/2024(S)

Name of the Examinations: B.E. CIVIL ENGINEERING SECOND YEAR FIRST SEMESTER SUPPLEMENTARY EXAM - 2024

Subject : BUILDING MATERIAL & CONSTRUCTION

Time: 3 Hours (Total) Part: II (40 Marks) Full Marks:100

Instructions:	
I	Use Separate Answer scripts for each part.
II	All notations represent their standard relevant meaning.
III	If you feel that any data or condition is/are missing in any question, please assume relevant inputs and mention the same.

Sl No	**Question**	**Marks**	**CO**
1	(a) Does the permissible height of a building depend on width of mean of access? Discuss with example. (2 marks) (b) Consider a single storey RC residential building and one Masonry building to be constructed at Kolkata on a square plot of size of 576 sq-m. Floor to floor height = 3.3m. The plan should include at least 2 bedrooms, 1 kitchen, Toilets and other necessary components (to be considered suitably) as applicable. One bedroom in each floor should have an attached toilet. Draw floor plans for both the buildings considering suitable structural and non-structural components. Calculate F.A.R. and Super built-up area for both the buildings and compare the same. (18 marks)	20	CO 4
2	(a) What difference can be noticed in the reinforcement details of a lintel beam and an RC beam connected with columns? Draw neat sketch of both the beams to explain? (12 marks) (b) Draw a typical cross section of a typical RC lintel and chajja. Justify the position and functionality of reinforcements in the diagram. (8 marks)	20	CO 3