

.....**B. Civil Engineering(Part Time) 5th Year...** EXAMINATION, 2018(Old)
(1st / 2nd Semester / Repeat / Supplementary / Annual / Bi-Annual)

SUBJECT**Concrete Technology**
(Name in full)

PAPER**XX**.....

Full Marks 100
(50 marks for part I)

Time: ~~Two hours~~/~~Three hours~~/~~Four hours~~/~~Six hours~~

Use a separate Answer-Script for each part

No. of Questions	PART I	Marks																				
	Different tables and charts are allowed in the examination hall																					
1.a)	<p style="text-align: center;">Answer all questions</p> <p>Sieve analysis of a coarse aggregate is given bellow. Find nominal maximum size of coarse aggregate and comment on the average size of this aggregate.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Sieve size</th> <th>Weight Retained (gm)</th> </tr> </thead> <tbody> <tr> <td>40mm</td> <td>0</td> </tr> <tr> <td>20mm</td> <td>2120</td> </tr> <tr> <td>10mm</td> <td>1740</td> </tr> <tr> <td>4.75mm</td> <td>860</td> </tr> <tr> <td>2.36mm</td> <td>220</td> </tr> <tr> <td>1.18mm</td> <td>20</td> </tr> <tr> <td>600 μ</td> <td>15</td> </tr> <tr> <td>300 μ</td> <td>15</td> </tr> <tr> <td>150 μ</td> <td>10</td> </tr> </tbody> </table>	Sieve size	Weight Retained (gm)	40mm	0	20mm	2120	10mm	1740	4.75mm	860	2.36mm	220	1.18mm	20	600 μ	15	300 μ	15	150 μ	10	5
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1.b)	<p>Design a concrete mix as per DoE method with the following requirement</p> <ol style="list-style-type: none"> i) Characteristic strength =30MPa ii) Degree of Workability=High iii) Type of exposure=Moderate iv) Degree of quality control=Fair v) Max^m permissible water cementitious material ratio=0.52 <p>Material Data</p> <ol style="list-style-type: none"> a) Cement : OPC, Specific gravity of cement: 3.15 b) Specific gravity of coarse aggregate: 2.70, Nominal max^m size of coarse aggregate: As obtained in question no 1.a. c) Specific gravity of fine aggregate: 2.68, % passing of fine aggregate through 600 micron sieve: 55% d) Amount of fly ash: 20% of total cementitious material. 	20																				

2.

- e) Specific gravity of fly ash: 2.80
- Describe the effects of C_3S and C_2S on properties of concrete?
 - What is flash set and initial set of cement?
 - What is standard consistency of cement? Why it is important?
 - What is bulking of sand?
 - How heat of hydration is related to the hydration of different compounds of the cement?

5
5
5
5
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Table for Coarse Aggregate

IS Sieve Designation 760X	PERCENTAGE PASSING FOR SINGLE-SIEVED AGGREGATE OF NOMINAL SIZE							PERCENTAGE PASSING FOR GRADED AGGREGATE OF NOMINAL SIZE				
	63 mm	90 mm	20 mm	16 mm	12.5 mm	10 mm	40 mm	26 mm	15 mm	12.5 mm		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)		
80 mm	100	—	—	—	—	—	100	—	—	—		
63 mm	85 to 100	100	—	—	—	—	—	—	—	—		
40 mm	0 to 30	85 to 100	100	—	—	—	85 to 100	100	—	—		
20 mm	0 to 5	0 to 20	85 to 100	100	—	—	30 to 70	55 to 100	100	100		
16 mm	—	—	—	85 to 100	100	—	—	—	90 to 100	—		
12.5 mm	—	—	—	—	85 to 100	100	—	—	—	—		
10 mm	0 to 5	0 to 5	0 to 20	0 to 30	0 to 45	85 to 100	10 to 35	25 to 55	50 to 70	90 to 100		
4.75 mm	—	—	0 to 5	0 to 5	0 to 10	0 to 25	0 to 5	0 to 10	0 to 10	0 to 10		
2.36 mm	—	—	—	—	—	0 to 5	—	—	—	—		

Ex /CE/5/T/502C/2018(OLD)

B.E. CIVIL ENGG. (PART TIME) 5th YEAR 1ST SEM. EXAM. 2018 (OLD)

Subject: CONCRETE TECHNOLOGY TIME: 3 Hours

Full Marks: 100

(50 marks for each part)

Use a separate Answer-Script for each part
Necessary different tables and graphs are allowed in the Exam. hall

No. of questions	Part II (Answer question No. 1 and any 3 from the rest)	Marks (4X5+3X10=50)
1. (a) (b) (c) (d) (e) (f)	Write Short note (any four) Bleeding, segregation and honeycomb structure. Sulphate attack on concrete. Dynamic modulus of elasticity of concrete. Creep of concrete. Fiber reinforced concrete. Shotcrete.	5 X 4 =20
2.	What do you mean by flexural strength of concrete? Describe the procedure of measuring the flexural strength of concrete.	10
3.	What do you mean by workability of concrete? Describe the factors affecting the workability of concrete.	10
4.	Write down briefly about different type of chemical admixture used in concrete with their properties.	10
5.	What are the properties of self-compacting concrete? Describe any one test for measuring the workability of self-compacting concrete.	10
6.	Why fly ash used in concrete and write down the properties of fly ash concrete?	10