

.....**Bachelor of Engineering ( Civil Engineering) 4<sup>th</sup> Year...** EXAMINATION, 2019  
(1<sup>st</sup> / 2<sup>nd</sup> 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	<b>PART I</b>	Marks
1.	<p style="text-align: center;"><b>Different tables and charts are allowed in the examination hall</b></p> <p style="text-align: center;"><b>Answer all questions</b></p> <p>Design a concrete mix as per DoE method with the following requirement</p> <ul style="list-style-type: none"> <li>i) Characteristic strength =25MPa</li> <li>ii) Degree of Workability=High</li> <li>iii) Type of exposure=Moderate</li> <li>iv) Degree of quality control=Fair</li> <li>v) Max<sup>m</sup> permissible water cementitious material ratio=0.48</li> </ul> <p><b><u>Material Data</u></b></p> <ul style="list-style-type: none"> <li>a) Cement : OPC, Specific gravity of cement: 3.15</li> <li>b) Specific gravity of coarse aggregate: 2.70, Nominal max<sup>m</sup> size of coarse aggregate: 20 mm.</li> <li>c) Specific gravity of fine aggregate: 2.64, % passing of fine aggregate through 600 micron sieve: 51%</li> <li>d) Amount of fly ash: 22% of total cementitious material.</li> <li>e) Specific gravity of fly ash: 2.85</li> </ul>	20
2.	<ul style="list-style-type: none"> <li>a) Describe the effect of C<sub>2</sub>S and C<sub>3</sub>A on properties of concrete?</li> <li>b) What is the difference between initial set and flash set of cement?</li> <li>c) What is standard consistency of cement? Why it is important?</li> <li>d) What is bulking of sand?</li> <li>e) For full hydration of cement, the minimum water cement ratio is 0.38. Explain.</li> <li>f) Describe Bogue compounds and Bogue equations in connection with cement compounds.</li> </ul>	5 5 5 5 5 5

**BACHELOR OF ENGINEERING (CIVIL ENGINEERING)****4th YEAR 2<sup>nd</sup> SEM. EXAM. 2019****Subject: CONCRETE TECHNOLOGY. PART-II 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)	Write Short note Bleeding and segregation Admixture of concrete. Carbonation of concrete. Fly ash concrete	4 X5 =20
2.	What do you mean by compressive strength of concrete? Describe the procedure of measuring the compressive strength of concrete in the laboratory.	2+8=10
3.	What do you mean by shrinkage and creep of concrete? Describe different type of shrinkage occurred in concrete.	2+ 8=10
4.	What do you mean by workability of concrete? Describe the factors affecting the workability of concrete.	2+8=10
5.	What are the properties of self-compacting concrete? Describe V-funnel test for measuring the workability of self-compacting concrete.	2+8=10