

PREVIOUS QUESTION PAPERS

R13

Code No: 115EP

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech III Year I Semester Examinations, November/December - 2016

CONCRETE TECHNOLOGY

(Common to CE, CEE)

Max. Marks: 75

and B.

marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

26

26 **PART - A**

(25 Marks)

- 1.a) Give the chemical composition of cement. [2]
- b) What is fineness modulus of aggregates? What does it indicates? [3]
- c) Define initial setting time and final setting time of cement. [2]
- d) What is the purpose of mixing water in concrete? [3]
- e) Define water cement ratio. [2]
- f) State necessity of curing for cement concrete. [3]
- g) Give any two requirements of concrete mix design. [2]
- h) Differentiate preliminary mixes and trial mixes. [3]
- i) Give two applications of light weight concrete. [2]
- j) Give the advantages of fiber reinforced concrete. [3]

PART - B

(50 Marks)

2. Explain different methods of measurement of moisture content of aggregates. [10]
- OR**
- 3 a) What is heat of hydration? How does this affect the quality of concrete? [5+5]
- b) Explain different laboratory tests to be conducted on cement to decide its quality. [5+5]
- 4.a) What are the various tests to measure workability? Explain any one with neat sketch. [5+5]
- b) Explain segregation and bleeding in concrete. [5+5]
- OR**
- 5.a) List out the factors affecting workability and explain them [5+5]
- b) Write short notes on Quality of mixing water. [5+5]
- 6 List out the non- destructive tests and explain any two non - destructive testing methods on hardened concrete. [10]
- OR**
- 7.a) Define creep and explain the relation between creep and time. [5+5]
- b) Explain shrinkage and types of shrinkage. [5+5]

- 8.a) Explain Maturity of concrete. [5+5]
b) Write short notes on Gel/ space ratio. OR 26 26
- 9.a) Write step wise procedure for mix design of concrete as per Indian Standards [5+5]
b) Define durability and its significance.
- 10.a) Explain light weight aggregate concrete. [5+5]
b) Write short notes on self compacting concrete. OR 26 26
- 11.a) Explain various types of polymer concretes [5+5]
b) Write short notes on no-fines concrete.

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech III Year I Semester Examinations, November - 2015

CONCRETE TECHNOLOGY

(Common to CE, CEE)

Time: 3 hours

Max. Marks: 75

Note: This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART - A (25 Marks)

- 1.a) List out different grades of cement. [2]
- b) Explain about bulking of sand. [3]
- c) Define workability. [2]
- d) Explain about bleeding. [3]
- e) Explain rheology of creep. [2]
- f) Brief out different types of shrinkage. [3]
- g) What is the difference between pumpable and normal concrete? [2]
- h) Explain statistical quality control of concrete. [3]
- i) What is aspect ratio of fibers? [2]
- j) Explain about light weight aggregates. [3]

PART-B (50 Marks)

- 2.a) Explain in detail about heat of hydration of cement.
- b) Explain in detail about influence of compound composition on properties of cement. [5+5]

OR

- 3.a) Explain deleterious substance in aggregate and soundness of aggregate.
- b) Explain about gap graded aggregate and BIS grading. [5+5]

- 4.a) Explain setting times of concrete.
- b) Explain effect of time and temperature on workability of concrete. [5+5]

OR

5. Explain in detail about measurement of workability by different tests. [10]

- 6.a) Explain factors affecting strength of concrete.
- b) Explain nature of creep and effects of creep on structural concrete. [5+5]

OR

7. Explain in detail about maturity concept of concrete with illustrative examples. [10]

- 8.a) Explain in detail about durability of concrete.
- b) What are different variables in proportioning that influence mix design of pumpable concrete? [5+5]

OR

9. Design M 30 normal concrete assuming suitable data according to IS 10262-2009. [10]

10. Explain in detail about Self compacting concrete. [10]

OR

11. Explain in detail about Fiber reinforced concrete. [10]

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech III Year I Semester Examinations, March - 2017

CONCRETE TECHNOLOGY

(Common to CE, CEE)

Time: 3 hours

Max. Marks: 75

Note: This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART - A

(25 Marks)

- 1.a) What is flash set of cement and how to avoid this? [2]
- b) Explain the mechanism of deflocculating of cement by superplasticizer [3]
- c) Define workability in terms of energy. [2]
- d) Define Laitance and factors responsible for it? [3]
- e) State Abram's water cement ratio law. [2]
- f) How does drying shrinkage effect creep? [3]
- g) State the merits and demerits of BIS mix design method. [2]
- h) What do you understand by target mean strength? [3]
- i) Give the application of cellular concrete. [2]
- j) What is 'no-fines' concrete? [3]

PART - B

(50 Marks)

- 2.a) Explain how the Bogue's compounds participate in the development of strength of cement. [5+5]
- b) Explain the effect of h/D ratio and size of aggregate on the strength properties of concrete. [5+5]

OR

- 3.a) What is Alkali aggregate reaction and how it can be controlled. [5+5]
- b) What are the chemical admixtures? Explain different types of admixtures. [5+5]
- 4.a) List the factors effecting the workability of concrete. [5+5]
- b) Explain the procedure for determining the setting times of concrete. [5+5]

OR

Discuss the applicability of the various workability tests to concretes of different levels of workability.

Define bleeding and segregation of concrete and Explain the methods to control them. [5+5]

- 6.a) Calculate the Gel/space ratio and hence estimate the 28 day strength for 50 kg of cement at 0.45 water/cement ratio on 75% hydration.
- b) Calculate the maturity value and estimate the 14 days strength for M25 grade concrete if it is cured at 15⁰C from 0 hr to 6 hr; 8⁰C from 6 hr to 12 hr and 12⁰C for the rest of the period during a day. The Plowman's constants are A=21 and B=61. [5+5]

OR

- 7.a) Define creep of concrete and explain the main factors affecting the creep of concrete.
- b) Discuss about static and dynamic moduli of elasticity of concrete along with their relation. [5+5]

8 Design M35 concrete mix using BIS method for the data given below:

- a) Cement-OPC 53 grade; specific gravity-3.05
- b) Fine aggregate- river sand, Zone-III, specific gravity-2.65
- c) Coarse aggregate-20mm crushed granite, specific gravity-2.65
- d) Free moisture in sand is 5% with 10% bulking
- e) Exposure-moderate
- f) RCC work with good quality control
- g) Workability-110mm slump (pumpable concrete)
- Use of SP allowed. Assume any other data suitably. [10]

OR

- 9.a) Briefly discuss the 'sampling and acceptance criteria' for each concrete batch.
- b) What are the factors to be considered in the choice of concrete mix proportions? [5+5]

10.a) Enumerate different types of fibres used for the production of "fibre reinforced concrete" and also state the factors that affect the properties of fibre reinforced concrete?

- b) Briefly discuss the tests to be conducted to satisfy the requirements for 'self-compacting concrete' in the fresh state. [5+5]

OR

11.a) Differentiate between polymer concrete and polymer impregnated concrete and also state the principal consideration in the design of polymer concrete mixtures.

- b) What are the various methods of making light weight concrete? [5+5]

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