

Seat No. : _____

12D-125

May-2015

B.Arch. (BCT) Sem.-VIII (Interim)

AR-BCT-803 : Adv. Construction and Structure

(Regular – Interim Syllabus)

Time : 3 Hours]

[Max. Marks : 100

- Instructions :** (1) Write answer to the point.
(2) Figures to the right indicate full marks.

1. Explain the following : (Any **two**) **10**
- (1) How do you decide whether the shuttering materials are to be taken on hire or purchase ? Explain factor affecting the same.
 - (2) Explain temporary, permanent, flying formwork and aluminum formwork.
 - (3) Explain types of slip form method of construction and disadvantages.

2. Explain moveable shuttering and erection procedure of a RCC cast in situ barrel vault of construction with important components of form work. Explain the advantages of the form work. **10**

OR

Explain shuttering and erection procedure of a RCC cast in situ barrel vault roof construction with important components of formwork. Explain the complete procedure for the erection to curing procedure for the shell roofs with sketches.

3. Explain characteristics of weaker soil and its problem. **10**
Explain in detail any two soil improvement techniques for cohesionless soil.
4. Write short notes : (any **three**) **12**
- (1) Geosynthetics
 - (2) Geotextile
 - (3) Importance of bar bending schedule on construction site.
 - (4) Discuss significance of soil testing reports in design process.

5. A multipurpose hall is rectangular in shape. The dimensions of the multipurpose hall are 10

- Length = 38 m, breath = 28 m and height = 10 m.
- The areas of different surfaces and there absorption coefficient are as under

Surfaces	Area	Absorption Coefficient
Plaster	1600 smt	0.02
Concrete floor	800 smt	0.03
Wooden floor	400 smt	0.09
Curtains	300 smt	0.40
Seat	–	0.02

- Now absorption power in smt - sabin of an adult is 0.47.
- The capacity of multipurpose hall is of 1100 seats. Work out the following :
 - (A) Number of absorbing units and time of reverberation when there is
 - (1) no audience
 - (2) an audience of 450 persons
 - (3) an audience of 750 persons
 - (4) full audience
 - (B) Number of extra absorbing units required so as to get a reverberation time of 1.1 seconds when the strength of audience is 400 people. Coefficient of absorbing material if the area available for fixing the absorbing material is 900 smt.

6. (a) Why do we require industrial flooring ? Draw the section of the sub base and also write the procedure for laying tremix flooring and also draw the sketch of equipment and explain them used in tremix flooring. 12
- (b) Why do we require industrial flooring ? Draw the sketches of equipment used for preparation of epoxy flooring and also explain them, write uses and advantages of epoxy flooring.
- (c) Write causes of formwork failure and explain design factors considered in formwork.

7. Answer the following with sketches : (any **six**) 24

- (1) Explain mechanical waves. Also write in short about four types of mechanical waves.
- (2) What is inverse square law and how does it affect reverberation ?
- (3) Explain behavior of sound in enclosures.
- (4) Explain reverberation, reverberation time and desirable reverberation time for music and speech.
- (5) Explain acoustics, ultrasound and infrasound.
- (6) Explain reflection of sound. How does it behave in flat, concave and convex surfaces ?
- (7) Write how is sound generated in an auditorium hall is absorbed.
- (8) Explain absorbents and write about different absorbents available in market.

8. Define Geosynthetics. Enlist and discuss different types of Geosynthetics, its advantages and functions of Geotextile in detail. 12