

GUJARAT TECHNOLOGICAL UNIVERSITY
DI -5 SEMESTER – OLD PAPER – W23 TO S25 – QUESTION BANK(English)

Subject Name & Code:

Advanced Construction Technology- 4350605

Unit I - Advanced Construction Materials

Repeated Questions:

1. **Enlist/State/Explain the use of waste products and industrial by-products in making concrete.**
 - Appeared in: WIN 23 (Q1c OR, 07 Marks), SUM 24 (Q1c OR, 07 Marks)
2. **Define Admixtures. Give purposes/uses of using admixtures in concrete.**
 - Appeared in: SUM 24 (Q1c, 07 Marks), SUM 25 (Q1b, 04 Marks)
3. **Enlist characteristics of good paint / Enlist various innovative/advanced building materials.**
 - Appeared in: WIN 23 (Q1a, 03 Marks), SUM 24 (Q1a, 03 Marks), SUM 25 (Q1c, 07 Marks)
4. **Explain : PVC / Give advantages and disadvantages of PVC pipes.**
 - Appeared in: WIN 23 (Q1b, 04 Marks), SUM 24 (Q1b, 04 Marks)

Other Important Questions:

5. Enlist and explain admixtures used in concrete. (WIN 23 - Q1c, 07 Marks)
6. Enlist advanced building materials and discuss any two. (WIN 24 - Q1a, 03 Marks)
7. Write short note on Glass wool. (WIN 24 - Q1b, 04 Marks)
8. Give different purposes of using admixture in concrete. (WIN 24 - Q1c, 04 Marks)
9. State the waste materials used in brick manufacturing. (SUM 25 - Q1a, 03 Marks)
10. Enlist various types of advanced building materials and provide a detailed explanation of damp proofing and concrete blocks. (SUM 25 - Q1c, 07 Marks)
11. Enlist the key materials commonly used in grouting processes and state its applications in construction projects. (SUM 25 - Q1d, 04 Marks)
12. Explain in detail acoustics materials, wall claddings and plaster boards. (SUM 25 - Q1e, 04 Marks)
13. What is gunning? Write uses of gunning. (WIN 24 - Q1d, 04 Marks)
14. Give different types of mortar and their specific uses. (WIN 24 - Q1e, 04 Marks)

15. Explain lime mortar. (WIN 24 - Q1f, 04 Marks)
16. Explain fiber reinforced concrete. (WIN 24 - Q1g, 04 Marks)

Unit II - Miscellaneous Machineries and Hoisting, Conveying Equipments

Repeated Questions:

1. **Enlist equipment for excavation and describe power shovel with neat sketch.**
 - Appeared in: WIN 23 (Q2b, 04 Marks), SUM 25 (Q1h, 04 Marks)
2. **Enlist factors affecting selection of construction equipment.**
 - Appeared in: WIN 23 (Q2a, 03 Marks), SUM 24 (Q2b, 04 Marks)
3. **Explain : Belt Conveyors.**
 - Appeared in: WIN 24 (Q1i, 04 Marks), SUM 24 (Q2c OR, 07 Marks)
4. **Enlist and explain hoisting equipment / Write short note on: Shear leg.**
 - Appeared in: WIN 23 (Q2c, 07 Marks), WIN 24 (Q1j, 04 Marks)

Other Important Questions:

5. Enlist conveying equipment and describe any one with neat sketch. (WIN 23 - Q2a OR, 03 Marks)
6. Enlist compacting equipment and describe any one with neat sketch. (WIN 23 - Q2b OR, 04 Marks)
7. Enlist and explain vibrating equipment with neat sketch. (WIN 23 - Q2c OR, 07 Marks)
8. Differentiate between : Sheep foot roller and Pneumatic roller. (SUM 24 - Q2a OR, 03 Marks)
9. Draw neat sketch of power shovel and label its parts. (SUM 24 - Q2b OR, 04 Marks)
10. Enlist plants and equipments used in construction. (SUM 24 - Q2a, 03 Marks)
11. Explain with sketch : Batch type hot mix plant. (SUM 24 - Q2c, 07 Marks)
12. Draw the line diagram for batch type hot mix plant and explain its components. (WIN 24 - Q1h, 04 Marks)
13. Explain different methods used for field compaction. (WIN 24 - Q1k, 04 Marks)
14. What are the advantages of using construction machinery in construction projects? (SUM 25 - Q1g, 03 Marks)
15. What are the challenges associated with using construction machinery on construction sites? (SUM 25 - Q2b, 04 Marks)
16. Explain the specific roles and functions of earthmoving, lifting and material handling equipment? (SUM 25 - Q2c, 07 Marks)
17. Give the use of Lifts and belt conveyors in Construction of Multi storied buildings. (SUM 25 - Q5a, 03 Marks)
18. Explain the importance of using concrete pumping techniques in the construction of multi-story buildings. (SUM 25 - Q5d, 04 Marks)

Unit III - Advanced Concreting Methods and Equipments

Repeated Questions:

1. **Explain Dry mix process and Wet mix process.**
 - Appeared in: WIN 23 (Q3b, 04 Marks - Wet Mix), SUM 25 (Q3a, 03 Marks - Dry Mix), SUM 25 (Q3a OR, 03 Marks - Wet Mix)
2. **Explain grouting process / Define Grouting. State purposes of grouting.**
 - Appeared in: WIN 23 (Q3a, 03 Marks), SUM 24 (Q3a, 03 Marks), SUM 25 (Q1d, 04 Marks)
3. **Differentiate between : Shotcrete and Guniting.**
 - Appeared in: WIN 24 (Q1l, 04 Marks), SUM 24 (Q3b, 04 Marks)
4. **Explain : 3D Volumetric construction / technique in construction.**
 - Appeared in: WIN 23 (Q3c OR, 07 Marks), SUM 24 (Q3c OR, 07 Marks)

Other Important Questions:

5. Explain Tremie method of underwater concreting. (WIN 23 - Q3c, 07 Marks)
6. Enlist and explain various types of grouting. (WIN 23 - Q3a OR, 03 Marks)
7. Describe procedure for grouting. (SUM 24 - Q3a OR, 03 Marks)
8. Explain : Flat slab technology. (SUM 24 - Q3c, 07 Marks)
9. Write short note on : Hybrid Concrete Construction. (SUM 24 - Q3b OR, 04 Marks)
10. Give proportionality of flat slab components as per IS 456:2000. (WIN 24 - Q1m, 04 Marks)
11. Write about 3D volumetric construction. (WIN 24 - Q1n, 04 Marks)
12. Explain the concept of flat slab technology and outline its key features compared to traditional slab construction methods. (SUM 25 - Q3b, 04 Marks)
13. Explain the properties and uses of HIRC and discuss its advantages in specific construction applications compared to conventional concrete. (SUM 25 - Q3c, 07 Marks)
14. Explain the tunnel formwork system used in constructing tunnels and underground structures. (SUM 25 - Q3b OR, 04 Marks)
15. Explain the properties desired in the concrete used for the tremie method, such as workability and the appropriate water-cement ratio for successful underwater placement. (SUM 25 - Q3c OR, 07 Marks)
16. Enlist the key materials commonly used in shotcrete processes and state its applications in construction projects. (SUM 25 - Q2a, 03 Marks)

Unit IV - Advanced Technology in Construction

Repeated Questions:

1. **Describe construction process / steps of flyover.**
 - Appeared in: WIN 23 (Q4a, 03 Marks), SUM 25 (Q4a, 03 Marks), WIN 24 (Q4b OR, 04 Marks)
2. **Explain application / advantages and challenges of 3D printing in construction.**
 - Appeared in: WIN 23 (Q4a OR, 03 Marks), SUM 25 (Q4b, 04 Marks), WIN 24 (Q4c OR, 07 Marks)
3. **Explain erection process of plate girder with neat sketch.**
 - Appeared in: WIN 23 (Q4c OR, 07 Marks), SUM 25 (Q4c, 07 Marks), SUM 24 (Q4a, 03 Marks)
4. **Explain strengthening of embankment by Geo-Synthetics.**
 - Appeared in: WIN 23 (Q4b OR, 04 Marks), SUM 24 (Q4c OR, 07 Marks)

Other Important Questions:

5. Describe advantages and disadvantages of pre fab construction. (WIN 23 - Q4b, 04 Marks)
6. Explain erection process of steel bridge with neat sketch. (WIN 23 - Q4c, 07 Marks)
7. Give advantages of slip formwork. (WIN 24 - Q4a, 03 Marks)
8. Explain bridge deck erection equipment: Gantry cranes. (WIN 24 - Q4b, 04 Marks)
9. Enlist & explain different components of lift. (WIN 24 - Q4c, 07 Marks)
10. Give disadvantages of cast in situ method for construction of bridge. (WIN 24 - Q4a OR, 03 Marks)
11. Write short note on form traveler. (WIN 24 - Q5a, 03 Marks)
12. Write different advantages of tunnel form over conventional beam-column-slab construction. (WIN 24 - Q3c, 07 Marks)
13. Give advantages and limitations of 3D printing technology in construction. (SUM 25 - Q4b, 04 Marks)
14. Enlist the Equipment and machineries required for Foundation and Super structures of Bridges. (SUM 25 - Q4a OR, 03 Marks)
15. Describe the key considerations in selecting the right equipment for placing and jointing prefabricated elements in construction projects. (SUM 25 - Q4b OR, 04 Marks)
16. Describe the soil reinforcing technique using geosynthetics for strengthening embankments. (SUM 25 - Q4c OR, 07 Marks)
17. State three advantages and disadvantages of Cast-in-situ construction. (SUM 24 - Q4a OR, 03 Marks)
18. Give application of 3D printing technique in construction. (SUM 24 - Q4b OR, 04 Marks)
19. Give advantages and challenges of 3D printing technique in construction. (SUM 24 - Q4c, 07 Marks)

Unit V - Drilling, Blasting and Special Construction

Repeated Questions:

1. **Define Drilling. Give its necessity / factors affecting drilling pattern.**
 - Appeared in: WIN 24 (Q5b, 04 Marks), SUM 24 (Q5a, 03 Marks), SUM 24 (Q5a OR, 03 Marks)
2. **Enlist precautions during blasting process / to be taken during blasting.**
 - Appeared in: WIN 23 (Q5b, 04 Marks), SUM 24 (Q5c OR, 07 Marks)
3. **Enlist types of coffer dam & explain any two in detail.**
 - Appeared in: WIN 24 (Q5c, 07 Marks), SUM 25 (Q5c, 07 Marks)
4. **Differentiate between caisson and cofferdam.**
 - Appeared in: WIN 24 (Q5b OR, 04 Marks), SUM 25 (Q5e, 04 Marks)
5. **Write short note on / Write about magazine building.**
 - Appeared in: WIN 23 (Q5a OR, 03 Marks), WIN 24 (Q5c OR, 07 Marks)

Other Important Questions:

6. Enlist factors affecting selection of drilling pattern. (WIN 23 - Q5a, 03 Marks)
7. Write short note on pneumatic caisson. (WIN 23 - Q5c, 07 Marks)
8. Explain precautions to be taken to prevent tilting and shifting of caisson. (WIN 23 - Q5b OR, 04 Marks)
9. Enlist and explain measures to be taken to prevent leakage in cofferdam. (WIN 23 - Q5c OR, 07 Marks)
10. Give application of dry wall technique of construction. (WIN 24 - Q5a OR, 03 Marks)
11. Explain following terms related to blasting: (i) Dynamic (ii) Safety fuse. (SUM 24 - Q5b, 04 Marks)
12. What is caisson sickness ? What precautions should be taken to prevent it ? (SUM 24 - Q5c, 07 Marks)
13. Write short note on : Explosion process. (SUM 24 - Q5b OR, 04 Marks)
14. Description of the Factors affecting the selection of drilling method and equipment. (SUM 25 - Q5b, 04 Marks)
15. Describe the safety precautions and procedures associated with handling and using explosives in blasting operations. (SUM 25 - Q5f, 04 Marks)
