

GUJARAT TECHNOLOGICAL UNIVERSITY

BE-6 SEMESTER – OLD PAPER – S22 TO W25 – QUESTION BANK

Subject Name & Code:

CONSTRUCTION EQUIPMENT AND AUTOMATION (3160617)

Unit 1: Introduction & Construction Equipment

Repeated Questions:

1. **State/Explain the importance/need of construction equipment in the construction industry.**
(S25 - Q1a, 03 marks)
(W24 - Q1a, 03 marks)
(S23 - Q2b, 04 marks)
(S24 - Q2a, 03 marks)
(W22 - Q1a, 03 marks)
(S22 - Q1b, 04 marks)
2. **List/Classify different construction equipment / excavating equipment.**
(S25 - Q1b, 04 marks)
(W24 - Q2a, 03 marks)
(S23 - Q1b, 04 marks)
(S24 - Q2b, 04 marks)
(W23 - Q3a, 03 marks)
3. **Draw neat sketch of concrete batching plant and explain its purpose/components/classification/working.**
(S25 - Q1c, 07 marks)
(W24 - Q2b, 04 marks)
(W22 - Q3c, 07 marks)
(S22 - Q1c, 07 marks)
4. **Discuss factors affecting selection of construction equipment.**
(S25 - Q3c, 07 marks)
(W24 - Q1b, 04 marks)
(S23 - Q2c OR, 07 marks)
(S24 - Q2c, 07 marks)
5. **Define/Explain depreciation, scrap value, salvage value, obsolescence.**
(S23 - Q1a, 03 marks)
(W24 - Q3c, 07 marks)
(S22 - Q2a, 03 marks)

Other Important Questions:

6. Explain importance of construction equipments. (W25 - Q1a, 03 marks)
7. State and explain the factors affecting on owning and operating cost. (W25 - Q1b, 04 marks)
8. Draw neat sketch of scrapers and label it. (W25 - Q1c, 07 marks)
9. Classify different type of excavating equipment and explain any one with sketch. (S25 - Q1b, 04 marks)
10. Sketch the concrete batching plant and explain how it would be functioning. (S25 - Q1c, 07 marks)
11. State advantages of automation in construction. (S25 - Q2a, 03 marks)
12. What are the uses of power shovels? Describe basic parts and operation, giving with neat sketch. (S23 - Q1c, 07 marks)
13. What are the different types of mobile cranes? Describe any two mobile cranes with sketch.

(S23 - Q2c, 07 marks)

14. Differentiate between Standard equipment and Special equipment. (W24 - Q2c, 07 marks)
 15. Classify different construction equipment. (W24 - Q2c OR, 07 marks)
 16. What are the function of a tractors what are the various type of tractor. (W24 - Q3b, 04 marks)
 17. Write a short note on pavers. (W24 - Q3b OR, 04 marks)
 18. Enlist various types of cranes used in construction work and explain anyone in detail with figure. (W24 - Q3c OR, 07 marks)
 19. Explain in detail how automation is working in concrete technology? (S24 - Q2c OR, 07 marks)
 20. Write note on plastering equipment. (W23 - Q1b, 04 marks)
 21. How will you arrive at the operating cost for power shovel? (W23 - Q1c, 07 marks)
 22. Briefly describe different types of excavators. (W23 - Q3b, 04 marks)
 23. Write a brief note on tower cranes. (W23 - Q3b OR, 04 marks)
 24. Determine owning and operating cost of excavators. (W22 - Q4c, 07 marks)
 25. What is the difference between mobile cranes and tower cranes? Write note on components, purposes and types of tower cranes with sketch. (S22 - Q2c OR, 07 marks)
 26. Write note on types, basic parts, operation of power shovel with neat sketch. (S22 - Q2c, 07 marks)
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Unit 2: Automation in Construction Industry

Repeated Questions:

1. **State advantages/benefits of automation in construction.**
(S25 - Q2a, 03 marks)
(W24 - Q1c, 07 marks)
(S23 - Q3a, 03 marks)
(S23 - Q3b, 04 marks)
(W22 - Q1b, 04 marks)
(S22 - Q3a, 03 marks)
(S22 - Q3b, 04 marks)
2. **What is automation? Explain need of automation.**
(S23 - Q3a OR, 03 marks)
(S22 - Q3a, 03 marks)
3. **Explain automation in canal lining / How can automation be applied to canal lining?**
(W25 - Q3a OR, 03 marks)
(S25 - Q2c, 07 marks)
(W24 - Q3a OR, 03 marks)
(S24 - Q3a, 03 marks)
(S22 - Q3c, 07 marks)
4. **Write note on automation in highway construction.**
(S23 - Q3b OR, 04 marks)
(S24 - Q3c, 07 marks)
(W22 - Q5b OR, 04 marks)
(S22 - Q3c OR, 07 marks)

Other Important Questions:

5. What are the types of batching plant of concrete? (W25 - Q2a, 03 marks)
 6. What are the advantages and disadvantages of Automation in construction industry? (W25 - Q2b, 04 marks)
 7. State the use of scrapers and working of scrapers. (W25 - Q2c, 07 marks)
 8. Draw neat sketch of belt conveyor and describe its components. (W25 - Q2c OR, 07 marks)
 9. Explain the Building Information Modeling up to 7D. (S25 - Q2b, 04 marks)
 10. Explain automation is beneficial for construction of Highway. (S25 - Q2c OR, 07 marks)
 11. How SCADA system is working for highway construction? (W25 - Q3c OR, 07 marks)
 12. Explain the advantages and disadvantages of automation. (S23 - Q3b, 04 marks)
 13. Write short note on automation in highway. (S23 - Q3b OR, 04 marks)
 14. Explain the automation in concrete technology. (S23 - Q4c, 07 marks)
 15. Explain in detail the canal hydraulic properties for automation. (S23 - Q4c OR, 07 marks)
 16. How does automated canal lining equipments works? (W23 - Q2b, 04 marks)
 17. Describe the state of the art equipments of highway construction. (W23 - Q2c, 07 marks)
 18. Write a note on automation in ready mix concrete plant. (W23 - Q2c OR, 07 marks)
 19. Which are the major advantages we got using automation in highway construction? (W22 - Q5c OR, 07 marks)
 20. Explain various applications of automation in concrete technology. (W22 - Q5c, 07 marks)
 21. What is building automation system. (S24 - Q1a, 03 marks)
 22. Explain in detail how automation is working in concrete technology? (S24 - Q2c OR, 07 marks)
 23. Write note on automation in highway construction. (S24 - Q3c, 07 marks)
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Unit 3: Drones in Construction

Repeated Questions:

1. **What is the full form of DRONE? Explain drone mapping / uses of drones.**
(W25 - Q3a, 03 marks)
(S23 - Q5a, 03 marks)
(S24 - Q4c OR, 07 marks)
(S22 - Q5a, 03 marks)
2. **What are the advantages/disadvantages of drones?**
(W25 - Q3a, 03 marks)
(S24 - Q3b, 04 marks)
3. **Classify different types of drones.**
(W25 - Q3b, 04 marks)
(W24 - Q4c OR, 07 marks)
(S24 - Q4a, 03 marks)
(S22 - Q4a OR, 03 marks)
4. **How is quantity survey carried out by drones? / Describe the quantity survey carried out by drones.**
(S25 - Q5a, 03 marks)
(W24 - Q4b, 04 marks)
(W22 - Q3b, 04 marks)
(S25 - Q5a OR, 03 marks)
5. **Explain working mechanism of drones / How does a drone survey work?**
(W24 - Q4c, 07 marks)
(S24 - Q1c, 07 marks)
(W22 - Q2a, 03 marks)

Other Important Questions:

6. Write down the different types of the DRONE. (W25 - Q3b, 04 marks)
7. What are the application of drones in construction? (W25 - Q3c OR, 07 marks)
8. Compare photogrammetry with drone and without drone. (S25 - Q3b, 04 marks)
9. What do you mean by real time data and aerial mapping? (W24 - Q3a, 03 marks)
10. How drones are useful for project monitoring? (W24 - Q4b OR, 04 marks)
11. Explain real time data and structural health monitoring survey using drones. (S23 - Q5b, 04 marks)
12. How drone are work for under water survey? (W25 - Q5b OR, 04 marks)
13. How drone survey work? (S24 - Q1c, 07 marks)
14. What are the advantages & disadvantages of the Drone? (S24 - Q3b, 04 marks)
15. What is drone mapping? (S24 - Q4a OR, 03 marks)
16. Explain use of drones for marine surveys. (S25 - Q5b OR, 04 marks)
17. Explain marine survey method used by drones. (S25 - Q5b OR, 04 marks)
18. Explain real time data and land survey using drone. (S22 - Q5c, 07 marks)
19. What is photogrammetry? For what purpose it is used? (W24 - Q5a OR, 03 marks)
20. What are the benefits and shortfalls of aerial mapping through drones over traditional survey methods? (W23 - Q3c, 07 marks)
21. Explain how drones can be used for project management in real time? (W23 - Q3c OR, 07 marks)
22. What is Drone Photogrammetry? Explain how it works? (W23 - Q4c, 07 marks)
23. How can drones be used for marine surveys? (W23 - Q4a OR, 03 marks)
24. How is quality survey carried out by drones? (W22 - Q3b OR, 04 marks)
25. How drones are useful for project monitoring? (W22 - Q3a OR, 03 marks)
26. Which are the key parts of a drone? (W22 - Q5a OR, 03 marks)

Unit 4: Robotics in Construction

Repeated Questions:

1. **What are the benefits/advantages of robotics in construction industry?**
(W25 - Q4a OR, 03 marks)
(S23 - Q4b OR, 04 marks)
(S24 - Q3c, 07 marks)
(W22 - Q1c, 07 marks)
(S22 - Q4a, 03 marks)
(W23 - Q5c, 07 marks)
2. **How robotics could change the future of construction?**
(W25 - Q4a, 03 marks)
(S25 - Q3a OR, 03 marks)
(S23 - Q4a OR, 03 marks)
(S24 - Q4b OR, 04 marks)
3. **Write short note on types and working of brick laying machine/robots.**
(W24 - Q4a, 03 marks)
(S24 - Q3b, 04 marks)
(S22 - Q3b OR, 04 marks)
4. **Explain use of robots in demolition / robotic demolition in construction.**
(S25 - Q3a, 03 marks)
(S23 - Q4a, 03 marks)
(S22 - Q4b, 04 marks)
(W23 - Q5a OR, 03 marks)
5. **Explain use of robot in material handling and steel cutting / structural steel cutting.**
(S24 - Q4b, 04 marks)
(S22 - Q4b OR, 04 marks)
(W24 - Q4a OR, 03 marks)

Other Important Questions:

6. How Robotics used in bridges and roads? (W25 - Q4c, 07 marks)
7. Demonstrate the future scopes of robotics in construction. (S25 - Q3b OR, 04 marks)
8. Enlist various types of cranes used in construction work and explain anyone in detail with figure. (S25 - Q3c OR, 07 marks)
9. Explain the robots use for construction activities like Structural steel cutting. (S25 - Q4b, 04 marks)
10. Argue the benefits of robots in construction industry with respect to time, cost, quality, safety. (S25 - Q4c, 07 marks)
11. How the robots used for construction activities like Brick laying. (S25 - Q4b OR, 04 marks)
12. Judge the sentence "3D Scanner for surveying and project management is necessary." (S25 - Q4c OR, 07 marks)
13. Write the uses of robots in construction industry. (S23 - Q4b, 04 marks)
14. How Robotics could change the future of construction? (S23 - Q4a OR, 03 marks)
15. Explain benefits of robots in construction industry. (S23 - Q4b OR, 04 marks)
16. How 3d-printing Robot is working? (S24 - Q1b, 04 marks)
17. What is difference between robotics and automation? (S24 - Q3a, 03 marks)
18. Write about applications of Automated construction and robotics. (S24 - Q5b OR, 04 marks)
19. How can robots be used for material handling at sites? (W23 - Q4a, 03 marks)
20. Describe automated brick laying robot. (W23 - Q4b, 04 marks)
21. Describe a typical structural health monitoring framework where drones plays an essential part. (W23 - Q4b OR, 04 marks)
22. Write a note on robotic structural steel cutting system. (W23 - Q4c OR, 07 marks)
23. What are the advantages of using robots in demolition work? (W22 - Q4a, 03 marks)
24. What are the advantages of using robots in structural steel cutting? (W22 - Q4a OR, 03 marks)

25. Discuss future scopes of robotics in construction. (W22 - Q4c OR, 07 marks)
 26. Explain robotics in building demolition activity. (S22 - Q4b, 04 marks)
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Unit 5: Advanced Technologies (VR, AR, BIM, 3D Printing, SHM)

Repeated Questions:

1. **What is 3D printing? Explain advantages of 3D printing in construction.**
(W25 - Q4b OR, 04 marks)
(S23 - Q3c, 07 marks)
(S24 - Q4c, 07 marks)
(W22 - Q5b, 04 marks)
2. **Explain Building Information Modeling (BIM) / Write short note on BIM.**
(W25 - Q4b, 04 marks)
(W24 - Q5c, 07 marks)
(S23 - Q5c, 07 marks)
(S24 - Q5b OR, 04 marks)
(S22 - Q5b OR, 04 marks)
3. **What is photogrammetry? Explain advantages of using drone in photogrammetry.**
(W24 - Q5a OR, 03 marks)
(S23 - Q5c OR, 07 marks)
(S22 - Q5a, 03 marks)
(S22 - Q5b, 04 marks)
4. **What is structural health monitoring? Explain how it can be done using drones.**
(W25 - Q4a, 03 marks)
(S24 - Q5c, 07 marks)
(S22 - Q5c OR, 07 marks)
5. **Differentiate between virtual reality and augmented reality. How both are applicable in construction industry?**
(W24 - Q5c OR, 07 marks)
(W22 - Q2c OR, 07 marks)
(S25 - Q5c, 07 marks)

Other Important Questions:

6. What are the three phase of BIM? (W25 - Q4b, 04 marks)
7. Which material is used to 3d print for house? How does 3d printing work? (W25 - Q4b OR, 04 marks)
8. What are the advantage and disadvantages of 3d printing for construction? (W25 - Q4c OR, 07 marks)
9. What are the challenges will 3d painting have in the future? (W25 - Q5a, 03 marks)
10. How is laser scanning technology used in land surveying? (W25 - Q5b, 04 marks)
11. What is augment and virtual reality technology? (W25 - Q5c, 07 marks)
12. What are the benefits of BIM in construction project? (W25 - Q5a OR, 03 marks)
13. Write short note on: Properties of Canal Lining. (W25 - Q5c OR, 07 marks)
14. Explain the 3D printing with its parts and object. (S25 - Q4a, 03 marks)
15. Discuss how 3D printing is useful to construct bridges and roads. (S25 - Q4a OR, 03 marks)
16. Compare virtual reality vs. augmented reality with respect to civil engineering application. (S25 - Q5c, 07 marks)
17. Examine that the virtual reality is useful for quality inspection on site. (S25 - Q5c OR, 07 marks)
18. What are the uses and benefits of Virtual reality technologies? (W24 - Q5b, 04 marks)
19. Define photogrammetry. For what purpose it is used? (W24 - Q5a OR, 03 marks)
20. Write note on automation in highway construction. (W24 - Q5b OR, 04 marks)
21. Explain about 3D printing and its use in construction industry. (W24 - Q5a, 03 marks)
22. What are the uses of virtual reality technologies? (S23 - Q5a OR, 03 marks)
23. Explain the concept of virtual reality technology. (S23 - Q5b OR, 04 marks)
24. What is concept of virtual reality technology? (S24 - Q5a OR, 03 marks)
25. What is robotic demolition in construction? (S24 - Q5a OR, 03 marks)
26. Explain 3D printing in construction. (W22 - Q5b, 04 marks)

27. Define photogrammetry. For what purpose it is used? (W22 - Q5a, 03 marks)
28. How 3D scanner is useful for surveying? (W22 - Q5b OR, 04 marks)
29. Explain working of 3D scanner for surveying. (S23 - Q3c OR, 07 marks)
30. Explain working of 3D scanner for surveying. (S22 - Q4c, 07 marks)
31. Describe a typical example of implementation of virtual reality and augmented reality in buildings. (W23 - Q5a, 03 marks)
32. How can BIM be implemented in construction of buildings? (W23 - Q5b, 04 marks)
33. Write a note on 3D Printing of residential unit. (W23 - Q5b OR, 04 marks)
34. Describe 4D - BIM Model to be implemented in construction planning. (W23 - Q5c OR, 07 marks)
