

- N.B.** (1) Question No. 1 is **compulsory**.  
 (2) Attempt any **three** questions from the remaining **five** questions.  
 (3) Draw neat sketches wherever required.

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| 1. | Briefly explain:-   |   |
|    | (a) Carbon and Aramid fibres  | 5 |
|    | (b) Realkalisation  | 5 |
|    | (c) Construction errors   | 5 |
|    | (d) Maintenance schedule  | 5 |
| 2  | (a) Discuss briefly reasons of distress and deterioration in structures.  | 8 |
|    | (b) Explain in detail the process of repairing a RCC slab where reinforcement is completely corroded.                                       | 8 |
|    | (c) Write short note on Fibre reinforced concrete   | 4 |
| 3  | (a) Explain in detail the fibre wrapping technique for repair of structures. Also clearly explain suitability of this procedure.            | 8 |
|    | (b) Suggest some methods for repair of damaged water retaining structures.  | 8 |
|    | (c) Explain column jacketing with neat sketches   | 4 |
| 4  | (a) Explain in detail, the process of plate bonding.  | 8 |
|    | (b) Briefly explain:-   |   |
|    | i. Retrofitting of bridges  | 4 |
|    | ii. Repair of tunnels   | 4 |
|    | iii. Underwater repairs   | 4 |
| 5  | (a) Explain the process of seismic strengthening of existing RCC structures.  | 8 |
|    | (b) Discuss the procedure to carry out repair of existing runways and pavements.  | 8 |
|    | (c) Explain shotcreting as a repair technique   | 4 |
| 6  | (a) Explain with neat sketch, the procedure of strengthening of footings.   | 8 |
|    | (b) Briefly explain the procedure of repairing heritage structures. Suggest some special care to be taken during repair of such structures. | 8 |
|    | (c) What are the applications of sulphur infiltrated concrete   | 4 |

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