2 CHAPTER

Mortar

Q.1 Which of the following mortar is most suitable for construction work in water-logged areas?
(a) Lime mortar (b) Gauged mortar
(c) Cement mortar (d) Mud mortar

Q.2 After addition of cement, the gauged mortar should be used within
(a) 30 minutes (b) 1-2 hours
(c) 8-10 hours (d) 24 hours

Q.3 Match List-I with List-II and select the correct answer by using the codes given below the list:

List-I
A. Blasting method
B. Heating method
C. Wedging method
D. Excavating

List-II
1. Rocks bedded in horizontal layers
2. Soft stratified rocks
3. Stones buried in earth
4. For tunneling

Codes:

	A	B	C	D
(a)	1	2	3	4
(b)	4	1	2	3
(c)	1	3	4	2
(d)	1	3	2	4

Q.4 Consider the following statements:
1. Addition of a small quantity of slaked lime to portland cement in cement mortar increases the plasticity of the mortar.
2. Light weight mortar is prepared by mixing cement and finely crushed fire bricks with water.
3. Fire resistant mortar is prepared by mixing aluminous cement and finely ground china clay wares with water.

Which of these statements are correct?
(a) 1 and 2 (b) 1 and 3
(c) 2 and 3 (d) 1, 2 and 3

Q.5 Earthquake causes horizontal and vertical accelerations in the masonry structure. The magnitude of the forces induced in the structure depend on the
(a) age of the building
(b) strength of mortar
(c) type of roof
(d) mass of the structure

Q.6 **Assertion (A) :** Use of cement lime mortar is generally preferred to cement mortar.
Reason (R) : Cement lime mortar has higher movability and water retentivity characteristics than cement mortar.
(a) both A and R are true and R is the correct explanation of A
(b) both A and R are true but R is not a correct explanation of A
(c) A is true but R is false
(d) A is false but R is true

Q.7 Consider the following statements:
The use of relatively weak mortar
1. will accommodate movements due to loads and cracking, if any, and will be distributed as thin hair cracks which are less noticeable or harmful.
2. will result in reduction of stresses due to differential expansion of masonry units.
Which of these statements is/are correct?
(a) 1 alone
(b) 2 alone
(c) Both 1 and 2
(d) Neither 1 nor 2

Q.8 The approximate proportion of dry cement mortar required for brickwork is
(a) 60% (b) 45%
(c) 30% (d) 10%

Q.9 Consider the following statements:
1. Masonry in rich cement mortar though having good strength with high shrinkage is much more liable for surface cracks.
2. Lime mortar possesses poor workability and poor water retentivity and also suffers high shrinkage.
3. Masonry in lime mortar has better resistance against rain penetration and is less liable to crack when compared to masonry in cement mortar.
Which of these statements are correct?
(a) 1, 2 and 3 (b) 1 and 2
(c) 2 and 3 (d) 1 and 3

Q.10 One of the main demerit in using the lime mortar is that it
(a) is not durable.
(b) does not set quickly.
(c) swells.
(d) is plastic.

Q.11 Match List-I with List-II and select the correct answer using the codes given below:

List-I (Cement mortar for various works)	List-II (Proportion of cement sand in mortar)
A. Normal brick work	1. 1 : 4
B. Plastering work	2. 1 : 3
C. Grouting the cavernous rocks	3. 1 : 6
D. Gunniting	4. 1 : 1.5

Codes:

	A	B	C	D
(a)	1	2	3	4
(b)	3	1	2	4
(c)	3	1	4	2
(d)	4	3	2	1

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Answers Mortar

1. (c) 2. (b) 3. (b) 4. (b) 5. (d) 6. (a) 7. (c) 8. (c) 9. (d) 10. (b)
11. (c)

Explanations Mortar

2. (b)
Cement mortar should be used within 30 minutes after addition of water. Gauged mortar should be used within 2 hrs after addition of cement in mortar.
Lime mortar should be used within 36 hrs.

8. (c)
For 1 m^3 volume of brick work, the bricks required are 500. Therefore mortar needed = 1 – 500 × 0.19 × 0.09 × 0.9 = 0.23 m^3.
Add 15% extra for frog filling, brick bonding and wastage.
Volume of wet mortar = 0.23 × 1.15 = 0.265 m^3
1 m^3 of wet mortar = 1.25 m^3 of dry mortar
∴ 0.265 m^3 wet mortar = 0.33 m^3 of dry mortar
Dry mortar as a percentage of brick work

$$= \frac{0.33}{1} \times 100 = 33\%$$

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