

MARATHON CLASS

(BMC-ESE-PYQ-ONE-LINER)

Q: 1) If p is the standard consistency of cement the amount of water used in conducting the initial setting time test on cement is

- A : $0.65 p$
- B : $0.85 p$
- C : $0.6 p$
- D : $0.8 p$

Q: 2) Match List-I (type of cement) with List-II (Characteristics) and select the correct answer:

List-I	List-II
A. Air entraining portland cement	1. Suitable for very large structures
B. Low-heat portland Cement	2. Unsuitable for very large masses of concrete
C. Hydrophobic portland cement	3. Greater resistance to frost attack
d. Rapid hardening Portland cement	Safe storage under unfavorable conditions of humidity

Codes:

- A : A-4, B-2, C-1, D-3
- B : A-3, B-4, C-1, D-2
- C : A-3, B-1, C-4, D-2
- D : A-3, B-1, C-4, D-2

Q: 3) Blast furnace slag has approximately

- A : 45% calcium oxide and about 35% silica
- B : 50% alumina and 20% calcium oxide
- C : 25% magnesia and 15% silica
- D : 25% calcium sulphate and 15% alumina

Q: 4) High alumina cement is produced by fusing together a Mixture of

- A : Limestone and bauxite
- B : Limestone, bauxite and gypsum
- C : Limestone, gypsum, and clay
- D : Limestone, gypsum, bauxite, clay and chalk

Q: 5) Match List-I (Property of cement) with List-II (Testing apparatus) and select the correct answer.

List-I	List-II
A. Specific gravity B. Setting time C. Soundness D. Fineness	1. Blaine's apparatus 2. Le Chatelier's Flask 3. Compressometer 4. Autoclave 5. Vicat's apparatus

Codes:

- A : A-3, B-5, C-1, D-2
- B : A-2, B-5, C-1, D-4
- C : A-2, B-5, C-4, D-1
- D : A-5, B-3, C-4, D-1

Q: 6) Consider the following statements:
High Alumina Cement (HAC)

1. Has high early compressive strength and high heat of hydration than OPC-43 graded
 2. Is not suitable to be used in cold regions.
- Which of these statements is/are correct?

- A : 1 alone
- B : 2 alone
- C : both 1 and 2
- D : neither 1 nor 2

Q: 7) The proper size of mould for testing compressive strength of cement is

- A : 7.05 cm cube
- B : 10.05 cm cube
- C : 15 cm cube
- D : 12.05 cm cube

Q: 9) Match List-I (Type of cement) with List-II (Characteristics) and select the correct answer using the code given below the lists:

List-I	List-II
A. Rapidly hardening cement	1. Lower C ₃ A content than that in OPC 2. Contains pulverized fly that is OPC 3. Higher C ₃ S and C ₃ A contents than that in OPC 4. Lower C ₃ S and C ₃ A contents than in OPC
B. Low heat Portland cement	
C. Portland Pozzolana	
D. Sulphate resisting cement	

Codes:

- A : A-1, B-2, C-4, D-3
- B : A-3, B-4, C-2, D-1
- C : A-1, B-4, C-2, D-3
- D : A-3, B-2, C-4, D-1

Q: 10) In cements, generally the increase in strength during a period of 14 days to 28 days is primarily due to

- A : C₃A
- B : C₂S
- C : C₃S
- D : C₄AF

Q: 11) Consider the following type of cement :

1. Portland pulverized fuel ash cement
2. High alumina cement
3. Ordinary Portland cement
4. Rapid hardening cement

Which one of the following is the correct sequence of the above cements in terms of their increasing rate of strength gain?

- A : 2-3-4-1
- B : 1-3-4-2
- C : 2-1-3-4
- D : 3-1-2-4

Q: 12) Consider the following statements:

More than 6% magnesium oxide by weight in cement result in

1. High early strength and high heat generation
2. Less tendency towards volume change and

formation of cracks.

Which of these statements is/are correct?

- A : 1 Only
- B : 2 Only
- C : Neither 1 nor 2
- D : Both 1 and 2

Q: 13) Consider the following forms of water in a hydrated cement paste:

1. Capillary water
2. Chemically combined water
3. Interlayer water
4. Adsorbed water

Which of the above forms of water will, on its/their removal, cause shrinkage of the paste?

- A : 1, 2 and 3
- B : 1, 2 and 4
- C : 2, 3 and 4
- D : 1, 3 and 4

Q: 14) Which of the following statements is/are correct regarding the strength of cement?

1. particle sizes less than 3µm increases the viscous nature of the cement.
2. Finer particles in cement can be replaced by fly-ash to improve the strength

- A : 1 only
- B : 2 only
- C : Both 1 and 2
- D : Neither 1 nor 2

Q: 15) The constituent compound in Portland cement which reacts immediately with water, and also sets earliest, is

- A : Tricalcium silicate
- B : Dicalcium silicate
- C : Tricalcium aluminate
- D : Tetra calcium aluminoferrite

Q: 16) Consider the following statements:

1. Hydrophobic cement grains possesses low wetting ability
2. Rapid-hardening cement is useful in concreting under static, or running water
3. Quick-setting cement helps concrete to attain high strength in the initial period
4. White cement is just a variety of ordinary cement free of colouring oxides.

Which of the above statements are correct?

- A : 1 and 4 only

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- B : 1 and 3 only
- C : 2 and 4 only
- D : 2 and 3 only

Q: 17) Hydration of which compound is responsible for increase in strength of cement in later age?

- A : Tri-calcium Aluminate (C_3A)
- B : Tetracalcium aluminoferrite (C_4AF)
- C : Tri-calcium silicate (C_3S)
- D : Dicalcium silicate (C_2)

Q: 18) Which one of the following cements is a deliquescent?

- A : Quick setting portland cement
- B : white and coloured cement
- C : Calcium chloride cement
- D : Water repellent cement

Q: 19) Consider the following data for concrete with mild exposure:

Water-cement ratio = 0.50

Water = 191.6 litre

The required cement content will be

- A : 561 kg/m³
- B : 472 kg/m³
- C : 383 kg/m³
- D : 294 kg/m³

Q: 20) Air permeability method is used to determine

- A : Soundness of cement
- B : Setting time
- C : Fineness of cement
- D : Resistance of cement

Q: 21) Match List-I (Name of stone) with List-II (Use of stone) and select the correct answer using the codes given below the lists:

List-I	List-II
A. Granite	1. Ornamental work
B. Marble	2. Ballast
C. Chalk	3. Rough stone work
D. Laterite	4. Manufacture of cement

Codes:

- A : A-3, B-1, C-2, D-4
- B : A-2, B-3, C-1, D-4
- C : A-2, B-1, C-4, D-3
- D : A-1, B-4, C-2, D-3

Q: 22) Match List I with List II and select the correct answer using the codes given below the lists:

List-I	List-II
A. Pugmill	1. Blasting
B. Plug and feathers	2. Lifting
C. Lewis	3. Splitting
D. Gelnite	4. Tempering

Codes:

- A : A-2, B-1, C-3, D-4
- B : A-2, B-3, C-4, D-1
- C : A-4, B-3, C-2, D-1
- D : A-2, B-1, C-4, D-3

Q: 23) The crushing strength of a good building stone should be at least.

- A : 50 MPa
- B : 100 MPa
- C : 150 MPa
- D : 200 MPa

Q: 24) The bricks which are extensively used for basic refractories in furnaces are

- A : Chrome bricks
- B : Sillimanite bricks
- C : Magnesite bricks
- D : Forsterite bricks

Q: 25) Match List-I (Constituents of bricks) with List-II (Corresponding influence) and select the correct answer:

List - I	List - II
A. Alumina	1. Colour of brick
B. Silica	2. Plasticity recovery for moulding
C. Magnesia	3. Reacts with silica during burning and causes particles to unite together and development of strength.
D. Limestone	4. Preserves the form of brick at high temperature and prevents

Codes:

- A : 2, 1, 4, 3
- B : 3, 4, 1, 2
- C : 2, 4, 1, 3
- D : 3, 1, 4, 2

Q: 26) Consider the following stages in the manufacturing of bricks:

1. Weathering
2. Moulding

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3. Tempering

The correct sequence of these stages in the manufacturing of the bricks is

- A : 1, 2, 3
- B : 2, 3, 1
- C : 1, 3, 2
- D : 3, 2, 1

Q: 27) Consider the following characteristics with respect to brick

1. Minimum compressive strength = 175 (Standard units)
2. Minimum absorption is 24 hours, (in % of dry weight) = 12
3. Very little efflorescence
4. Tolerance in dimension ± 8

As per Indian standards classification, a brick with the characteristics given above is termed as

- A : H I
- B : F II
- C : L II
- D : H II

Q: 28) The temperature at which the bricks are burnt in kiln varies from

- A : 500° to 800°C
- B : 800° to 1000°
- C : 1000° to 1200°
- D : 1200° to 1500°

Q: 29) Consider the following statements:

1. Soil containing more than 30% of calcium hydroxide is used for manufacture of sand lime brick.
2. Carbon bricks are made from crushed coke bonded with tar.

Which of the statements given above is/are correct?

- A : 1 only
- B : 2 only
- C : Both (1) and (2)
- D : Neither (1) nor (2)

Q: 30) For high class brick masonry, which are the proper bricks?

- A : Refractory bricks
- B : Jamb bricks
- C : Bull nose bricks
- D : Modular bricks