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ENGINEERS ACADEMY

RRB - JE

CIVIL

Railway Recruitment Board

Volume - 14

RRB PYQ CBT 2 Tech

SIERRA INNOVATIONS

1 Chapter

BUILDING MATERIALS & CONSTRUCTION

RRB Previous Year Questions

RRB : JUNIOR ENGINEER

1. Excess silica in cement

(a) increases the setting time

(b) decreases the setting time

(c) weakens the strength of the cement

(d) does not affect the setting time

[RRB JE 2014]

2. For plastering walls, cement mortar would be generally used in which ratio?

(a) 1 : 2 (b) 1 : 4

(c) 1 : 6 (d) 1 : 8

[RRB JE 2014]

3. Separation of water or sand or cement from a freshly mixed concrete is known as :

(a) Segregation (b) Creeping

(c) Bleeding (d) Flooding

[RRB JE 2014]

4. In paints, linseed oil is used as

(a) a solidifier

(b) a driver

(c) a vehicle

(d) a waterproofing base

[RRB JE 2014]

5. A bond in a brick work when headers and stretchers are placed in alternate layers is called

(a) Header bond (b) English bond

(c) Flemish bond (d) Herring bone bond

[RRB JE 2014]

1. सीमेंट में सिलिका की अधिकता

(a) जमावकाल को बढ़ाती है

(b) जमावकाल को घटाती है

(c) सीमेंट की सामर्थ्य को कम करती है

(d) जमावकाल को प्रभावित नहीं करती है

[RRB JE 2014]

2. दीवारों पर प्लस्तर करने के लिए, सीमेंट मोर्टार का प्रयोग आमतौर पर किस अनुपात में किया जाता है?

(a) 1 : 2 (b) 1 : 4

(c) 1 : 6 (d) 1 : 8

[RRB JE 2014]

3. ताजा मिश्रित कंक्रीट से जल या रेत या सीमेंट का अलग हो जाना कहलाता है।

(a) पृथक्करण (b) क्रीपिंग

(c) ब्लीडिंग (d) फ्लडिंग

[RRB JE 2014]

4. पेंट में, अलसी का तेल किस रूप में उपयोग किया जाता है?

(a) एक ठोसकारक

(b) एक चालक

(c) एक वाहक

(d) एक जलरोधी आधार

[RRB JE 2014]

5. एक ईंट चिनाई कार्य में जोड़ में जब हेडर और स्ट्रैचर को वैकल्पिक परतों में रखा जाता है, तो उसे कहा जाता है

(a) हेडर जोड़ (b) इंग्लिश जोड़

(c) फ्लेमिश जोड़ (d) हेरिंग बोन जोड़

[RRB JE 2014]

6. The outer protective layer of a tree is
(a) cambium layer
(b) pith
(c) bark
(d) sap
[RRB JE 2014]

7. Which lime is most suitable for white washing ?
(a) quick lime (b) stone lime
(c) kankar lime (d) shell lime
[RRB JE 2014]

8. A pigment generally used to impart white colour in a paint is
(a) graphite (b) lead
(c) copper sulphate (d) zinc
[RRB JE 2014]

9. The dimensions of a brick are 10 cm × 4 cm × 3 cm. What is the total surface area of this brick?
(a) 82 cm^2 (b) 164 cm^2
(c) 120 cm^2 (d) 180 cm^2
[RRB JE 2014]

10. Lime mortar is generally made with
(a) Quick lime (b) Fat lime
(c) Hydraulic lime (d) White lime
[RRB JE 2014]

11. Cement concrete is a
(a) Elastic material
(b) Visco-elastic material
(c) Non elastic material
(d) plastic material
[RRB JE 26.08.2015]

12. The structure made of rigid curved surfaces are known as
(a) Surface structure
(b) Frame structure
(c) Shell structure
(d) Space structure
[RRB JE 26.08.2015]

6. एक वृक्ष की बाहरी संरक्षक परत है।
(a) केंबियम (Cambium) परत
(b) मज्जा
(c) छाल (Bark)
(d) रस (Sap)
[RRB JE 2014]

7. सफेदी के लिए कौन–सा चूना सबसे उपयुक्त है?
(a) त्वरित चूना (b) पत्थर चूना
(c) कंकड़ चूना (d) शेल चूना
[RRB JE 2014]

8. आमतौर पर एक पेंट में सफेद रंग देने के लिए इस्तेमाल किया जाने वाला वर्णक है
(a) ग्रेफाइट (b) लेड
(c) कॉपर सल्फेट (d) जिंक
[RRB JE 2014]

9. एक ईंट की विमाएँ 10 सेमी × 4 सेमी × 3 सेमी है इस ईंट का कुल पृष्ठीय क्षेत्रफल कितना है ?
(a) 82 सेमी^{2} (b) 164 सेमी^{2}
(c) 120 सेमी^{2} (d) 180 सेमी^{2}
[RRB JE 2014]

10. मसाला बनाने के लिए कौन–सा चूना उपयुक्त है?
(a) त्वरित चूना (b) Fat चूना
(c) जलीय चूना (d) सफेद चूना
[RRB JE 2014]

11. सीमेंट कंक्रीट
(a) प्रत्यास्थ सामग्री है
(b) विस्कॉ–प्रत्यास्थ सामग्री
(c) अप्रत्यास्थ सामग्री
(d) प्लास्टिक सामग्री है
[RRB JE 26.08.2015]

12. कठोर घुमावदार सतहों से बनी संरचना, के रूप में जानी जाती ह –
(a) सतह संरचना
(b) फ्रेम संरचना
(c) शैल संरचना
(d) अंतरिक्ष (space) संरचना
[RRB JE 26.08.2015]

13. When water is added to cement
(a) Chemical reaction starts
(b) heat is absorbed
(c) heat is generated
(d) Impurities are washed out
[RRB JE 26.08.2015]

14. Initial setting time is maximum for
(a) Portland-Pozzolana cement
(b) Portland-Slag cement
(c) Low heat Portland-pozzolana cement
(d) High strength Portland cement
[RRB JE 26.08.2015]

15. A sample of cement is said to be sound when it does not contain free
(a) Lime (b) Silica
(c) Iron oxide (d) alumina
[RRB JE 27.08.2015]

16. After storage, the strength of cement
(a) Decreases
(b) Increases
(c) Remains same
(d) may increase or decrease
[RRB JE 27.08.2015]

17. Which one of the following does not react with concrete ?
(a) Sewage water
(b) Sulfuric acid
(c) Vegetable oil
(d) Alcohol
[RRB JE 28.08.2015]

18. Addition of pozzolana to ordinary Portland cement increase
(a) Bleeding
(b) Shrinkage
(c) Permeability
(d) Heat of hydration
[RRB JE 28.08.2015]

13. जब सीमेंट में पानी मिलाया जाता है तो–
(a) रासायनिक प्रतिक्रिया शुरू होती है
(b) ऊष्मा अवशोषित होती है
(c) ऊष्मा उत्पन्न होती है
(d) अशुद्धि हट जाती है
[RRB JE 26.08.2015]

14. आरंभिक जमावकाल इसके लिए अधिकतम है –
(a) पोर्टलैंड – पॉजोलाना सीमेंट
(b) पोर्टलैंड – स्लैग सीमेंट
(c) अल्प ऊष्मा पोर्टलैंड पॉजोलाना सीमेंट
(d) उच्च सामर्थ्य पोर्टलैंड सीमेंट
[RRB JE 26.08.2015]

15. एक सीमेंट के प्रतिदर्श को निर्दोष कहा जायेगा, यदि उसमें मुक्त रूप में न हो–
(a) चूना (b) सिलिका
(c) लौह ऑक्साइड (d) एल्यूमिना
[RRB JE 27.08.2015]

16. भण्डारण के बाद, सीमेंट की सामर्थ्य ..... है।
(a) घटती
(b) बढ़ती
(c) समान रहती
(d) घटती या बढ़ती
[RRB JE 27.08.2015]

17. निम्न में से कौन एक कंक्रिट के साथ क्रिया नहीं करता है –
(a) सीवेज पानी
(b) स्लफ्यूरिक एसिड
(c) वनस्पति तेल
(d) एल्कोहॉल
[RRB JE 28.08.2015]

18. साधारण पोर्टलैंड सीमेंट में पोजोलाना मिलाने से बढ़ती है।
(a) ब्लीडिंग
(b) संकुचन
(c) पारगम्यता
(d) जलयोजन की ऊष्मा
[RRB JE 28.08.2015]

19. Which of the following cement has maximum percentage of C_3S
(a) Ordinary Portland cement
(b) Low heat cement
(c) Sulphate resisting cement
(d) Rapid hardening cement
[RRB JE 28.08.2015]

20. Grading of aggregate in a concrete mix is necessary to achieve
(a) Adequate workability
(b) Higher density
(c) Reduction in voids
(d) Better durability
[RRB JE 29.08.2015]

21. As per IS specification, the maximum final setting time for ordinary portland cement should be
(a) 30 minutes (b) 1 hour
(c) 6 hours (d) 10 hours
[RRB JE 29.08.2015]

22. Bleeding of concrete is said to occur when
(a) Finer particles settle down at the bottom
(b) Coarser particles get separated
(c) Cement paste rises to the surface of concrete
(d) Finer particles collect in isolated pockets
[RRB JE 29.08.2015]

23. The setting and hardening of cement after addition of water is due to
(a) The presence of gypsum
(b) Binding action of water
(c) Hydration of some of the constituent compounds of cement
(d) Evaporation of water
[RRB JE 29.08.2015]

24. Which of the following trees yields hard wood ?
(a) Deodar (b) Chir
(c) Shishum (d) Pine
[RRB JE 26.08.2015]

19. निम्नलिखित में से किस सीमेंट में C_3S का अधिकतम प्रतिशत होता है ?
(a) साधारण पोर्टलैंड सीमेंट
(b) अल्प ऊष्मा सीमेंट
(c) सल्फेट प्रतिरोधी सीमेंट
(d) तीव्र कठोरीकृत सीमेंट
[RRB JE 28.08.2015]

20. कंक्रीट मिश्रण में कंकड़ (aggregate) की ग्रेडिंग, को प्राप्त करने के लिए आवश्यक है
(a) पर्याप्त सूकार्यता
(b) उच्च घनत्व
(c) रिक्तता में कमी
(d) बेहतर स्थायित्व
[RRB JE 29.08.2015]

21. भारतीय मानकों के अनुसार, साधारण पोर्टलैंड सीमेंट के लिए अधिकतम अंतिम जमाव काल होना चाहिए
(a) 30 मिनट (b) 60 मिनट
(c) 6 घंटे (d) 10 घंटे
[RRB JE 29.08.2015]

22. कंक्रीट की ब्लीडिंग तब कही जाती है जब
(a) महीन कण तल पर बैठ जाये
(b) मोटे कण अलग हो जाये
(c) सीमेंट पेस्ट कंक्रीट की सतह पर आ जाये
(d) अलग–अलग पॉकेट में महीन कण इकट्ठा हो जाए
[RRB JE 29.08.2015]

23. पानी मिलाने के बाद सीमेंट पेस्ट का जमना और कठोर होना किस कारण से होता है?
(a) जिप्सम की उपस्थिति से
(b) पानी जुड़ने की क्रिया से
(c) सीमेंट के कुछ संघटक यौगिको के जलयोजन के कारण
(d) पानी के वाष्पीकरण से
[RRB JE 29.08.2015]

24. निम्नलिखित में से कौन–सा वृक्ष कठोर लकड़ी प्रदान करता है ?
(a) देवदार (b) चीड़
(c) शिशम (d) पाइन
[RRB JE 26.08.2015]

25. The main ingredients of Portland cement are

(a) Lime and silica

(b) Lime and alumina

(c) Silica and alumina

(d) Lime and iron

[RRB JE 26.08.2015]

26. Which of the following timbers is suitable for making sports goods ?

(a) Mulberry (b) Mahogany

(c) Sal (d) Deodar

[RRB JE 26.08.2015]

27. Seasoning of timber is required to

(a) Soften the timber

(b) Harden the timber

(c) Straighten the timber

(d) Remove sap from the timber

[RRB JE 26.08.2015]

28. Plaster of Paris is obtained by calcination of

(a) Gypsum (b) Bauxite

(c) Lime stone (d) Kankar

[RRB JE 27.08.2015]

29. Plywood is obtained from

(a) Bamboo

(b) Teak wood

(c) Structural timber

(d) Commonly available timber

[RRB JE 27.08.2015]

30. First class timber has an average life of

(a) Less than one year

(b) 1 to 5 years

(c) 5 to 10 years

(d) More than 10 years

[RRB JE 27.08.2015]

25. पोर्टलैण्ड सीमेंट के मुख्य संघटक है।

(a) चूना और सिलिका

(b) चूना और एल्यूमिना

(c) सिलिका और एल्यूमिना

(d) चूना और आयरन

[RRB JE 26.08.2015]

26. निम्नलिखित में से कौन–सी लकड़ी खेल का सामान बनाने के लिए उपयुक्त है ?

(a) शहतूत (b) महोगनी

(c) साल (d) देवदार

[RRB JE 26.08.2015]

27. लकड़ी के संशोषण की आवश्यकता क्यों होती है ?

(a) लकड़ी को नरम करने के लिए

(b) लकड़ी को कठोर करने के लिए

(c) लकड़ी को सीधा करने के लिए

(d) लकड़ी में से रस हटाने के लिए

[RRB JE 26.08.2015]

28. प्लास्टर ऑफ पेरिस को किसके निस्तापन से प्राप्त किया जाता है?

(a) जिप्सम (b) बॉक्साइट

(c) लाइमस्टोन (d) कंकर

[RRB JE 27.08.2015]

29. प्लाईवुड ..... से प्राप्त होती है।

(a) बांस

(b) सागौन लकड़ी

(c) संरचनात्मक प्रकाष्ठ

(d) सामान्यतः उपलब्ध लकड़ी

[RRB JE 27.08.2015]

30. प्रथम श्रेणी के प्रकाष्ठ की औसत आयु होती है–

(a) एक वर्ष से कम

(b) 1 से 5 वर्ष तक

(c) 5 से 10 वर्ष तक

(d) 10 वर्ष से अधिक

[RRB JE 27.08.2015]

31. The strength of timber is maximum when load applied is

(a) Parallel to grain

(b) Perpendicular to grain

(c) Inclined at 45° to grain

(d) Inclined at 60° to grain

[RRB JE 28.08.2015]

32. For making spiral staircases, ideal material is

(a) pig iron (b) cast iron

(c) wrought iron (d) steel

[RRB JE 29.08.2015]

33. On the basis of durability test, Forest Research Institute of India, Dehradun, a tree is highly durable if its average life is more than

(a) 5 years (b) 10 years

(c) 15 years (d) 20 years

[RRB JE 29.08.2015]

34. Which of the following is softwood ?

(a) Deodar (b) Teak

(c) Sal (d) Mahogany

[RRB JE 29.08.2015]

35. The percentage of gypsum added to the clinker during manufacturing

(a) 0.2 (b) 0.25 to 0.35

(c) 2.5 to 3.5 (d) 5 to 10

[RRB JE 30.08.2015]

36. Out of the four processes listed, which is the last process?

(a) Hardening (b) Compaction

(c) Setting (d) Evaporation

[RRB CBT-2 28.08.2019]

37. If a beam or column becomes weak or found to be insufficient, the most effective way to increase its strength is by -

(a) Jacketing (b) Grouting

(c) Plate Bonding (d) Micro concreting

[RRB CBT-2 28.08.2019]

31. टिम्बर की सामर्थ्य अधिकतम होती है, जब भार लगाया जाता है –

(a) ग्रेन के समानांतर

(b) ग्रेन के लंबवत्

(c) ग्रेन से 45° झुका हुआ

(d) ग्रेन से 60° झुका हुआ

[RRB JE 28.08.2015]

32. घुमावदार सिढ़ियाँ बनाने के लिए, आदर्श सामग्री इनमें से कौन–सी है?

(a) कच्चा लोहा (b) ढलवाँ लोहा

(c) पिटवाँ लोहा (d) इस्पात

[RRB JE 29.08.2015]

33. भारतीय वन अनुसंधान संस्थान, देहरादून के स्थायित्व परीक्षण के आधार पर, कोई पेड़ तब सबसे अधिक स्थायी होता है जब इसकी औसत आयु निम्नलिखित में से किसी एक से अधिक होती है–

(a) 5 वर्ष (b) 10 वर्ष

(c) 15 वर्ष (d) 20 वर्ष

[RRB JE 29.08.2015]

34. निम्नलिखित में से किस वृक्ष से मृदुकाष्ठ (नरम लकड़ी) प्राप्त की जाती है?

(a) देवदार (b) सागौन

(c) साल (d) महोगनी

[RRB JE 29.08.2015]

35. निमार्ण के द्वौरान क्लिंकर में मिलाए गए जिप्सम का प्रतिशत होगा –

(a) 0.2 (b) 0.25 से 0.35

(c) 2.5 से 3.5 (d) 5 से 10

[RRB JE 30.08.2015]

36. दी गई 4 प्रक्रियाओं में से, अंतिम प्रक्रिया कौनसी है?

(a) कठोरीकरण (b) संहनन

(c) स्थापन (d) वाष्पीकरण

[RRB CBT-2 28.08.2019]

37. यदि एक बीम या स्तम्भ कमजोर हो जाता है या अपर्याप्त पाया जाता है, तो इसकी सामर्थ्य बढ़ाने की सर्वाधिक प्रभावी विधि कौनसी है?

(a) जैकेटिंग (b) ग्राउटिंग

(c) प्लेट बॉन्डिंग (d) माइक्रो कंक्रीटिंग

[RRB CBT-2 28.08.2019]

38. As per Indian Standard, the modular size of bricks is-

(a) 19 cm × 9 cm × 9 cm

(b) 21 cm × 10 cm × 10 cm

(c) 25 cm × 22 cm × 22 cm

(d) 18 cm × 9 cm × 9 cm

[RRB CBT-2 28.08.2019]

39. Mangalore Tiles belong to the category of -

(a) Concrete tiles (b) Slate tiles

(c) Burnt clay tiles (d) Mosaic tiles

[RRB CBT-2 28.08.2019]

40. The short height wall constructed above roof slab in open terrace is called as-

(a) Plinth Wall (b) Boundary Wall

(c) Partition Wall (d) Parapet Wall

[RRB CBT-2 28.08.2019]

41 Which of the following is quick lime?

(a) $Ca(OH)_2$ (b) $CaCO_3$

(c) CaO (d) $CaCl_2$

[RRB CBT-2 28.08.2019]

42. Long narrow diameter steel pipes are used for conveying fresh concrete down to deep depths, especially below water bodies. These pipes are called as -

(a) Tremie Pipe (b) Down Pipe

(c) Pumping Pipe (d) Transaction Pipe

[RRB CBT-2 28.08.2019]

43. In roofing sheet terminology, CGI means -

(a) Corrugated Grating Iron

(b) Coated Galvanized Iron

(c) Coated Grating Iron

(d) Corrugated Galvanized Iron

[RRB CBT-2 28.08.2019]

44. The moisture content of a well seasoned wood is in the range-

(a) 27 - 35% (b) 60 - 65%

(c) 48 - 60% (d) 10 - 12%

[RRB CBT-2 28.08.2019]

38. भारतीय मानक के अनुसार, ईंटों का मॉड्यूलर आकार होता है-

(a) 19 cm × 9 cm × 9 cm

(b) 21 cm × 10 cm × 10 cm

(c) 25 cm × 22 cm × 22 cm

(d) 18 cm × 9 cm × 9 cm

[RRB CBT-2 28.08.2019]

39. मंगलौर टाइल्स किस श्रेणी से संबंधित है?

(a) कंक्रीट टाइल्स (b) स्लेट टाइल्स

(c) बर्न्ट क्ले टाइल्स (d) मोज़ेक टाइल्स

[RRB CBT-2 28.08.2019]

40. खुली छत में रूफ स्लैब के ऊपर निर्मित छोटी ऊँचाई की दीवार को क्या कहा जाता है?

(a) प्लिंथ दीवार (b) परिसीमा दीवार

(c) विभाजक दीवार (d) मुण्डेर की दीवार

[RRB CBT-2 28.08.2019]

41. निम्नलिखित में से कौनसा त्वरित चूना (quicklime) है-

(a) $Ca(OH)_2$ (b) $CaCO_3$

(c) CaO (d) $CaCl_2$

[RRB CBT-2 28.08.2019]

42. ताजा कंक्रीट को अधिक गहराई वाले स्थानों में, विशेषकर जल निकायों के नीचे ले जाने के लिए लम्बे संकीर्ण व्यास वाले स्टील पाइपों का उपयोग किया जाता है, इन पाइपों को क्या कहा जाता है?

(a) ट्रेमी पाइप (b) डाउन पाइप

(c) पंपिंग पाइप (d) ट्रांजैक्शन पाइप

[RRB CBT-2 28.08.2019]

43. रूफिंग शीट शब्दावली में, CGI का क्या अभिप्राय है?

(a) कॉरगेटेड ग्रेटिंग आयरन

(b) कोटेड गैल्वेनाइज्ड आयरन

(c) कोटेड ग्रेटिंड आयरन

(d) कॉरगेटेड गैल्वेनाइज्ड आयरन

[RRB CBT-2 28.08.2019]

44. एक अच्छी तरह से परिपक्व लकड़ी में नमी की मात्रा _____होती है।

(a) 27 - 35% (b) 60 - 65%

(c) 48 - 60% (d) 10 - 12%

[RRB CBT-2 28.08.2019]

45. Steam curing is used in-
(a) Mass production of precast concrete
(b) Long slabs and columns
(c) All of the options
(d) Columns only
[RRB CBT-2 28.08.2019]

46. The type of hollow used when there is an elaborated window opening in the wall is -
(a) Partition block (b) Jamb block
(c) Pillar block (d) Lintel block
[RRB CBT-2 28.08.2019]

47. Cavity wall is generally provided for-
(a) Prevention of dampness
(b) Sound insulation
(c) Heat insulation
(d) All of the options
[RRB CBT-2 28.08.2019]

48. The hardest among the natural stones listed here is-
(a) Slate (b) Limestone
(c) Granite (d) Marble
[RRB CBT-2 28.08.2019]

49. Minimum voids in aggregates can be obtained by using-
(a) Aggregates all of the same size
(b) Manufactured aggregates
(c) Aggregates of varying sizes
(d) Aggregates of the same shape
[RRB CBT-2 28.08.2019]

50. In split tension test, the nature of testing is -
(a) Cylindrical specimen is subjected to axial compression on its longitudinal curved surface area
(b) Cubical specimen is subjected to axial compression on its diagonal axis
(c) Cylindrical Specimen is subjected to axial tension on its longitudinal curved surface area
(d) Cylindrical Specimen is subjected to axial compression on its cross sectional circular surface area
[RRB CBT-2 28.08.2019]

45. भाप क्यूरिंग का उपयोग किसमें किया जाता है?
(a) प्रीकास्ट कंक्रीट के बड़े पैमाने पर उत्पादन में
(b) लम्बे स्लैब और स्तंभों में
(c) विकल्पों में से सभी
(d) केवल स्तम्भों में
[RRB CBT-2 28.08.2019]

46. जब किसी दीवार में इलैबोरेटेड विण्डो ओपनिंग होती है, तो किस प्रकार के हॉलो (hollow) का उपयोग किया जाता है?
(a) विभाजक ब्लॉक (b) जैम्ब ब्लॉक
(c) पिलर ब्लॉक (d) लिंटेल ब्लॉक
[RRB CBT-2 28.08.2019]

47. कैविटी वाल सामान्यतः_____के लिए प्रदान की जाती है।
(a) नमी की रोकथाम (b) ध्वनि रोधन
(c) ऊष्मारोधन (d) विकल्पों में से सभी
[RRB CBT-2 28.08.2019]

48. यहाँ सूचीबद्ध प्राकृतिक पत्थरों में से कौनसा सर्वाधिक कठोर होता है?
(a) स्लेट (b) चूना पत्थर
(c) ग्रेनाइट (d) संगमरमर
[RRB CBT-2 28.08.2019]

49. बजरी (aggregates) में न्यूनतम रिक्ति (void)_____का उपयोग करके प्राप्त की जा सकती है।
(a) समान आकार की सभी बजरी
(b) निर्मित बजरी
(c) विभिन्न आकार की बजरी
(d) समान आकृति की बजरी
[RRB CBT-2 28.08.2019]

50. विभाजित तन्य परीक्षण (split tension test) में परीक्षण की प्रकृति कैसी होती है?
(a) बेलनाकार नमूना इसके अनुदैर्ध्य वक्र पृष्ठ के क्षेत्रफल पर अक्षीय संपीड़न के अधीन होता है
(b) घनाकार नमूना, इसकी विकर्णीय अक्ष पर अक्षीय संपीड़न के अधीन होता है
(c) बेलनाकार नमूना, इसके अनुदैर्ध्य वक्र पृष्ठ के क्षेत्रफल पर अक्षीय तनाव के अधीन होता है
(d) बेलनाकार नमूना, इसके अनुप्रस्थ काट के वृत्तीय क्षेत्र के पृष्ठीय क्षेत्रफल पर अक्षीय संपीड़न के अधीन होता है
[RRB CBT-2 28.08.2019]

51. Which finishing covers with a new protective layer over the whole surface area of walls constructed by brick or block Masonry?

(a) False Ceiling (b) Pointing

(c) Grouting (d) Plastering

[RRB CBT-2 28.08.2019]

52. The beam outside a wall up to the floor level above it, is known as-

(a) Purlin (b) Spandrel

(c) Lintel (d) Rafter

[RRB CBT-2 28.08.2019]

53. Shielding glass contains-

(a) Lead oxide (b) Chrome

(c) Fibre glass (d) Steel wires

[RRB CBT-2 28.08.2019]

54. The cheapest way to prevent the formation of diagonal bottom corner cracks in windows can be prevented by -

(a) Using Concrete blocks for wall instead of bricks

(b) Providing Sill Beam

(c) Providing circular shaped window openings instead of rectangular openings

(d) Providing RCC frame all round the rectangular opening

[RRB CBT-2 28.08.2019]

55. The common type of staircase in buildings with two consecutive 90° direction changes at mid-landing slab level is:

(a) Straight Flight Staircase

(b) Dog-legged Staircase

(c) Spiral Staircase

(d) Ramp

[RRB CBT-2 28.08.2019]

56. The test conducted by Vicat's apparatus is-

(a) Compression strength

(b) Consistency

(c) Tensile Strength

(d) Fineness

[RRB CBT-2 28.08.2019]

51. ईंट या ब्लॉक चिनाई द्वारा निर्मित दीवारों के पूर्ण पृष्ठीय क्षेत्रफल पर एक नई सुरक्षात्मक परत चढ़ाने को किस फिनिशिंग के अंतर्गत रखा गया है?

(a) फाल्स सीलिंग (b) पॉइंटिंग

(c) ग्राउटिंग (d) प्लास्टरिंग

[RRB CBT-2 28.08.2019]

52. किसी दीवार के बाहर उसके फर्श के स्तर तक जाने वाली बीम को क्या कहा जाता है?

(a) पर्लिन (b) स्पैन्ड्रेल

(c) लिंटल (d) राफ्टर

[RRB CBT-2 28.08.2019]

53. परिरक्षण कांच में _____मौजूद होता है।

(a) लेड ऑक्साइड (b) क्रोम

(c) फाइबर ग्लास (d) स्टील तार

[RRB CBT-2 28.08.2019]

54. खिड़कियों में विकर्णतः निचले कोने में दरार बनने से रोकने का सबसे सस्ता तरीका कौनसा है?

(a) दीवार के लिए ईंटों के बजाय कंक्रीट ब्लॉक का उपयोग करना

(b) सिल बीम प्रदान करना

(c) आयताकार ओपनिंग के बजाय वृत्ताकार विण्डों ओपनिंग प्रदान करना

(d) आयताकार ओपनिंग के हर तरफ RCC फ्रेम प्रदान करना

[RRB CBT-2 28.08.2019]

55. इमारतों में प्रयुक्त सीढ़ियों का सामान्य प्रकार, जिसमें लैंडिंग स्लैब के मध्य स्तर पर दो क्रमागत सीढ़ियों के बीच 90 डिग्री का अंतर होता है क्या कहलाता है?

(a) स्ट्रेट फ्लाइट स्टेयरकेस

(b) डॉग लेग्ड स्टेयरकेस

(c) सर्पिल सीढ़ियां

(d) रैंप

[RRB CBT-2 28.08.2019]

56. विकाट उपकरण द्वारा इनमें से किसका परीक्षण किया जाता है?

(a) संपीड़न सामर्थ्य

(b) सघनता

(c) तन्यता सामर्थ्य

(d) महीनता

[RRB CBT-2 28.08.2019]

57. What is the conveyor system used for transporting loose materials like soil, ores, coal, concrete, etc. without the need for full total enclosure?

(a) Screw conveyor

(b) Bucket conveyor

(c) Roller conveyor

(d) Belt conveyor

[RRB CBT-2 28.08.2019]

58. DPC means-

(a) Damp Proof Course

(b) Damp Prevention Course

(c) Dampness Permeable Concrete

(d) Damp Plain Concrete

[RRB CBT-2 28.08.2019]

59. Superplasticizer increases slump of concrete due to which phenomenon?

(a) Drying of cement particles

(b) Dispersion and deflocculation of cement particles

(c) Deterioration of cement particles

(d) Densification of cement particles

[RRB CBT-2 28.08.2019]

60. If there is any obstruction to the uniform settlement of hardened concrete, it forms a crack known as-

(a) Shear crack

(b) Random crack

(c) Settlement crack

(d) Longitudinal crack

[RRB CBT-2 28.08.2019]

61. The rain waterholes in the parapet or in edging is called as-

(a) Water proofing

(b) Weep hole

(c) Edge hole

(d) Hole

[RRB CBT-2 28.08.2019]

57. पूर्णतया बंद स्थान (enclosure) की आवश्यकता के बिना खुली सामग्री जैसे मिट्टी, अयस्क, कोयला, कंक्रीट आदि के परिवहन के लिए प्रयुक्त कन्वेयर प्रणाली को क्या कहा जाता है?

(a) स्क्रू कन्वेयर

(b) बकेट कन्वेयर

(c) रोलर कन्वेयर

(d) बेल्ट कन्वेयर

[RRB CBT-2 28.08.2019]

58. DPC का पूर्ण रूप क्या है?

(a) डैम्प प्रूफ कोर्स

(b) डैम्प प्रिवेंशन कोर्स

(c) डैम्पनेस पर्मिएबल कंक्रीट

(d) डैम्प प्लेन कंक्रीट

[RRB CBT-2 28.08.2019]

59. सुपरप्लास्टिसाइजर किस परिघटना द्वारा कंक्रीट के स्लंप में वृद्धि करता है?

(a) सीमेन्ट के कणों को सुखाकर

(b) सीमेन्ट कणों के फैलाव और अनूर्णन द्वारा

(c) सीमेन्ट कणों के ह्रास से

(d) सीमेन्ट कणों के घनीकरण से

[RRB CBT-2 28.08.2019]

60. एकसमान स्थापन (uniform settlement) में कोई भी बाँधा आने पर उत्पन्न होने वाली दरार को क्या कहा जाता है?

(a) अपरूपण दरार

(b) यादृच्छिक दरार

(c) सेटलमेंट दरार

(d) अनुदैर्ध्य दरार

[RRB CBT-2 28.08.2019]

61. पैरापेट या एजिंग (edging) में वर्षाजल के निकास हेतु प्रदान किए गए छिद्रों को क्या कहा जाता है?

(a) जल रोधन

(b) जलनिस्रावक छिद्र

(c) किनारे के छिद्र

(d) छिद्र

[RRB CBT-2 28.08.2019]

62. A method in which mortar conveyed through a hose and pneumatically projected at a high velocity onto a surface is called-

(a) Gunite (b) Concreting

(c) Varnishing (d) Ferrocement

[RRB CBT-2 28.08.2019]

63. Which of the following is the correct statement?

The strength of timber :

(a) Remains same in all directions

(b) Is maximum in the direction 45° to the grain

(c) Is maximum in the direction perpendicular to the grain

(d) Is maximum in the direction parallel to the grain

[RRB CBT-2 28.08.2019]

64. For a constant aggregate cement ratio, if the coarse aggregate is increased at the expense of sand, maintaining total aggregate cement ratio constant, then the total surface area of the aggregate is -

(a) Reduced

(b) Depends on other factor

(c) Increased

(d) Remains unchanged

[RRB CBT-2 28.08.2019]

65. In a compaction factor test of concrete, if the compaction value is less than 0.95 and greater than 0.85, then the standard of the workabilty is:

(a) Good (b) Fair

(c) Very good (d) Medium

[RRB CBT-2 28.08.2019]

66. In fibre reinforced concrete, if the fibres are not dispersed properly, then the resulting problem is called as-

(a) Congestion (b) Spalling

(c) Balling (d) Segregation

[RRB CBT-2 28.08.2019]

62. वह विधि, जिसमें मोर्टार को एक नली के माध्यम से प्रवाहित किया जाता है और वायुचालित रूप से उच्च वेग के साथ सतह पर प्रक्षेपित किया जाता है,_____ कहलाती है।

(a) गनाइट (b) कंक्रीटिंग

(c) वार्निशिंग (d) फेरोसीमेंट

[RRB CBT-2 28.08.2019]

63. इनमें से कौनसा कथन सही है?

लकड़ी की सामर्थ्य-

(a) सभी दिशाओं में समान होती है

(b) ग्रेन के 45° दिशा में अधिकतम होती है

(c) ग्रेन के लम्बवत् दिशा में अधिकतम होती है

(d) इसके ग्रेन के समानांतर दिशा में अधिकतम होती है

[RRB CBT-2 28.08.2019]

64. एक स्थिर बजरी–सीमेन्ट (aggregate cement) अनुपात के लिए, यदि सकल बजरी सीमेन्ट अनुपात को स्थिर बनाए रखते हुए रेत के स्थान पर मोटी बजरी बढ़ाई जाती है, तो बजरी के कुल पृष्ठीय क्षेत्रफल पर क्या प्रभाव होगा?

(a) घट जाएगा

(b) अन्य कारकों पर निर्भर करता है

(c) बढ़ जाएगा

(d) अपरिवर्तित रहेगा

[RRB CBT-2 28.08.2019]

65. कंक्रीट के संघनन गुणांक परीक्षण में, यदि संघनन मान 0.85 से अधिक और 0.95 से कम प्राप्त होता है, तो सुकार्यता (workability) का मानक _____ है।

(a) अच्छा (b) पर्याप्त

(c) बहुत अच्छा (d) मध्यम

[RRB CBT-2 28.08.2019]

66. फाइबर प्रबलित कंक्रीट में, यदि फाइबर ठीक से नहीं फैलता है, तो परिणामस्वरूप उत्पन्न होने वाली समस्या को क्या कहा जाता है?

(a) संकुलन (b) उत्खण्डन

(c) गुलिकायन (d) पृथककरण

[RRB CBT-2 28.08.2019]

67. Which of the following is the type of roof which slopes in two directions with a break in the slope on each side?

(a) Gambrel roof (b) Hip roof

(c) Mansard roof (d) Gable roof

[RRB CBT-2 28.08.2019]

68. The structure which is used to divide the stages in different levels is termed as-

(a) Floor (b) Lintels

(c) Roof (d) Damp proof course

[RRB CBT-2 28.08.2019]

69. If the initial setting time of cement is 10 minutes, it can be classified as -

(a) Quick setting cement

(b) Low heat cement

(c) Sulphate resisting cement

(d) Rapid hardening cement

[RRB CBT-2 28.08.2019]

70. Special types of glazed tiles or bricks are used as facing material for the rubble or concrete or brick backing in-

(a) Stone facing with Brick, Rubble or concrete backing masonry

(b) Brick backed Ashlar masonry

(c) Random Rubble masonry

(d) Brick facing with Rubble or Concrete backing masonry

[RRB CBT-2 28.08.2019]

71. The large steel cylindrical metal containers used in RMC plants used for storing cement and/or fly ash and such cementitious materials are named as -

(a) Silo (b) Mixer

(c) Scraper (d) Screw Conveyor

[RRB CBT-2 28.08.2019]

67. इनमें से किस प्रकार की छत में दोनों दिशाओं में ढलान होती है और प्रत्येक दिशा में ढलान में एक ब्रेक होता है?

(a) गैम्ब्रेल रूफ (b) हिप रूफ

(c) मंसर्ड रूफ (d) गैबल रूफ

[RRB CBT-2 28.08.2019]

68. मंजिल को विभिन्न स्तरों में विभाजित करने के लिए प्रयुक्त संरचना को क्या कहा जाता है?

(a) फर्श (b) चौखट

(c) छत (d) सीलन रोधी कोर्स

[RRB CBT-2 28.08.2019]

69. यदि सीमेन्ट का प्रारंभिक जमावकाल (setting time) 10 मिनट है, तो इसे_____में वर्गीकृत किया जा सकता है।

(a) शीघ्र स्थापन सीमेंट

(b) अल्प ऊष्मा सीमेंट

(c) सल्फेट रोधी सीमेंट

(d) तीव्र कठोरीकृत सीमेंट

[RRB CBT-2 28.08.2019]

70. विशेष प्रकार के चमकीले टाइल्स (Glazed tiles) या ईंटों का उपयोग_____में फेसिंग सामग्री (Facing material) के रूप में मलबे या कंक्रीट या ईंट बैकिंग के लिए किया जाता है।

(a) ईंट, रब्बल या कंक्रीट बैकिंग चिनाई के साथ स्टोन फेसिंग

(b) ब्रिक बैक्ड अश्लर मेसनरी

(c) रैंडम रब्बल मेसनरी

(d) रब्बल या कंक्रीट बैकिंग चिनाई के साथ ईंट फेसिंग

[RRB CBT-2 28.08.2019]

71. RMC सयंत्रों में सीमेंट और फ्लाई एश और अन्य सीमेंट युक्त सामग्रियों को संग्रहीत करने के लिए प्रयुक्त बड़े आकार के स्टील निर्मित बेलनाकार ध ातु कंटेनरों को क्या कहा जाता है?

(a) सिलो (b) मिक्सर

(c) स्क्रेपर (d) स्क्रू कन्वेयर

[RRB CBT-2 28.08.2019]

72. Gypsum used in cement manufacturing acts as a/an-

(a) Retarder

(b) Plasticizer

(c) Air entraining agent

(d) Accelerator

[RRB CBT-2 28.08.2019]

73. The vibrating of the concrete before grouting makes the quality of concrete -

(a) Slow (b) Fair

(c) Low (d) Better

[RRB CBT-2 28.08.2019]

74. Soundness of cement is tested by-

(a) Le-chatelier apparatus

(b) Vicat apparatus

(c) Izod apparatus

(d) Hopper apparatus

[RRB CBT-2 28.08.2019]

75. The common name for all doors, windows and such units are called as:

(a) Joinery (b) Shuttering

(c) Furniture (d) Ventilator

[RRB CBT-2 29.08.2019]

76. The most common type of scaffolding which is widely used in the construction of brickwork is-

(a) Steel scaffolding

(b) Suspended scaffolding

(c) Trestle scaffolding

(d) Single scaffolding

[RRB CBT-2 29.08.2019]

77. When two roofing sheets meet at a lower level from opposite directions forming an acute angled junction, it is called as -

(a) Gutter (b) Summit

(c) Valley (d) Ridge

[RRB CBT-2 29.08.2019]

72. सीमेंट निर्माण में प्रयुक्त जिप्सम _____की भांति कार्य करता है।

(a) मंदक

(b) प्लास्टिसाइजर

(c) वायु संरोही कारक

(d) त्वरक

[RRB CBT-2 28.08.2019]

73. ग्राउटिंग से पहले कंक्रीट का कंपन, कंक्रीट की गुणवत्ता को_____बनाता है।

(a) धीमा (b) पर्याप्त

(c) निम्न (d) बेहतर

[RRB CBT-2 28.08.2019]

74. सीमेंट की दृढ़ता,_____द्वारा जांची जाती है।

(a) ली–चेटेलियर उपकरण

(b) विकैट उपकरण

(c) आइजॉड उपकरण

(d) होपर उपकरण

[RRB CBT-2 28.08.2019]

75. सभी दरवाजों, खिड़कियों और ऐसी इकाइयों के लिए सामान्य नाम क्या है?

(a) जॉइनरी (b) शटरिंग

(c) फर्नीचर (d) वेंटिलेटर

[RRB CBT-2 29.08.2019]

76. मचान (scaffolding) का सर्वाधिक आम और चिनाई कार्य में व्यापक रूप से प्रयुक्त प्रकार कौनसा है?

(a) स्टील मचान

(b) निलंबित मचान

(c) ट्रेसल मचान

(d) एकल मचान

[RRB CBT-2 29.08.2019]

77. जब विपरीत दिशाओं से आती हुई छत की दो शीटें, एक न्यूनकोणीय जोड़ (acute angled junction) बनाते हुए निचले स्तर पर मिलती हैं, तो इसे क्या कहा जाता है?

(a) गटर (b) समिट

(c) वैली (d) रिज

[RRB CBT-2 29.08.2019]

78. On which of the following factors, does strength of concrete depend primarily?

(a) Quality of fine aggregate

(b) Water-cement ratio

(c) Quality of coarse aggregate

(d) Fineness of cement

[RRB CBT-2 29.08.2019]

79. In load bearing structures, if a wall is not bearing the load from slab, that wall is also called as-

(a) Partition wall

(b) Retaining wall

(c) Intermediate wall

(d) Tension wall

[RRB CBT-2 29.08.2019]

80. When calcium carbonate is heated, it decomposes to give_____and _____.

(a) Ca_2O_2, CO_2 (b) Ca_2O, CO

(c) CaO, CO_2 (d) CaO, CO

[RRB CBT-2 29.08.2019]

81. For dust free flooring,the floor finish material should have which property mainly?

(a) Abrasion resistance

(b) Flexural strength

(c) Compressive strength

(d) Impact resistance

[RRB CBT-2 29.08.2019]

82. Which of the following four Bogue's Compounds has the maximum percentage by volume in the hydration of cement?

(a) Felite C_4AF (b) Belite C_2S

(c) Celite C_3A (d) Alite C_3S

[RRB CBT-2 29.08.2019]

83. A layer provided to prevent entry of unwanted moisture inside the building either by seepage or by leakage is known as-

(a) Sunshade (b) Roof

(c) Lintel (d) Damp proof course

[RRB CBT-2 29.08.2019]

78. कंक्रीट की मजबूती मुख्यतः इनमें से किस कारक पर निर्भर करती है?

(a) महीन समुच्चय की गुणवत्ता

(b) पानी सीमेन्ट अनुपात

(c) कोर्स समुच्चय की गुणवत्ता

(d) सीमेन्ट की महीनता

[RRB CBT-2 29.08.2019]

79. भार धारीत संरचनाओं (load bearing structures) में, यदि कोई दीवार स्लैब से भार वहन नहीं कर रही है, तो उस दीवार को_____भी कहा जाता है-

(a) विभाजन की दीवार

(b) रीटेनिंग दीवार

(c) मध्यवर्ती दीवार

(d) टेंशन दीवार

[RRB CBT-2 29.08.2019]

80. जब कैल्शियम कार्बोनेट को गर्म किया जाता है, तो यह अपघटित होकर_____और_____देता है।

(a) Ca_2O_2, CO_2 (b) Ca_2O, CO

(c) CaO, CO_2 (d) CaO, CO

[RRB CBT-2 29.08.2019]

81. धूल मुक्त फर्श के लिए, फर्श की फिनिशिंग सामग्री में मुख्यतः इनमें से कौन सा गुण होना चाहिए?

(a) अपघर्षण प्रतिरोध

(b) आनमनी सामर्थ्य

(c) संपीड़न सामर्थ्य

(d) संघात प्रतिरोध

[RRB CBT-2 29.08.2019]

82. सीमेन्ट हाइड्रेशन में इन चार बोग मिश्रणों (Bouge's Compounds) में से किसकी मात्रा का प्रतिशत आयतन में अधिकतम होता है?

(a) फेलाइट C_4AF (b) बेलाइट C_2S

(c) सेलाइट C_3A (d) एलाइट C_3S

[RRB CBT-2 29.08.2019]

83. स्राव (seepage) या रिसाव (leakage) द्वारा भवन के अन्दर जाने वाली अवांछित नमी के प्रवेश को रोकने के लिए प्रदान की गई परत को क्या कहा जाता है?

(a) सनशेड (b) छत

(c) लिंटल (d) नमी रोधन रद्दा

[RRB CBT-2 29.08.2019]

84. The specific gravity of commonly available ordinary Portland Cement is-

(a) 4.92 (b) 2.05

(c) 1.83 (d) 3.15

[RRB CBT-2 29.08.2019]

85. The lorry or truck bringing RMC from factory to construction site is called as -

(a) Concrete Mixer (b) Transit Mixer

(c) RMC Truck (d) Concrete Truck

[RRB CBT-2 29.08.2019]

86. The portion of the structure below the ground level are called as-

(a) Sub-structure

(b) Sustainable structure

(c) Submerged structure

(d) Super-structure

[RRB CBT-2 29.08.2019]

87. To find which of the following is consistency test performed?

(a) Correct water cement ratio

(b) Fineness of cement

(c) Tensile strength

(d) Compressive strength

[RRB CBT-2 29.08.2019]

88. Identify the repair type related to preventive maintenance.

(a) Filling up cracks in masonry

(b) Painting of doors and windows

(c) Renewal of flooring

(d) Repairing pot holes in roads

[RRB CBT-2 29.08.2019]

89. The combined name for the two tests - elongation index and flakiness index is-

(a) Stability test (b) Shape test

(c) Strength test (d) Surface test

[RRB CBT-2 29.08.2019]

84. सामान्यतः उपलब्ध साधारण पोर्टलैंड सीमेंट का विशिष्ट गुरूत्व_____होता है।

(a) 4.92 (b) 2.05

(c) 1.83 (d) 3.15

[RRB CBT-2 29.08.2019]

85. RMC को फैक्ट्री से निर्माण स्थल तक लाने वाली लॉरी या ट्रक को क्या कहा जाता है?

(a) कंक्रीट मिक्सर (b) ट्रांजिट मिक्सर

(c) RMC ट्रक (d) कंक्रीट ट्रक

[RRB CBT-2 29.08.2019]

86. किसी संरचना के भूतल के नीचे वाले हिस्से को क्या कहा जाता है?

(a) सब–संरचना

(b) स्थाई संरचना

(c) सब्मर्ज्ड संरचना

(d) सुपर–संरचना

[RRB CBT-2 29.08.2019]

87. निम्नलिखित में से किसे ज्ञात करने के लिए सघनता परीक्षण (consistency test) किया जाता है?

(a) सही जल–सीमेंट अनुपात

(b) सीमेंट की सूक्ष्मता

(c) तन्यता सामर्थ्य

(d) संपीड़न सामर्थ्य

[RRB CBT-2 29.08.2019]

88. निवारक रखरखाव (preventive maintenance) से संबंधित मरम्मत प्रकार की पहचान करें-

(a) चिनाई में दरारें भरना

(b) दरवाजों और खिड़कियों की पेंटिंग

(c) फर्श का नवीनीकरण

(d) सड़कों में पॉट होल की मरम्मत करना

[RRB CBT-2 29.08.2019]

89. दीर्घीकरण सूचकांक (elongation index) और फ्लैकीनेस सूचकांक (flakiness index) नामक दो परीक्षणों के लिए संयुक्त नाम क्या है?

(a) स्थायित्व परीक्षण (b) आकृति परीक्षण

(c) सामर्थ्य परीक्षण (d) सतह परीक्षण

[RRB CBT-2 29.08.2019]

90. In AAC blocks, the lightweight property is achieved by -

(a) Accelerated curing

(b) Autoclaving

(c) By using light weight coarse aggregates

(d) Aeration

[RRB CBT-2 29.08.2019]

91. In any good staircase, the maximum and minimum pitch should be

(a) 90° and 0° (b) 75° and 30°

(c) 40° and 25° (d) 60° and 10°

[RRB CBT-2 29.08.2019]

92. The process of separation of coarse aggregates from concrete during transportation is called

(a) Creeping (b) Bleeding

(c) Segregation (d) Workability

[RRB CBT-2 29.08.2019]

93. Grades of cement and concrete is expressed in which SI units ?

(a) Kg/cm^2 (b) MPa or N/mm^2

(c) Psi (d) Pa or N/m^2

[RRB CBT-2 29.08.2019]

94. HDF board means -

(a) Hardened dry fibre board

(b) High density fibre board

(c) High density flat board

(d) Hardened dense fibre board

[RRB CBT-2 29.08.2019]

95. The old type of wall foundation consisting of multiple steps of bricks or stone layers of gradually increasing width is called as -

(a) Line Footing or Wall Footing

(b) Linear Footing

(c) Stepped Footing

(d) Running Footing

[RRB CBT-2 29.08.2019]

90. AAC ब्लॉक में, हल्के होने का गुण किस प्रक्रिया द्वारा प्राप्त किया जाता है?

(a) तीव्र जलोपचार

(b) ऑटोक्लेविंग

(c) हल्के भार के कोर्स समुच्चय उपयोग करके

(d) वातन

[RRB CBT-2 29.08.2019]

91. किसी भी अच्छी सीढ़ी में अधिकतम और न्यूनतम पिच कितनी होनी चाहिए ?

(a) 90° और 0° (b) 75° और 30°

(c) 40° और 25° (d) 60° और 10°

[RRB CBT-2 29.08.2019]

92. परिवहन के दौरान कंक्रीट से कोर्स एग्रीगेट्स का पृथक्करण_____कहलाता है।

(a) क्रीपिंग (b) ब्लीडिंग

(c) पृथक्करण (d) सुकार्यता

[RRB CBT-2 29.08.2019]

93. सीमेंट और कंक्रीट ग्रेड को इनमें से किस SI इकाई में व्यक्त किया जाता है?

(a) Kg/cm^2 (b) MPa or N/mm^2

(c) Psi (d) Pa or N/m^2

[RRB CBT-2 29.08.2019]

94. HDF बोर्ड का क्या अभिप्राय है ?

(a) हार्डेन्ड ड्राई फाइबर बोर्ड

(b) हाई डेंसिटी फाइबर बोर्ड

(c) हाई डेंसिटी फ्लैट बोर्ड

(d) हार्डेन्ड डेंस फाइबर बोर्ड

[RRB CBT-2 29.08.2019]

95. धीरे–धीरे बढ़ती चौड़ाई के ईंट या पत्थर की परतों के एकाधिक चरणों से निर्मित पुराने प्रकार के वॉल फाउंडेशन को क्या कहा जाता है ?

(a) लाइन फुटिंग या वॉल फुटिंग

(b) रैखिक फुटिंग

(c) स्टेप्ड फुटिंग

(d) रनिंग फुटिंग

[RRB CBT-2 29.08.2019]

96. Which of the following ingredients of cement, when added in excess quantity, causes the cement to set slowly?

(a) Silica (b) Alumina

(c) Iron oxide (d) Lime

[RRB CBT-2 19.09.2019]

97. The quick lime as it comes from kilns is called as-

(a) Milk lime (b) Lump lime

(c) Hydrated lime (d) Hydraulic lime

[RRB CBT-2 19.09.2019]

98. What is the best temperature for burning of bricks?

(a) 1300°C-1400°C (b) 1000°C-1200°C

(c) 1500°C-1700°C (d) 1800°C-1900°C

[RRB CBT-2 19.09.2019]

99. A hipped roof is-

(a) One which has at least two different types of covering materials

(b) One which slopes in four directions

(c) One which slopes in two directions

(d) One which has at least two different slopes

[RRB CBT-2 19.09.2019]

100. The specific gravity of tar ranges from-

(a) 1.1 to 1.25 (b) 3.15 to 3.5

(c) 4 to 5 (d) 2.7 to 2.8

[RRB CBT-2 19.09.2019]

101. In Vicat apparatus, the paste is said to be of 'Normal consistency' if the rod penetrates-

(a) 1 mm (b) 5 to 10 mm

(c) 23 to 25 mm (d) 33 to 35 mm

[RRB CBT-2 19.09.2019]

102. A longitudinal crack which is usually normal to the annual rings in wood is called-

(a) Cup shakes (b) Heart shakes

(c) Checks (d) Star shakes

[RRB CBT-2 19.09.2019]

96. सीमेंट का निम्नलिखित में से कौनसा तत्व, जब अधिक मात्रा में मिलाया जाता है, तो सीमेन्ट के धीरे–धीरे सेट होने का कारण बनता है?

(a) सिलिका (b) एल्यूमिना

(c) आयरन ऑक्साइड (d) चूना

[RRB CBT-2 19.09.2019]

97. भट्टी से आने वाले अनबुझे चूने को क्या कहा जाता है?

(a) मिल्क चूना (b) गांठ चूना

(c) जलयोजित चूना (d) जलीय चूना

[RRB CBT-2 19.09.2019]

98. ईंटों को पकाने के लिए सर्वोत्तम तापमान क्या है?

(a) 1300°C-1400°C (b) 1000°C-1200°C

(c) 1500°C-1700°C (d) 1800°C-1900°C

[RRB CBT-2 19.09.2019]

99. पुठ्टेदार छत (hipped roof) कैसे होते हैं?

(a) वह छत जिनमें कम से कम दो अलग–अलग प्रकार की आवरण सामग्री होती है

(b) वह छत जिनमें चार दिशाओं में ढलान होते है

(c) वह छत जिनमें दो दिशाओं में ढलान होते हैं

(d) वह छत जिनमें कम से कम दो अलग–अलग ढलान होते हैं

[RRB CBT-2 19.09.2019]

100. टार का आपेक्षिक घनत्व____के बीच होता है।

(a) 1.1 से 1.25 (b) 3.15 से 3.5

(c) 4 से 5 (d) 2.7 से 2.8

[RRB CBT-2 19.09.2019]

101. विकाट उपकरण में, यदि रॉड_____ घुसता है, तो पेस्ट को 'सामान्य सघनता' (normal consistency) के रूप में कहा जाता है।

(a) 1 mm (b) 5 से 10 mm

(c) 23 से 25 mm (d) 33 से 35 mm

[RRB CBT-2 19.09.2019]

102. एक अनुदैर्ध्य दरार जो आमतौर पर लकड़ी में वार्षिक छल्ले (annual rings) के लिए लबवंत होती है, उसे क्या कहा जाता है?

(a) कप शेक (b) हार्ट शेक

(c) चेक (d) स्टार शेक

[RRB CBT-2 19.09.2019]

103. SSD condition of fine or coarse aggregates means-

(a) Self Saturating and Densification condition

(b) Saturated Surface Dry condition

(c) Super Saturated Dry condition

(d) Saturated Surface Densified condition

[RRB CBT-2 19.09.2019]

104. What is a 'Coping'?

(a) A projecting piece usually provided to support a roof

(b) Ornamental moulded course placed on the top of wall

(c) A projecting piece usually provided to support a truss

(d) A covering of concrete placed on the exposed top of an external wall

[RRB CBT-2 19.09.2019]

105. Which type of surface finishing in Brick Masonry / Block Masonry / Stone Masonry treats only the joints edges and not on the full wall surface?

(a) False ceiling (b) Grouting

(c) Plastering (d) Pointing

[RRB CBT-2 19.09.2019]

106. The window which opens outside a room of a building for admitting more light and air, is known as-

(a) Dormer window (b) Casement window

(c) Bay window (d) Lantern window

[RRB CBT-2 19.09.2019]

107. Consider the following statements:

1. Modulus of elasticity of concrete increases with increase in compressive strength of concrete.
2. Brittleness of concrete increases with decrease in compressive strength of concrete.
3. Shear strength of concrete increases with increase in compressive strength of concrete.

Which of the following statements are TRUE?

(a) 2 and 3 (b) 1 and 2

(c) 1, 2 and 3 (d) 1 and 3

[RRB CBT-2 19.09.2019]

103. महीन या मोटी बजरी की SSD स्थिति का क्या अभिप्राय है?

(a) सेल्फ सैचुरेटिंग एंड डेंसीफिकेशन कंडीशन

(b) सैचुरेटेड सर्फेस ड्राई कंडीशन

(c) सुपर सैचुरेटेड ड्राई कंडीशन

(d) सैचुरेटेड सर्फेस डेंसीफिकेशन कंडीशन

[RRB CBT-2 19.09.2019]

104. कोपिंग (coping) क्या है?

(a) आमतौर पर एक छत के सपोर्ट के लिए प्रदान किया जाने वाला प्रोजेक्टिंग टुकड़ा

(b) दीवार के शीर्ष पर रखा गया सुशोभित मोल्डेड कोर्स

(c) आमतौर पर ट्रस के सपोर्ट के लिए प्रदान किया जाने वाला प्रोजेक्टिंग टुकड़ा

(d) बाह्य दीवार के खुले शीर्ष पर रखे गए कंक्रीट का आवरण

[RRB CBT-2 19.09.2019]

105. ईंट/ब्लॉक/स्टोन चिनाई में किस प्रकार की सतह फिनिशिंग में केवल जोड़ों के किनारों को उपचारित किया जाता है, पूरी दीवार की सतह को नहीं?

(a) फाल्स सीलिंग (b) ग्राउटिंग

(c) प्लास्टरिंग (d) पॉइंटिंग

[RRB CBT-2 19.09.2019]

106. खिड़की जो अधिक प्रकाश और हवा को अनुमत करने के लिए भवन के एक कमरे के बाहर खुलता है उसे____ कहते हैं-

(a) डोर्मर खिड़की (b) वातायन खिड़की

(c) बे खिड़की (d) लैन्टर्न खिड़की

[RRB CBT-2 19.09.2019]

107. निम्नलिखित कथनों पर विचार करें-

1. कंक्रीट की संपीड़क सामर्थ्य में वृद्धि के साथ कंक्रीट के प्रत्यास्थता मापांक में वृद्धि होती है
2. कंक्रीट की संपीड़क सामर्थ्य में कमी के साथ कंक्रीट की भंगुरता में वृद्धि होती है
3. कंक्रीट की संपीड़क सामर्थ्य में वृद्धि के साथ कंक्रीट की अपरूपण सामर्थ्य बढ़ती है

निम्नलिखित में से कौनसा कथन सत्य है?

(a) 2 और 3 (b) 1 और 2

(c) 1, 2 और 3 (d) 1 और 3

[RRB CBT-2 19.09.2019]

108. In case concrete is to be transported by pumping, the slump of the concrete should be-

(a) Between 5 to 7.5 cm

(b) Between 2.5 to 5 cm

(c) More than 1 cm

(d) More than 2.5 cm

[RRB CBT-2 19.09.2019]

109. A portion of a brick cut across the width is known as-

(a) Half brick (b) Base

(c) Closer (d) Bat

[RRB CBT-2 19.09.2019]

110. _____ testing is probably the most frequently used means of NDT.

(a) Acoustic mapping

(b) Rebound hammer

(c) Ultrasonic pulse velocity

(d) Radar

[RRB CBT-2 19.09.2019]

111. Mortar or concrete conveyed through pressure hose and applied pneumatically at high velocity on structural surfaces is called-

(a) Spraying (b) Sealing

(c) Guniting (d) Grouting

[RRB CBT-2 19.09.2019]

112. In order to make the floor glossy, it is rubbed with-

(a) Sodium silicate

(b) Oxalic acid

(c) Sodium hydroxide

(d) Sodium carbonate

[RRB CBT-2 19.09.2019]

113. In _____ arrangement, the horizontal supports are given two adjacent parallel walls which have become unsafe due to the removal or collapse of the intermediate building.

(a) Dead shore (b) Flying shore

(c) Inclined shore (d) Raking shore

[RRB CBT-2 19.09.2019]

108. यदि पम्पिंग द्वारा कंक्रीट को ले जाना हो, तो कंक्रीट के स्लंप (slump) को_____होना चाहिए।

(a) 5 से 7.5 cm के बीच

(b) 2.5 से 5 cm के बीच

(c) 1 cm से अधिक

(d) 2.5 cm से अधिक

[RRB CBT-2 19.09.2019]

109. चौड़ाई में कटे हुए ईंट के एक भाग को_____के रूप में जाना जाता है।

(a) आधा ईंट (b) आधार

(c) क्लोजर (d) बैट

[RRB CBT-2 19.09.2019]

110. _____परीक्षण संभवतः NDT के लिए सबसे अधिक बार उपयोग किया जाने वाला साधन है।

(a) ध्वनिक मानचित्रण

(b) रिबाउंड हैमर

(c) अल्ट्रासोनिक पल्स वेग

(d) राडार

[RRB CBT-2 19.09.2019]

111. दाब नली के माध्यम से प्रेषित और वायवीय रूप से संरचनात्मक सतहों पर उच्च वेग से लगाए गए मोर्टार या कंक्रीट को क्या कहा जाता है?

(a) छिड़काव (b) सीलिंग

(c) गनाइटिंग (d) ग्राउटिंग

[RRB CBT-2 19.09.2019]

112. फर्श को चमकदार बनाने के लिए, इसे _____के साथ घिसा जाता है।

(a) सोडियम सिलिकेट

(b) ऑक्सैलिक अम्ल

(c) सोडियम हाइड्रॉक्साइड

(d) सोडियम कार्बोनेट

[RRB CBT-2 19.09.2019]

113. _____प्रबंध में, उन दीवारों को दो निकटस्थ समानांतर क्षैतिज आधार प्रदान की जाती हैं जो मध्यवर्ती इमारत के पतन के कारण या हटने के कारण असुरक्षित बन गयी हैं।

(a) डेड शोर (b) फ्लाइंग शोर

(c) तिरछा शोर (d) रेकिंग शोर

[RRB CBT-2 19.09.2019]

114. Plaster of Paris is obtained from the calcination of-

(a) Gypsum (b) Dolomite

(c) Lime stone (d) Bauxite

[RRB CBT-2 19.09.2019]

115. The type of shore which is preferably inclined at 45° with the ground is -

(a) Dead shore (b) Vertical shore

(c) Horizontal shore (d) Raking shore

[RRB CBT-2 19.09.2019]

116. In which case will the permissible incline in belt conveyor be maximum?

(a) Dry silica sand

(b) Wet clay

(c) Foundry sand

(d) Coal run of mine

[RRB CBT-2 19.09.2019]

117. _____ is the collective term for the physical manifestations of the defects like cracks, spalling, pop out, staining and corrosion.

(a) Distress (b) Defects

(c) Preservation (d) Failure

[RRB CBT-2 19.09.2019]

114. प्लास्टर ऑफ पेरिस किसके निस्तापन (Calcination) से प्राप्त होता है?

(a) जिप्सम (b) डोलोमाइट

(c) चूना पत्थर (d) बॉक्साइट

[RRB CBT-2 19.09.2019]

115. _____शोर (shore) का वह प्रकार है जो अधिमानतः भूमि के साथ 45° पर प्रवृत्त (inclined) होता है।

(a) डेड शोर (b) अनुलम्ब शोर

(c) क्षैतिज शोर (d) रेकिंग शोर

[RRB CBT-2 19.09.2019]

116. वाहक पट्टे में किस केस में अनुज्ञेय ढाल अधिकतम होता है?

(a) सूखी सिलिका रेत

(b) गीली चिकनी मिट्टी

(c) संधानी रेत

(d) खान के कोल रन में

[RRB CBT-2 19.09.2019]

117. _____ दरारें, चिंगारी पॉप आउट, धुंधला और क्षरण के दोषों की शारीरिक अभिव्यक्तियां के सामूहिक शब्द है-

(a) विपत्ति (b) दोष

(c) परिरक्षण (d) विफलता

[RRB CBT-2 19.09.2019]

○○○

Detailed Solution of BMC
SCAN ME

RRB : SENIOR SECTION ENGINEER

1. The chemical reaction between cement and water is :
   (a) Hydration (b) Chlorination
   (c) Calcination (d) None of these
   [RRB SSE 2014]

2. Batching in concrete refers to
   (a) Controlling the total quantity of each batch
   (b) Weighing accurately, the quantity of each material for a job before mixing
   (c) Controlling the quantity of each material into each batch
   (d) Adjusting the water to be added in each batch according to the moisture content of the materials being mixed in the batch
   [RRB SSE 2014]

3. Gypsum is used as an admixture in cement grouts for
   (a) accelerating the setting time
   (b) retarding the setting time
   (c) increasing the plasticity
   (d) reducing the grout shrinkage
   [RRB SSE 2014]

4. English Bond, Flemish Bond, Dutch Bond pertain to -
   (a) Masonry work
   (b) Cement bonding
   (c) Bonding between beams
   (d) Bonding in foundation
   [RRB SSE 2014]

5. King closers are related to
   (a) Doors and windows
   (b) King post truss
   (c) Queen post truss
   (d) Brick Masonry
   [RRB SSE 2014]

1. सीमेंट और पानी के बीच की रासायनिक प्रतिक्रिया कहलाती है –
   (a) जलयोजन (b) क्लोरीनेशन
   (c) निस्तापन (d) इनमें से कोई नहीं
   [RRB SSE 2014]

2. कंक्रीट में बैचिंग संदर्भित करता है –
   (a) प्रत्येक बैच की कुल मात्रा को नियंत्रित करना
   (b) एक कार्य के लिए मिश्रित करने से पहले प्रत्येक सामग्री की मात्रा का सही वजन करना
   (c) प्रत्येक बैच की प्रत्येक सामग्री की मात्रा को नियंत्रित करना
   (d) बैच में मिश्रित की जा रही सामग्री की नमी मात्रा के अनुसार प्रत्येक बैच में मिलाए जाने वाले पानी को समायोजित करना
   [RRB SSE 2014]

3. जिप्सम का उपयोग सीमेंट ग्राउट्स में एक अधिक मिश्रण के रूप में किया जाता है –
   (a) जमावकाल को तेज करने के लिए
   (b) जमावकाल को धीमा करने के लिए
   (c) प्लास्टिसिटी बढ़ाने के लिए
   (d) ग्राउट संकुचन को कम करने के लिए
   [RRB SSE 2014]

4. इंग्लिश बॉन्ड, फ्लेमिश बॉन्ड, डच बॉन्ड किससे संबंधित है ?
   (a) चिनाई कार्य
   (b) सीमेंट बॉन्डिंग
   (c) बीम के बीच बॉन्डिंग
   (d) नींव में बॉन्डिंग
   [RRB SSE 2014]

5. किंग क्लोजर किससे संबंधित है ?
   (a) दरवाजो और खिड़कियों
   (b) किंग पोस्ट ट्रस
   (c) क्वीन पोस्ट ट्रस
   (d) ईंट चिनाई
   [RRB SSE 2014]

6. Strength of commonly used concrete, for constructing low rise residential buildings is :
(a) 300 psi
(b) 8000 psi
(c) 15000 psi
(d) 25000 psi

[RRB SSE 2014]

7. Seasoning of timber is required to
(a) Soften the timber
(b) Harden the timber
(c) Straighten the timber
(d) Remove sap from the timber

[RRB SSE 2014]

8. Normally, when ordinary Portland cement hydrates,
(a) Heat is absorbed
(b) Heat evolves
(c) Heat neither evolves nor is absorbed
(d) Cement paste cools down below atmospheric temperature

[RRB SSE 01.09.2015]

9. Which of the following is not used in the design of concrete mixes as per the relevant Indian standard ?
(a) Air content
(b) Water content
(c) Admixture content
(d) Bulk density of cement

[RRB SSE 01.09.2015]

10. The time elapsed between the moment water is added to the ordinary Portland cement and the time when the cement completely loses its plasticity and can resist certain definite pressure is termed as
(a) Initial setting time
(b) Final setting time
(c) Hydration time
(d) Gestation period

[RRB SSE 01.09.2015]

6. कम उँचाई वाले आावासीय भवनों के निर्माण के लिये सामान्यतः प्रयुक्त कि जाने वाली कंक्रिट की सामर्थ्य है –
(a) 300 psi
(b) 8000 psi
(c) 15000 psi
(d) 25000 psi

[RRB SSE 2014]

7. लकड़ी के संशोषण की आवश्यकता क्यों होती है?
(a) लकड़ी को नरम करने के लिए
(b) लकड़ी को कठोर करने के लिए
(c) लकड़ी को सीधा करने के लिए
(d) लकड़ी में से रस हटाने के लिए

[RRB SSE 2014]

8 सामान्यतः जब साधारण पोर्टलैण्ड सीमेंट का जलयोजन होता है, तो–
(a) ऊष्मा अवशोषित होती है
(b) ऊष्मा उत्सर्जित होती है
(c) ऊष्मा न तो उत्सर्जित होती है और न अवशोषित होती है
(d) सीमेंट पेस्ट वायुमण्डलीय तापमान के नीचे ठण्डा होता है

[RRB SSE 01.09.2015]

9. प्रासंगिक भारतीय मानक के अनुसार कंक्रिट मिक्स के डिजाइन में निम्नलिखित में से किसका उपयोग नहीं किया जाता है ?
(a) वायु अंश
(b) जलांश
(c) मिश्रण अंश
(d) सीमेंट का स्थूल घनत्व

[RRB SSE 01.09.2015]

10. साधारण पोर्टलैण्ड सीमेंट में जल को मिश्रित करने के समय से लेकर सीमेंट के प्रत्यास्थ अवस्था में पहुंचने तक का समय जब यह सीमेंट एक निश्चित दाब को सहने में सक्षम हो जाए तो कहते हैं–
(a) प्रारंभिक जमाव काल
(b) अन्तिम जमाव काल
(c) हाइड्रैशन समय
(d) सगर्भता अवधि

[RRB SSE 01.09.2015]

11. Which of the following oxide is in the LOWEST % in ordinary Portland cement ?

(a) Iron oxide (b) Magnesium oxide

(c) Soda+Potash (d) Aluminium oxide

[RRB SSE 01.09.2015]

12. A tight knot free from decay, which is solid across its face, and at least as hard as the surrounding wood

(a) Punk knot (b) Pith knot

(c) Loose knot (d) Sound knot

[RRB SSE 02.09.2015]

13. The excessive amount of expansion due to unsound cement is usually related to

(a) Magnesia (b) Iron oxide

(c) Alkalies (d) Water

[RRB SSE 02.09.2015]

14. The rapid development of rigidity in a freshly mixed Portland cement paste, mortar, or concrete, usually happens with the evolution of considerable heat. This rigidity cannot be dispelled, nor can the plasticity be regained, by further mixing without addition of water. This is called as

(a) False set (b) Flash set

(c) Rigidity index (d) Set acceleration

[RRB SSE 02.09.2015]

15. The batching tolerance for cement as per IS 456 is

(a) ± 1% (b) ± 1.5%

(c) ± 2% (d) ± 3%

[RRB SSE 02.09.2015]

16. The batching tolerance for aggregates as per IS 456 is

(a) ± 1% (b) ± 1.5%

(c) ± 2% (d) ± 3%

[RRB SSE 02.09.2015]

17. The recommended slump of concrete for hand placed pavements is

(a) 2-4 inches (b) 3-4 inches

(c) 4-6 inches (d) 1-3 inches

[RRB SSE 02.09.2015]

11. साधारण पोर्टलैण्ड सीमेंट में इनमें से किस ऑक्साइड का न्यूनतम प्रतिशत होता है?

(a) लौह ऑक्साइड (b) मैग्नीशियम ऑक्साइड

(c) सोडा + पोटाश (d) एल्यूमीनियम ऑक्साइड

[RRB SSE 01.09.2015]

12. क्षय से मुक्त एक टाइट गांठ, जो अपनी सतह के आर–पार ठोस है, और आसपास की लकड़ी के रूप में कम से कम कठोर है।

(a) पंक नॉट (b) पिथ नॉट

(c) लूज नॉट (d) साउण्ड नॉट

[RRB SSE 02.09.2015]

13. निर्दोषित सीमेंट के कारण विस्तार की अत्यधिक मात्रा आमतौर पर किससे संबंधित है?

(a) मैग्नीशिया (b) आयरन ऑक्साइड

(c) क्षार (d) जल

[RRB SSE 02.09.2015]

14. एक ताजा मिश्रित पोर्टलैंड सीमेंट पेस्ट, मोर्टार या कंक्रीट में कठोरता का तेजी से विकास, आमतौर पर अधिक ऊष्मा के विकास से यह होता है

इस कठोरता को दूर नहीं किया जा सकता है, और न ही पानी के अतिरिक्त मिश्रण के बिना प्लास्टिसिटी को पुनः प्राप्त किया जा सकता है, यह कहलाती है–

(a) कृत्रिम जमाव (b) फ्लैश जमाव

(c) कठोरता सूची (d) जमाव त्वरण

[RRB SSE 02.09.2015]

15. IS 456, के अनुसार सीमेंट (cement) के लिए बैचिंग छूट है –

(a) ± 1% (b) ± 1.5%

(c) ± 2% (d) ± 3%

[RRB SSE 02.09.2015]

16. IS 456, के अनुसार कंकड़ (Aggregates) के लिए बैचिंग छूट है –

(a) ± 1% (b) ± 1.5%

(c) ± 2% (d) ± 3%

[RRB SSE 02.09.2015]

17. हाथ से निर्मित फूटपाथ के लिए कंक्रिट की अनुशंसित ढलान है –

(a) 2-4 inches (b) 3-4 inches

(c) 4-6 inches (d) 1-3 inches

[RRB SSE 02.09.2015]

18. Normally, the consistency of cement is measured using :

(a) Le Chatelier's apparatus

(b) Blaine's permeability apparatus

(c) Vicat apparatus

(d) Venturimeter

[RRB SSE 03.09.2015]

19. Which of the following is not a non-destructive test used for concrete ?

(a) Rebounded hammer

(b) Pull-out

(c) Ultra-sonic

(d) Direct tensile test

[RRB SSE 03.09.2015]

20. A condition of timber during seasoning in which the different layers of wood are under stress by being under compression across the grain (usually due to rapid surface drying in the kiln).

(a) Case hardening (b) Air seasoning

(c) Air drying (d) Strain softening

[RRB SSE 03.09.2015]

21. Which of the following supplementary cementations materials have self-cementing properties ?

(a) Class F fly ash

(b) Silica Fume

(c) Rice husk ash

(d) Ground-Granulated blast furnace slag

[RRB SSE 03.09.2015]

22. A layer of wood formed during one year's growth in a timber is called as

(a) Bark (b) All-heart

(c) Batch (d) Annual ring

[RRB SSE 03.09.2015]

23. The recommended slump for pumped concrete is

(a) 1-2 inches (b) 2-4 inches

(c) 3-4 inches (d) 4-6 inches

[RRB SSE 03.09.2015]

18. सामान्यतः सीमेंट की सघनता को किसका उपयोग करके मापा जाता है ?

(a) ली चेटेलीयर उपकरण

(b) ब्लेन पारगम्यता उपकरण

(c) विकाट उपकरण

(d) वेंचुरीमीटर

[RRB SSE 03.09.2015]

19. निम्नलिखित में से कौन सा एक कंक्रीट के लिए गैर–विनाशकारी परीक्षण नहीं है ?

(a) रिबाउंड हैमर

(b) पुल–आउट

(c) अल्ट्रासोनिक

(d) प्रत्यक्ष तनन परीक्षण

[RRB SSE 03.09.2015]

20. संशोषण के दौरान लकड़ी की एक स्थिति जिसमें लकड़ी की विभिन्न परते ग्रेन में सम्पीड़न के तहत तनाव में होती है (आमतौर पर किल्न में तीव्र सतह सुखाने के कारण)

(a) केस दृढ़ीकरण (b) हवा संशोषण

(c) हवा शुष्कन (d) विकृति मृदुकरण

[RRB SSE 03.09.2015]

21. निम्नलिखित में से कौन–सी पूरक सीमेंटयुक्त सामग्री में स्वयं सीमेंटिंग का गुण होता है ?

(a) वर्ग एफ फ्लाई ऐश

(b) सिलिका फ्यूम

(c) राइस हस्क ऐश

(d) ग्राउंड ग्रेन्युलेटेड ब्लास्ट फर्नेस स्लैग

[RRB SSE 03.09.2015]

22. लकड़ी में एक वर्ष की वृद्धि के दौरान लकड़ी की एक परत का बनना क्या कहलाता है ?

(a) छाल (b) ऑल हार्ट

(c) बैच (d) वार्षिक वलय

[RRB SSE 03.09.2015

23. पंप कंक्रिट के लिए अनुशंसित स्लंप का मान है –

(a) 1-2 inches (b) 2-4 inches

(c) 3-4 inches (d) 4-6 inches

[RRB SSE 03.09.2015]

24. Concrete in a member represented by a core test shall be considered acceptable, if the average equivalent cube strength of the cores is equal to at least X% of the corresponding cube strength. What is the value of X?

(a) 70 (b) 75

(c) 80 (d) 85

[RRB SSE 03.09.2015]

25. According to IS 456, what is minimum number of specimen to be tested for estimating the compressive strength

(a) 2 (b) 3

(c) 4 (d) 5

[RRB SSE 03.09.2015]

26. In general, the coefficient of thermal expansion of concrete does not depend on which of the following factors

(a) Type of cement

(b) Type of aggregate

(c) The cement content

(d) The quality of water

[RRB SSE 03.09.2015]

24. कोर टेस्ट द्वारा प्रदर्शित किये गए अवयव में कंक्रिट को स्वीकार्य माना जाएगा यदि कोर की औसत समतूल्य घन शक्ति संबंधित घन शक्ति के कम से कम X% के बराबर हो। X का मान क्या होगा –

(a) 70 (b) 75

(c) 80 (d) 85

[RRB SSE 03.09.2015]

25. IS 456, के अनुसार संपीड़न सामर्थ्य ज्ञात करने के लिए नमूनों की न्यूनतम संख्या होगी –

(a) 2 (b) 3

(c) 4 (d) 5

[RRB SSE 03.09.2015]

26. सामान्य तौर पर कंक्रिट के उष्मीय विस्तार का गुणांक किस पर निर्भर नहीं करता है –

(a) सीमेंट का प्रकार

(b) कंकड़ का प्रकार

(c) सीमेंट का अंश

(d) पानी की गुणवत्ता

[RRB SSE 03.09.2015]

○○○

RRB : JE

ANSWERS AND EXPLANATIONS

1. *Ans. (a)*

Ingredient	Function	Effects of quantity
Lime, (CaO)	Control strength and soundness	Its defining reduces strength and setting time Excess quantity makes cement unsound
Silica (SiO_2)	Gives strength	Excess silica works as a retarder. Its deficiency reduces strength
Alumina (Al_2O_3)	Impart quick setting	Excess quantity responsible for weakness of cement
Calcium Sulphate ($CaSO_4$)	Increase the initial setting time of cement	—
Iron oxide (Fe_2O_3)	Impart colour, hardness and strength to cement (Raddish brown colour)	—
Magnesia	Impart colour ((yellow) and hardness, make the cement sound	Excess quantity makes cement unsound
Sulphur Trioxide (SO_3)	Impart soundness	Excess quantity makes cement unsound

2. *Ans. (b)*

S.No.	Nature of work	Type of mortar
1.	Construction work in waterlogged areas and exposed positions	Cement or lime mortar prop. 1:3, lime being eminently hydraulic lime.
2.	Damp-proof courses and cement concrete roads	Cement mortar prop. 1:2.
3.	General R.C.C. work such as lintels, pillars, slabs, stairs, etc.	Cement mortar prop. 1:3, the concrete mix being 1:2:4.
4.	Internal walls and surfaces of less importance	Lime cinder mortar prop. being 1:3. Sand is replaced by ashes or cinder.
5.	Mortar for laying fire-bricks	Fire-resisting mortar consisting of 1 part of aluminous cement to 2 parts of finely crushed powder of fire-bricks.
6.	Partition walls and parapet walls	Cement mortar prop. 1:3 or lime mortar proportion 1:1. Lime should be moderately hydraulic lime.
7.	Plaster work	Cement mortar prop. 1:3 to 1:4 or lime mortar prop. 1:2.
8.	Pointing work	Cement mortar prop. 1:1 to 1:2.
9.	Reinforced brickwork	Cement mortar prop. 1:3.
10.	Stone masonry with best varieties of stones	Lime mortar prop. 1:2, lime being eminently hydraulic lime.
11.	Stone masonry with ordinary stones, brickwork, foundations, etc.	Lime mortar prop. 1:2 or cement mortar proportion 1:6. Lime should be eminently hydraulic lime or moderately hydraulic lime.
12.	Thin joints in brickwork	Lime mortar prop. 1:3, lime being fat lime.

3. *Ans. (c)*

Segregation : During handling, transporting and placing, due to jerks and vibrations the paste of cement and sand gets separated from coarse aggregate is called segregation.

Bleeding : Bleeding in concrete is a phenomenon in which free water in the mix rises upto the surface and forms a paste of cement on the surface known as 'laitance'.

Bleeding occurs in concrete when coarse aggregates tends to settle down and free water rises upto the surface.

It is seen in highly wet concrete or badly proportion mixes.

Effects of segregation in concrete :

1. The strength of concrete will be reduced.
2. Reduces the bond between the reinforcement and concrete.
3. A segregated concrete is difficult to compact properly.
4. Segregated concrete does not give a homogeneous mass throughout the structure.
5. Due to segregation excess mortar comes to the top surface, which causes plastic shrinkage cracks.
6. Honeycomb, sand streaks, porous layers, rock pockets etc. are the result of segregation in hardened concrete.

4. *Ans. (c)*

Vehicles : The vehicles are the liquid substances which hold the ingredients of a paint in liquid suspension.

They are required mainly for two reasons :

(a) To make it possible to spread the paint evenly and uniformly on the surface in the form of a thin layer.

(b) To provide a binder for the ingredients of a paint so that they may stick or adhere to the surface.

Ex. Linseed Oil, Tung oil, Poppy Oil, Nut Oil.

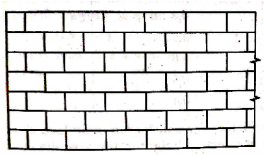
5. *Ans. (b)*

Bonds of Brick work :

1. **Stretcher Bond**

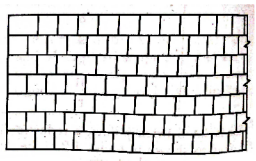
In this arrangement of bonding brick work all the bricks are laid as stretchers. It is used for half brick wall only.

It is commonly adopted in the cavity walls and partition walls.



2. **Header Bond**

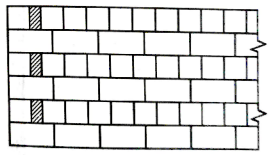
In this type of bonding all the bricks are laid as headers on the face. It is used for walls curved on plan.



3. **English bond**

The bond consists of alternate course of headers and stretchers.

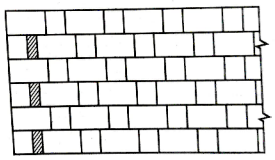
This is commonly used bond because it is stronger than other bonds.



4. **Flemish bond**

Each course consists of alternate headers and stretchers.

Flemish bond is weaker than English bond.



5. **Garden wall bond**

These types of bonds are used in compound wall, garden wall. These types of walls are constructed upto 2m height to one brick wall. These type of wall are constructed in English bond or Flemish bond.

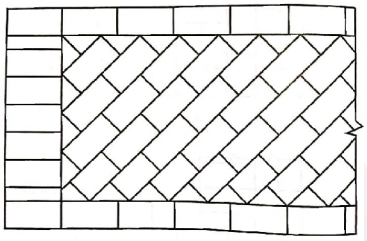
In English bond for three to five stretcher layer one header layer is provided. In Flemish bond each layer three or five stretcher course one header course is laid.

6. **Raking bond**

In this bond bricks are laid at any angle other than zero or ninety degrees. The bricks should be stretchers.

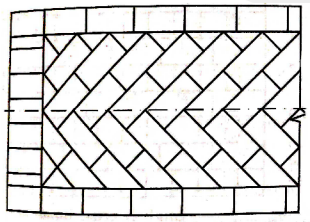
The forms of raking bond :

(a) Diagonal bond

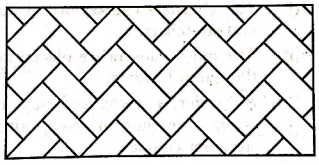


Diagonal bond

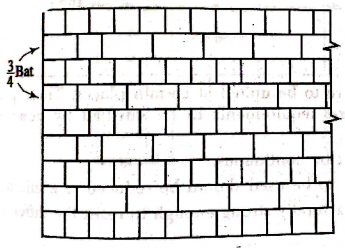
(b) Herring bone bond



(c) Zig-Zag bond



7. **Dutch bond :** This bond is a modification of English cross bond. Each stretching course starts at the quoin with a three quarter bat.

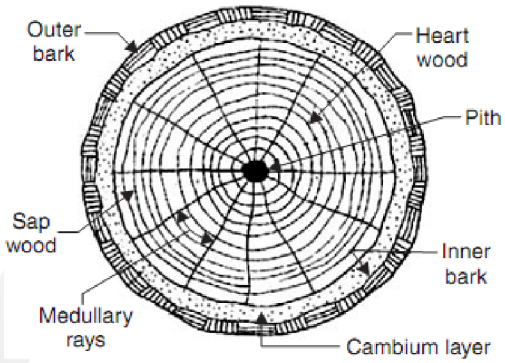


8. **Brick on edge bond :** In this bricks are laid on edge. It is economical but weak in strength and hence it is only recommended for garden walls or partition walls.

6. *Ans. (c)*

Annual rings are used for predicting age of the tree. The structure of wood visible to the naked eye or at a small magnification is called the macro structure.

The cross-section of exogenous tree and its components given below.



(a) Pith : The innermost central portion or core of the tree is called pith or medulla.

- Its size and shape change with type of trees.
- It consists entirely of cellular tissues and it nourishes the plant in its young age.
- When plant is old, the pith dies up and decays.

(b) Heart Wood : The inner annual rings surrounding the pith constitute the heart wood.

- It is usually dark in colour.
- It does not take active part in the growth of tree, but it imparts rigidity to the tree and hence it provides strong and durable timber.

(c) Sap Wood : The outer annual rings between heart wood and cambium layer is known as the sapwood.

- It is usually light in colour and weight.
- It indicates recent growth and it contain sap.
- The annual rings of sap wood are less sharply defined than those of heart wood.
- The sap wood is also known as the alburnum.

(d) Cambium Layer : The thin layer of sap between sap wood and inner bark is known as cambium layer.

If the bark is removed for any reason, the cambium layer gets exposed to the environment and decay of the tree is start.

(e) Inner bark : The inner layer covering the cambium layer is known as the inner bark.

(f) Outer bark : The outer cover of the tree is known as the outer bark.

(g) Medullary rays : The thin radial fibres extending from pith to cambium layer are known as the medullary rays.

The function of these rays is to hold together the annual rings of heart wood and sap wood.

7. *Ans. (d)*

Fat lime : This lime is also known as high calcium lime, pure lime, rich lime or white lime.

- It is popularly known as the fat lime.
- After slaking its volume increased about 2 to 2.5 times.
- This lime is produce from relatively pure lime stone (having 95% calcium oxide).
- The percentage of impurites in such lime stone is less than 5%.

Properties of fat lime:

- It hardens very slowly.
- It slakes vigorously.
- It has high degree of plasticity.
- Its colour is perfectly white.
- It sets slowly in presence of air.
- It is soluble in water which is changed frequently.

Uses

- It used in white washing and plastering walls.
- With surkhi, it forms lime mortar.
- Used as a base for distemper.
- Used in manufacturing of cement.

8. *Ans. (d)*

Pigments are used to hide the surface imperfections and to impart the desired colour.

The pigments are available in the form of fine powder in various colours and qualities.

Following are five divisions of he colouring pigments :

(i) Natural earth colours such as ochres, umbers, iron oxides, etc.

(ii) Calcined colours such as lamp black, Indian red, carbon black, red lead, etc.

(iii) Precipitates such as prussian blue, chrome green, chrome yellow, etc.

(iv) Lakes prepared by discolouringbarytes or china clay with the help of suitable dyes.

(v) Metal powders such as aluminium powder, bronze powder, copper powder, zinc powder, etc.

Colouring pigments for paints

Tint of Paint	Pigments
Black	Graphite, Lamp black, Ivory black, Vegetable black
Brown	Burnt umber, raw umber
Green	Chrome green, Copper sulphate
Yellow	Yellow Ochre, Zinc Chrome
Red	Red Lead, Carmine
Blue	Indigo, Prussian blue

Pigments also improve impermeability of the paint film and enhance its resistance to weathering.

9. *Ans. (b)*

Total surface area $= 2\,(lb + bh + lh)$

$= 2(10 \times 4 + 4 \times 3 + 10 \times 3)$

$= 164\ cm^2$

10. *Ans. (c)*

Hydraulic lime : This lime is also known as the water lime as it sets under water.

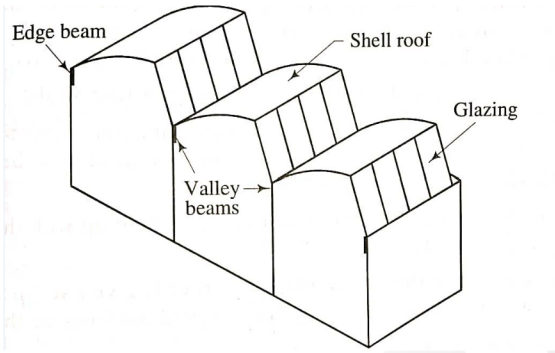
- This lime does not have perfect white colour but have sufficient strength hence it is generally use for masonry work.
- Insoluble in water

11. *Ans. (b)*

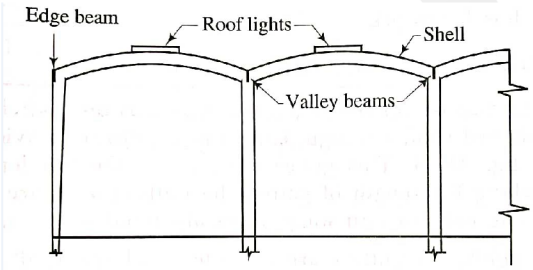
Cement concrete is viscoelastic material.

12. *Ans. (c)*

The structure made of rigid curved surface or conical form are known as shell structure.



North light shell roof



Barrel vault shell roof

13. *Ans. (c)*

When water is added to cement, the ingredients of cement react chemically with water and form various compounds.

Following are the important compounds formed during the setting action of cement:

1. **Tricalcium Aluminate (5-12%) :**
   - Formed with in about 24 hrs. after addition of water to the cement.
   - C_3A is responsible for the initial set, high heat of hydration and has greater tendency to volume change causing cracking.
2. **Tetra-Calcium aluminoferrite: (6-12%):**
   - Formed with in about 24 hrs. after addition of water to cement.
   - Raising the C_4AF content reduces the strength slightly.
   - It has poorest cementing value.
3. **Tricalcium Silicate (25-45%):**
   - Formed within a week after adding of water to the cement.
   - Responsible for early strength in the cement.
4. **Dicalcium silicate (15-35%):**
   - It forms very slowly.
   - It is Responsible for ultimate strength of cement.
   - It imparts resistance to chemical attack.

Bogue Compounds:

Sr. No	The Principal Mineral Compounds in Portland cement	Formula	Symbol	Name
1.	Tricalcium silicate	$3CaO{\cdot}SiO_2$	C_3S	Alite
2.	Dicalcium Silicate	$2CaO{\cdot}SiO_2$	C_2S	Belite
3.	Tricalcium aluminate	$3CaO{\cdot}Al_2O_3$	C_3A	Celite
4.	Tetracalcium alumino ferrite	$4CaO{\cdot}Al_2O_3{\cdot}Fe_2O_3$	C_4AF	Felite

14. *Ans. (c)*

Setting time for various type cement:

Type of cement	Initial setting time (minutes) minimum	Final setting time (minutes) maximum
OPC-grade (33, 43, 53)	30	600
Rapid hardening cement	30	600
Quick setting cement	5	30
Low heat cement	60	600
Sulphate resisting cement	30	600
Portland pozzolana cement	30	600
High alumina cement	30	600
Masonry cement	90	1440
Super sulphated portland cement	30	600
Portland slag cement	30	600

15. *Ans. (a)*

A sample of cement is said to be sound when it does not contain free lime, magnesia and sulphur.

16. *Ans. (a)*

The strength of cement decreases after storage.

17. *Ans. (d)*

Alcohol does not react with Concrete.

18. *Ans. (b)*

Advantages of Pozzolana:

- Improved workability with lesser amount of water.
- Reduced permeability.
- Make the mix economical
- Lower heat of hydration and thermal shrinkage.
- Improved resistance to attack from salts and sulfates from soils and sea water.
- Reduced susceptibility to dissolution and leaching of calcium hydroxide.
- The side effects of pozzolana are the reduction in the rate of development of strength, as increase in the drying shrinkage and at times reduction in durability.

19. *Ans. (d)*

Rapid hardening cement is similar to ordinary Portland cement but with higher tri calcium silicate (C_3S) content and finer grinding.

20. *Ans. (c)*

Aggregate occupies most of the volume of the concrete. The composition, shape, and size of the aggregate all have a significant impact on the workability, durability, strength, weight, and shrinkage of the concrete. Hence, the gradation of aggregate in concrete becomes an essential part. This means that the particles pack together, leaving relatively small voids in the concrete.

The well - graded aggregate has a gradation of particle sizes that fairly evenly span the size from the finest to the coarsest. A slice of a core of well - graded aggregate concrete shows a packed field of many different particle sizes.

Poorly graded aggregate is characterized by small variations in size. This means that the particles pack together, leaving relatively large voids in the concrete.

Gap - graded aggregate consists of coarse aggregate particles that are similar in size but significantly different in size from the fine aggregate. A core slice of gap-graded concrete shows a field of fine aggregate interspersed with slightly isolated, large aggregate pieces embedded in the fine aggregate.

Grading aggregates results in the reduction of voids as voids created by larger particles are filled by smaller particles.

21. *Ans. (d)*

Initial setting time and final setting time for ordinary portland cement should be 30 minute and 600 minute respectively.

22. *Ans. (c)*

Bleeding : Bleeding in concrete is a phenomenon in which free water in the mix rises upto the surface and forms a paste of cement on the surface known as 'laitance'.

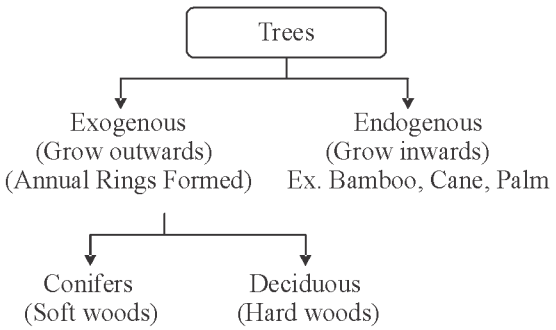
Bleeding occurs in concrete when coarse aggregates tends to settle down and free water rises upto the surface.

It is seen in highly wet concrete or badly proportion mixes.

23. *Ans. (c)*

The silicates and aluminates of cement react with water to form a binding medium, which solidifies in to a hardened mass. This reaction is termed hydration, which is exothermic and heat being librated.

24. *Ans. (c)*



- The examples of soft woods are chir, deodar, kail, pine, spruce etc.
- The examples of hard woods are babul, mahogany, oak, sal, teak etc.

25. *Ans. (a)*

Ingredient	Composition % range
Lime, (CaO)	62-67
Silica (SiO_2)	17-25
Alumina (Al_2O_3)	3-8
Calcium sulphate ($CaSO_4$)	3-4
Iron oxide (Fe_2O_3)	3-4
Magnesia	1-3

26. *Ans. (a)*

Mulberry used for baskets and sports goods like hockey sticks, tennis rackets, cricket bats etc.

Sal used for railway sleepers, wagons, bridges, structural work etc. Deodar used for making cheap and rough furniture, railway carriages, packing boxes etc.

27. *Ans. (d)*

Seasoning of the timber: The new cut tree contain more than 50% moisture and water is removed before the timber is use for any engineering purpose. Hence the process of drying of the timber is term as seasoning of timber.

Moisture content in a well seasoned timber is 10-12%.

The moisture in the timber can be present either in the cell cavities or in cell walls.

The water present in cell cavities is known as free moisture.

- The water present in cell walls is known as bounded water.
- The point at which free water is completly remove is known as fibre saturation point.

28. *Ans. (a)*

Plaster of paris (POP) is prepared by heated gypsum.

- Chemical name of gypsum is calcium sulphate dihydrate.

$$\underset{\text{Gypsum}}{CaSO_4 \cdot 2H_2O} \xrightarrow{\text{Heat to 373 K}} \underset{\text{(POP)}}{CaSO_4 \cdot \frac{1}{2}H_2O} + \underset{\text{(Water)}}{\frac{3}{2}H_2O}$$

- Plaster of paris is a white powder.
- It has a property of setting into hard mass when water is added into it, within half an hour.
- POP is used as fire proof material.

29. *Ans. (c)*

- The meaning of term ply is a thin layer.
- The plywoods are boards which are prepared from thin layers of wood or veneers.
- Plywood may be made from hardwoods, softwoods or a combination of both.

30. *Ans. (d)*

First class timber has an average life more than 10 years.

31. *Ans. (a)*

The strength of timber is maximum when load applied is parallel to grain.

32. *Ans. (b)*

Cast iron is an ideal material for making spiral staircases.

33. *Ans. (b)*

The Forest Research Institute of India conducts durability tests on specimens of size 600 × 50 × 50 mm by burying them in the ground upto half their length and observing them over several years. On the basis of durability it classifies trees into the following three classes:

1. **High durability :** If the average life is more than 10 years.
2. **Moderate durability :** If the average life is 5-10 years.
3. **Low durability :** If the average life is less than 5 years.

34. *Ans. (a)*

- The examples of soft woods are chir, deodar, kail, pine, spruce etc.
- The examples of hard woods are babul, mahogany, oak, sal, teak etc.

Comparison of soft woods and hard woods

S. No.	Item	Soft wood	Hard wood
1.	Annual rings	Distinct	Indistinct
2.	Colour	Light	Dark
3.	Density	Low	High
4.	Fire Resistance	Poor	More
5.	Medullary rays	Indistinct	Distinct
6.	Source	Coniferous trees with needle-shaped leaves	Deciduous trees with flat-broad leaves
7.	Strength	Strong for direct pull and weak for resisting thrust or shear. Also strong along the grain	Equally strong for resisting tension, compression and shear. Also strong along and across the grain
8.	Structure	Resinous and split easily	Non-resinous and close-grained
9.	Weight	Light	Heavy

35. *Ans. (c)*

Gypsum controls the rate of hardening of the cement. During the manufacturing process, a small amount of gypsum during the final grinding process helps to control the setting time of cement.

Flash set of cement would lead to premature stiffening of cement and hence it is undesirable for construction work.

Gypsum is added to the cement after cooling of the clinkers in around 3 to 5%.

The most suitable option among all of the above is 2.5 to 3.5%.

36. *Ans. (a)*

37. *Ans. (a)*

Jacketing is a technique used to increase the strength of existing structural members (eg. columns, beams etc.) by providing a 'jacket' of additional material around the existing member.

It is the process of strengthening weak RCC columns which have been deteriorated over a period of time due to adverse atmospheric conditions or due to poor maintenance of the structure.

The technique is applicable for protecting the member against further deterioration as well as for strengthening.

When the jacket is provided around the periphery of the column, it is termed as collar.

Different types of Jacketing

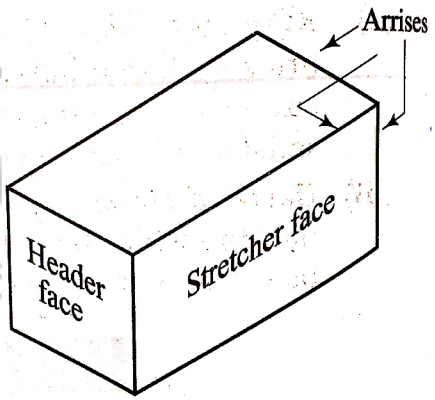
1. Reinforced concrete jacketing
2. Steel jacketing
3. Fiber reinforced polymer jacketing
4. Glass fiber reinforced polymer jacketing
5. Hybrid jacketing

Grouting – The wide and deep cracks may be required by filling them with Portland cement grout.

The grout mixtures may contain cement and water or cement, sand and water, depending upon the width of the crack.

38. *Ans. (a)*

- Standard size of modular brick as per Indian standard is 19 × 9 × 9 cm or 190 mm × 90 mm × 90 mm.



- Nominal size of modular brick is 20 × 10 × 10 cm (size with mortar) or 200 mm × 100 mm × 100 mm.

39. *Ans. (c)*

The mangalore tiles shall be made from suitable clay of even texture and shall be well burnt.

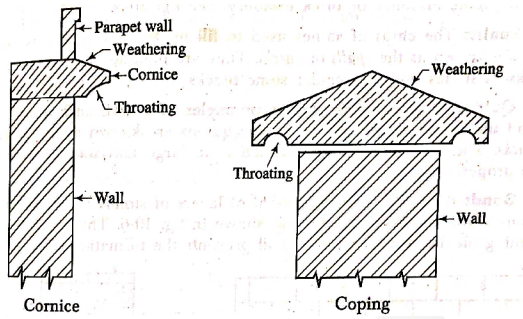
According to the Bureau of Indian standard 654 : 1962, the manglore pattern tiles age divided into two classes, namely, class AA and class A.

Property	Class-AA	Class-A
Maximum water absorption percentage	18	20

40. *Ans. (d)*

A parapet wall is dwarf wall built along the edge of the roof, terrace, walkway, balcony etc.

Parapet walls can be constructed using different materials like reinforced cement concrete, steel, aluminimum, glass etc.



Types of parapet walls :-

Classification based on Appearance

1. Plain parapet walls
2. Perforated parapet walls
3. Embattled parapet walls
4. Paneled parapet walls

Classification based on shape and configuration

1. Sloped parapet wall
2. Stepped parapet wall
3. Flat parapet wall
4. Curved parapet wall

41. *Ans. (c)*

$CaO \rightarrow$ Quick lime

$CaCO_3 \rightarrow$ Lime stone

$Ca(OH)_2 \rightarrow$ Slaked lime/hydrated lime

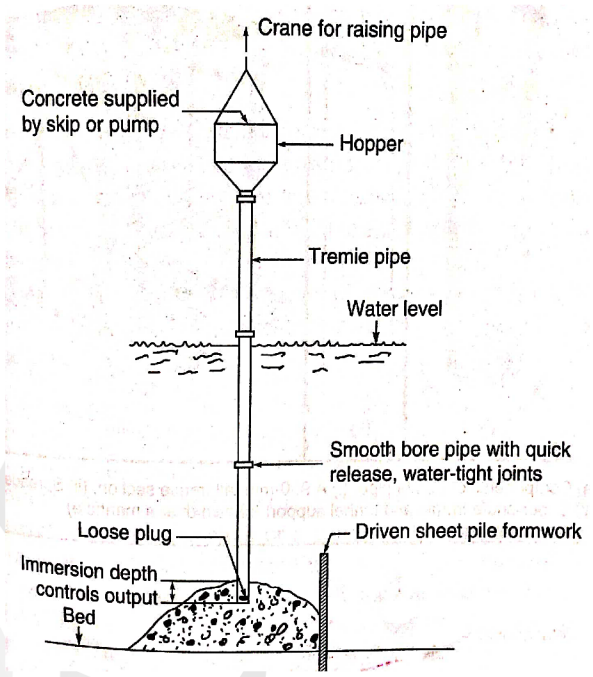
42. *Ans. (a)*

Under water concreting techniques :-

1. Tremie method
2. Bucket placing
3. Placing in bags
4. Prepacked concrete
5. Placing in de-watered caissons or copper dams

Tremie method –

A tremie is a water tight pipe, generally 250 mm in diameter, having a funnel-shaped hopper at its upper end and a loose plug at the bottom or discharge end as shown in figure.



The valve at the discharge end is used to de-water the tremie and control. The distribution of the concrete.

43. *Ans. (d)*

Corrugated galvanized iron sheets :-

The galvanized iron sheets are prepared by pressing flat wrought-iron plates between rollers with grooves or teeth and then they are galvanized with a coat of zinc.

These sheets are commonly known as the G.I. sheets. The corrugations help to increase strength and rigidity and they permit easy flow of rain water.

44. *Ans. (d)*

Seasoning of the timber : The new cut tree contain more than 50% moisture and water is removed before the timber is use for any engineering purpose. Hence the process of drying of the timber is term as seasoning of timber.

Moisture content in a well seasoned timber is 10-12%.

45. *Ans. (a)*

In steam curing the heating of the concrete products is caused by steam either at low pressure or high pressure. Steam curing is used where early strength gain is needed and where heat is required for hydration, such as in cold weather.

Steam curing is mostly adopted for precast structures.

46. *Ans. (b)*

Jamb blocks are used when there is an elaborated window opening in the wall.

They are connected to stretcher and corner blocks.

For the provision of double hung windows, jamb blocks are very useful to provide space for the casing members of window.

Pillar block is also called as double corner block. Generally these are used when two ends of the corner are visible. In case of piers or pillars these blocks are widely used.

Partition concrete blocks are generally used to build partition walls.

Lintel block or beam block is used for the purpose of provision of beam or lintel beam. Lintel beam is generally provided on the top portion of doors and windows, Which bears the load coming from the top.

47. *Ans. (d)*

A cavity wall or a hollow wall consists of two separate walls, called leaves or skins, with a cavity or a gap in between them.

The two leaves of the cavity wall may be of equal thickness or unequal thickness.

Reasons of providing a cavity or a hollow space in a wall :-

1. **Prevention of dampness :** When cavity wall construction is adopted, there is considerable decrease in the penetration of dampness from the outside to inside of the building.
2. **Heat insulation :** The air in the cavity acts as a non-conductor of heat and hence the uniform temperature is maintained inside the building.
3. **Sound insulation :** The considerable portion of external noise is not allowed to enter the inside of a building by adopting cavity wall construction.
4. **Load on foundation :** Due to less solid thickness of wall, the loads on foundation are considerably reduced.
5. **Efflorescence :** The construction of a cavity wall results in the reduction of nuisance of efflorescence to a great extent

48. *Ans. (c)*

Stone	Mohs scale
Limestone	3 – 4
Granite	6 – 7
Marble	3 – 4
Slate	2.5 – 4

49. *Ans. (c)*

50. *Ans. (c)*

The spliting test are well-known indirect test used for determining the tensile strength of concrete, sometimes referred as the splitting tensile strength of concrete.

51. *Ans. (d)*

Plastering is used to describe the thin plastic covering that is applied on the surfaces of walls and ceilings. The plastering removes the unevenness of the surfaces and sometimes the plastering is used to develop decorative effects.

52. *Ans. (b)*

In steel or concrete structure, the spandrel beam is the exterior beam that stretches horizontally from one column to another column.

53. *Ans. (a)*

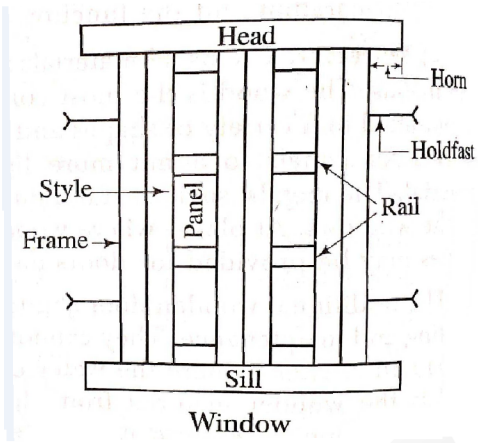
Shielding glass :

This is a special variety of glass and it contains heavy elements like lead oxide (PbO) etc.

It is used for windows through which high radiation is observed. Depending upon the type of radiation, the quality of shielding glass is determined.

54. ***Ans. (b)***

Sill is the bottom or lowermost horizontal part of a window frame.

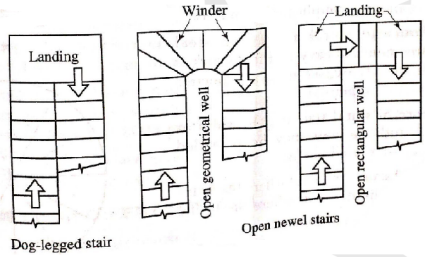


Window

The main function of the sill is to prevent the formation of diagonal bottom corner cracks in windows.

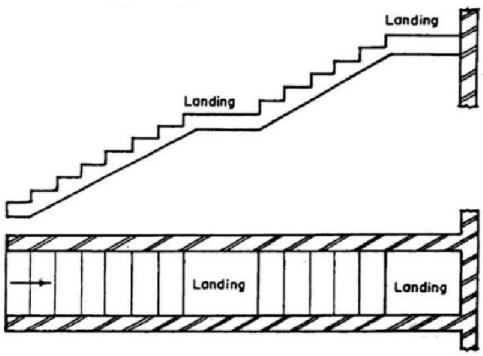
55. ***Ans. (b)***

A stair turning through two right angles is known as a half turn stair. A half turn stair may be of dog - legged type or open newel type.

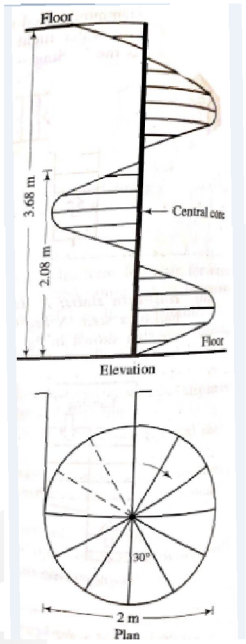


Half turn stairs

Straight Flight Stairs : It is the simplest type of stairs and consists of one or in some cases two flights running in one direction only. These stairs are used, when the space available is narrow and long.



Spiral Stairs : These stairs are generally constructed either of cast iron or RCC. The steps which are all winders, radiate from a central vertical shaft and are attached to it.



Spiral stairs

56. ***Ans. (b)***

Test Name	Purpose	Used Apparatus
Consistency test	To determine the % of water required for preparing cement paste of standard consistency	Vicat apparatus
Setting time	To determine initial & final setting time of cement	Vicat apparatus
Soundness test	To check soundness of cement (volume change after setting of cement)	(i) Le-Chatelier apparatus (for free lime) (ii) Autoclave machine (for free lime and magnesia)

57. ***Ans. (d)***

Belt conveyors are used to convey, handle and transport materials such as sand, cement, aggregates, concrete, earth etc.

58. *Ans. (a)*

To prevent the entry of damp into a building, the courses provided, known as the damp proofing courses.

Material used for damp proofing :-

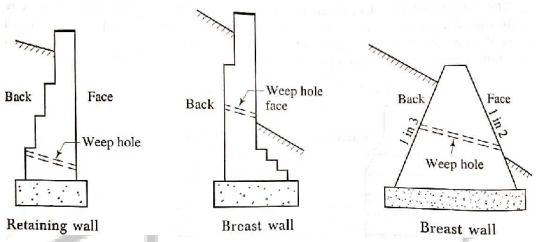
1. Hot Bitumen
2. Mastic asphalt
3. Bituminous felts
4. Metal sheets
5. Plastic sheets

59. *Ans. (b)*

60. *Ans. (c)*

61. *Ans. (b)*

Weep holes are a small opening that is in a rectangular or circular shape that allows water to drain through it.



62. *Ans. (a)*

Shotcrete or gunite is mortar or concrete conveyed through pressure hose and applied pneumatically at high velocity on to a surface.

63. *Ans. (d)*

The strength of timber is the highest parallel to the grains and minimum perpendicular to grains.

64. *Ans. (a)*

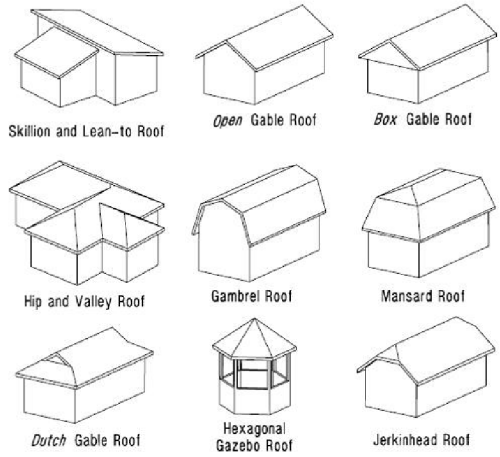
65. *Ans. (d)*

Degree of Workability	Consistency	Slump (mm) Range	Compaction factor
Extremely low	Moist Earth	0	0.65-0.7
Very low	Very Dry	0-25	0.7-0.8
Low	Dry	25-50	0.8-0.85
Medium	Plastic	50-100	0.85-0.95
High	Semi-fluid	100-175	0.95-1

66. *Ans. (c)*

67. *Ans. (a)*

Mansard roof is a type of roof having two slopes on every sides, the lower slope being considerably steeper than the upper.



68. *Ans. (a)*

In order to sub-divide the portion between the plinth level or basement level and roof level, the solid construction are carried out. These constructions are known as the floors and the exposed top surfaces of floors are termed as the floorings.

69. *Ans. (a)*

Setting time for various type cement:

Type of cement	Initial setting time (minutes) minimum	Final setting time (minutes) maximum
Rapid hardening cement	30	600
Quick setting cement	5	30
Low heat cement	60	600
Sulphate resisting cement	30	600

70. *Ans. (d)*

71. *Ans. (a)*

72. *Ans. (a)*

Gypsum used as a retarder in OPC.

Retarder : Decrease the rate of hydration.

Accelerator : Increase the rate of hydration.

73. *Ans. (d)*

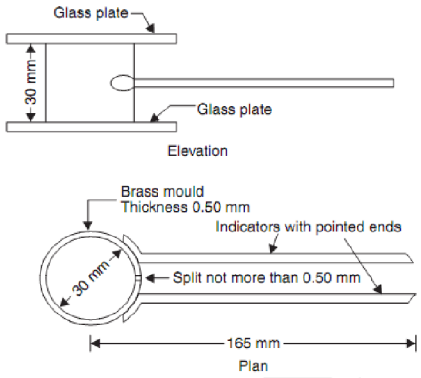
74. *Ans. (a)*

Le-Chatelier's device is used to determine soundness of cement.

- The unsoundness of cement due to the presence of free lime, magnesia and sulphur.
- The unsoundness in the cement due to free lime is tested with the help of Le-chatelier's apparatus.

Le-chatelier's apparatus :

- Brass mould
- Diameter and height = 30 mm
- Split in mould $\not>$ 0.50 mm
- Thickness of mould cylinder = 0.50 mm
- Indicators length = 165 mm



75. *Ans. (a)*

76. *Ans. (d)*

Single scaffolding or bricklayer's scaffolding

This is the most common type of scaffolding and is widely used in the construction of brickwork

Suspended scaffolding

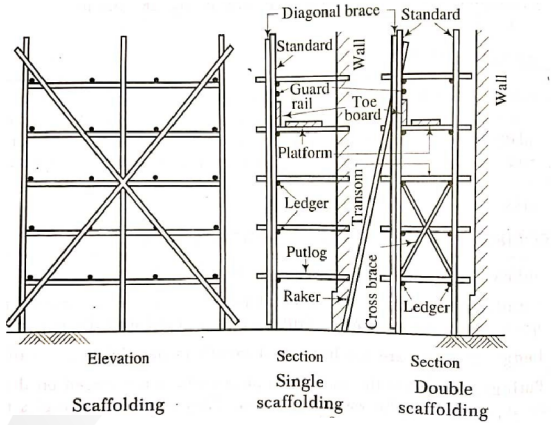
This is a very light type of scaffolding and can be used only for the maintenance works such as painting, white washing, distempering etc.

Trestle scaffolding

In this type scaffolding the working platform is supported on movable contrivances such as ladders, tripods etc. mounted on wheels.

Double scaffolding or mason's scaffolding

This scaffolding is stronger than the single scaffolding and it is used in the construction of stone work.



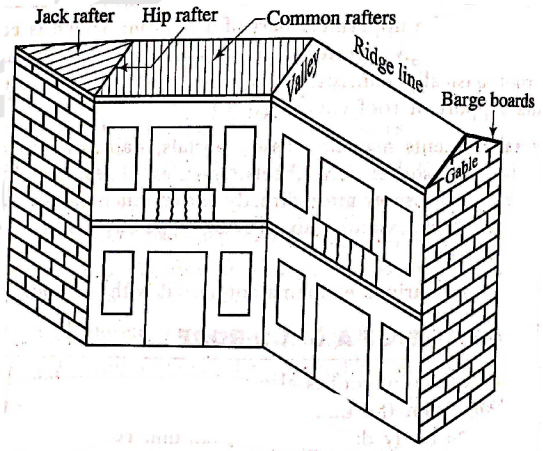
Steel scaffolding

In place of timber the steel tubes can be effectively used for the scaffolding work.

The diameter of the tubes is about 40 mm to 50 mm and the thickness is about 5 mm.

77. *Ans. (c)*

Valley → When two roof surfaces meet together and form an internal angle, a valley is formed shown in figure.



Building with a pitched roof

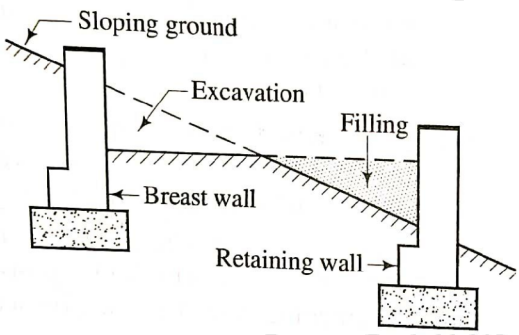
Ridge → A wooden piece provided at the ridge line of a sloping roof is known as the ridge or ridge board or ridge piece.

78. *Ans. (b)*

Factors affecting the strength of concrete :-

1. Water-cement ratio
2. Compaction of concrete
3. Ingredients of concrete
   (a) Type and quantity of cement
   (b) Type and quantity of aggregate
      (i) Shape of aggregate
      (ii) Aggregate grading
      (iii) Surface area of aggregate
   (c) Quality of water
4. Curing of concrete
5. Age of concrete
6. Temperature
7. Rate of loading

79. *Ans. (a)*



Retaining wall and Breast wall

80. *Ans. (c)*

Calcination : It is the process of heating upto redness which lead to removal of moisture and CO_2.

$$\underset{\text{(lime stone)}}{CaCO_3} \xrightarrow[\text{Calcination}]{\Delta} \underset{\text{(Quick lime)}}{CaO} + CO_2 + H_2O$$

- Quick lime is obtained by calcination of pure limestone.
- Quick lime also called caustic lime.
- Quick lime as it comes from kilns is known as the lump lime.
- The quick lime has very high affinity for water.

81. *Ans. (a)*

82. *Ans. (d)*

Sr. No	The Principal Mineral Compounds in Portland cement	Formula	Symbol	Name
1.	Tricalcium silicate	$3CaO{\cdot}SiO_2$	C_3S	Alite
2.	Dicalcium Silicate	$2CaO{\cdot}SiO_2$	C_2S	Belite
3.	Tricalcium aluminate	$3CaO{\cdot}Al_2O_3$	C_3A	Celite
4.	Tetracalcium alumino ferrite	$4CaO{\cdot}Al_2O_3{\cdot}Fe_2O_3$	C_4AF	Felite

83. *Ans. (d)*

84. *Ans. (d)*

Specific gravity of Portland cement is generally about 3.15.

85. *Ans. (b)*

Transit Mixer :-

A mixer generally mounted on a truck or same other suitable mobile haulage unit, capable of mixing ingredients of concrete and / or for agitation of already mixed / partially mixed concrete during transit from a concrete batching plant to the point of placement of concrete.

A transit mixer can perform the following those functions :-

1. It can mix coarse aggregates, fine aggregates, cement and water for production of concrete while it is moving or stationary.
2. It can prevent segregation of already mixed concrete during transit by agitation as, a result of slow revolution of the drum.
3. It can completly mix the 'shrink mixed' concrete (that is concrete partially mixed in the central batching and mixing plant) while it is moving or stationary.

86. *Ans. (a)*

Every structure consists of the following two parts :-

(i) Foundations

(ii) Superstructures

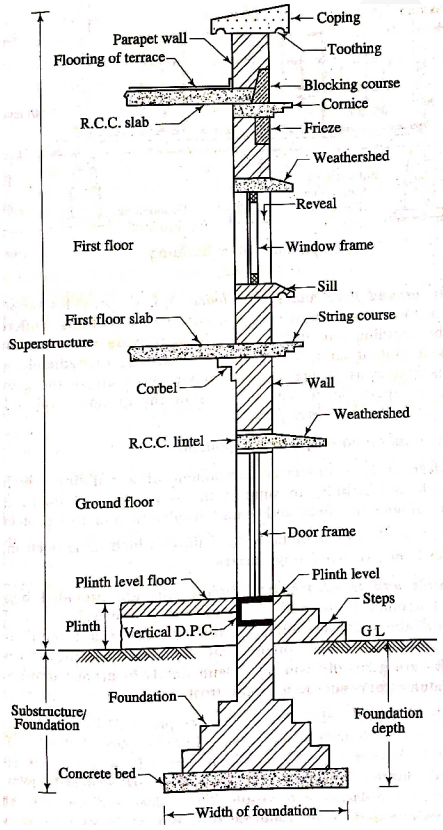
The lowest artificially prepared parts of the structures which are in direct contact with the ground and which transmit the loads of the structures to the ground are known as the foundations or substructures.

The solid ground on which the foundations rest is called the foundation bed or foundation soil.

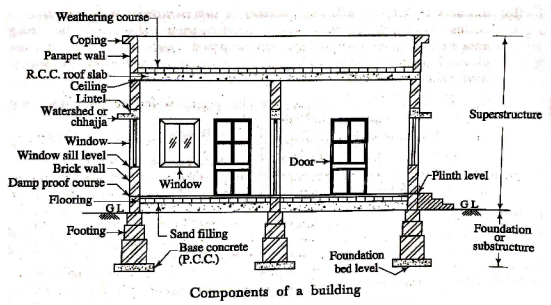
The lower most portion of the foundation which is in direct contact with sub-soil is called the footing.

The term superstructure is used to mean that part of the structure which is above ground level.

A part of super structure located between the ground level and the floor level is known as the plinth.



Components of Building



Components of a building

87. *Ans. (a)*

88. *Ans. (b)*

89. *Ans. (b)*

An aggregate is termed flaky when its least dimension is less than three-fifth of its mean dimension.

The aggregate is said to be elongated when its greatest dimension is greater than nine-fifth of its mean dimension.

Following tests are conducted on coarse aggregates under shape test :-

(a) Elongation index

(b) Flakiness index

90. *Ans. (d)*

AAC blocks are also known as autoclaved aerated concrete blocks, which are one of the environment friendly and light weight construction materials.

AAC blocks are a pre-cast, foam concrete, sustainable construction material made from aggregates of quartz sand, calcined gypsum, lime, Portland cement, water and aluminium powder.

91. *Ans. (c)*

Terms used in staircase

Tread : The horizontal upper part of a step on which foot is placed in ascending or descending stair way.

Riser : The vertical portion of a step.

Rise : It is the vertical distance between the successive treads.

Landing : A platform or resting place provided between two flights.

Flight : A series of steps without any platform, break or landing in their direction.

Going : The run of a step in a stair the width of the tread between two successive risers.

Nosing : The outer projecting edge of a tread is termed as nosing.

Line of nosing : It is an imaginary line touching the nosing of each tread.

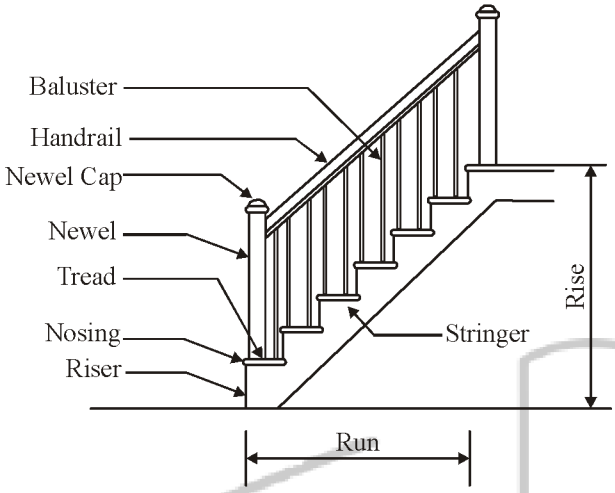
Hand rail : They are provided to render assistance in negotiating a stair way.

Newel post : It is a post supporting the hand rails.

Stringer : These are the sloping wooden or concrete members providing support for the steps.

Windows : These are tapering steps which are provided for changing the direction of a stair.

Baluster : It is a wooden, metal or masonry vertical member supporting a hand rail.



Components of staircase

The pitch of the stair should be minimum 25° and maximum 40°.

92. *Ans. (c)*

Segregation : During handling, transporting and placing, due to jerks and vibrations the paste of cement and sand gets separated from coarse aggregate is called segregation.

Increased cohesiveness of concrete binds the various ingredients of concrete. Hence concrete is less liable to segregation.

The segregation of coarse particles in a lean dry mix may be corrected by the addition of a small quantity of water which improves cohesion of the mix.

Effects of segregation in concrete :

1. The strength of concrete will be reduced.
2. Reduces the bond between the reinforcement and concrete.
3. A segregated concrete is difficult to compact properly.
4. Segregated concrete does not give a homogeneous mass throughout the structure.
5. Due to segregation excess mortar comes to the top surface, which causes plastic shrinkage cracks.
6. Honeycomb, sand streaks, porous layers, rock pockets etc. are the result of segregation in hardened concrete.

93. *Ans. (b)*

Grades of concrete (IS 456 : 2000)

Group	Grade Designation	Specified characteristic compressive strength of 150 mm cube at 28 days (N/mm^2)
Ordinary concrete	M10	10
	M15	15
	M20	20
Standard concrete	M25	25
	M30	30
	M35	35
	M40	40
	M45	45
	M50	50
	M55	55
	M60	60
High strength concrete	M65	65
	M70	70
	M75	75
	M80	80
	M85	85
	M90	90
	M95	95
	M100	100

94. *Ans. (b)*

Hardboard, also called high-density fiberboard (HDF),is a type of fiberboard, which isan engineered wood product.

It is used in furniture and in the construction industry.

Hardboard is similar to particle board and medium-density fiberboard, but is denser and much stronger and harder because it is made out of exploded wood fibers that have been highly ccompressed.

95. *Ans. (a)*

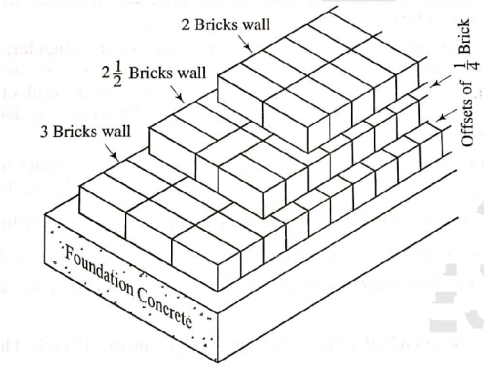
Footing is one of the most important part of a structure which transfers loads of a structure to the underlying soil. The selection of suitable types of footing generally depends on the following factors:

1. The depth of the soil at which safe-bearing strata exist.
2. The type and condition of soil.
3. The type of superstructure.

Types Of Footing :

The different types of footing used for building construction are described below:

1. Wall footing/Strip footing.
2. Spread Footings
3. Isolated footings.
4. Stepped footings.
5. Combined footings.
6. Sloped footings.
7. Mat or Raft foundation.
8. Strapped footings
9. Pile foundation



Wall Footing

96. *Ans. (a)*

Silica (SiO_2) :-

It gives or imparts strength to the cement due to the formation of dicalcium and tricalcium silicates.

If silica is present in excess quantity, the strength of cement increases but at the same time, its setting time is prolonged.

Lime (CaO):- The lime in excess makes the cement unsound and causes the cement to expand and disintegrate. If lime is in deficiency, the strength of cement is decreased and it causes cement to set quickly.

Alumina:- This ingredient imparts quick setting property to the cement alumina should not be present in excess amount as it weakens the cement.

Iron oxide:- This ingredient imparts color, hardness and strength to the cement.

Calcium sulphate ($CaSO_4$) : This ingredient is in the form of gypsum and its function is to increase the initial setting time of cement.

97. *Ans. (b)*

Quick lime:–

The lime which is obtained by the calcination of pure lime stone is known as the quick lime or caustic lime.

$CaCO_3$ = CaO + CO_2

(Limestone) (Lime) (Carbon dioxide)

The quick lime as it comes out from kilns is known as the lump lime.

98. *Ans. (b)*

Burning :-

Burning imparts hardness and strength to the bricks and makes them dense and durable.

The bricks are burn at 1100°C temperature so that the ingredient of brick can fuse with each other and can provide desire strength and density to the bricks.

The burning of the bricks is done either in clamp and kiln.

The burning of clay may be divided into three main stages.

(i) Dehydration (400 – 650°C)

This is also known as water smoking stage.

(ii) Oxidation Period (650 – 900°C)

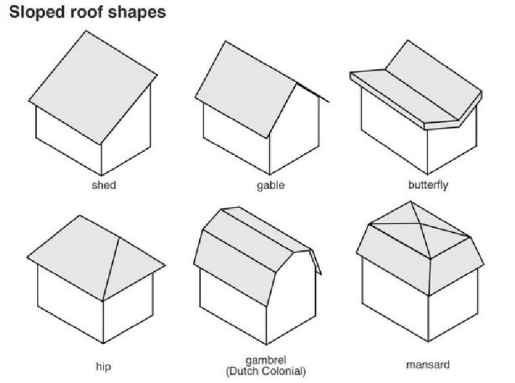
At this stage chemical changes occurs in the constituents of bricks.

(iii) Vitrification :

The temperature ranges 900 – 1100°C for low melting clay and 1000 – 1250°C for high melting clay.

99. *Ans. (b)*

A hip roof or hipped roof, is a type of roof where all sides slope downwards to the walls, usually with a fairly gentle slope.



100. *Ans. (a)*

The specific gravity of pure bitumen ranges from 0.97 to 1.02.

101. *Ans. (d)*

Vicat apparatus is used to find out the consistency, initial setting time and final setting time of the cement.

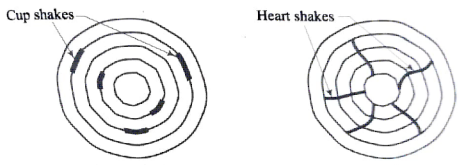
In the normal consistency test we have to find out the amount of water to be added to the cement to form a cement paste of normal consistency.

Normal consistency is defined as the amount of water added in cement to penetrate the vicat plunger upto a depth of 5-7 mm from the bottom of the vicat mould or 33-35 mm from top of the vicat mould.

102. *Ans. (c)*

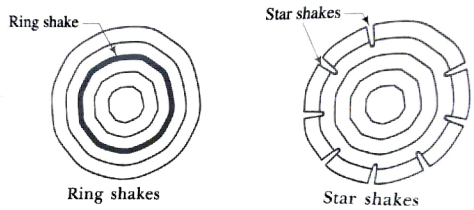
(a) Cup shakes: This defect is develope due to the non-uniform growth or due to excessive bending of growing tree. It is a curved crack which separates partly one annual ring from other.

(b) Heart shakes : These cracks occur in the centre of cross-section of tree and they extend from pith to sap wood in the direction of medullary rays. These cracks occur due to the shrinkage of the wood. The Heart shake divide the tree cross-section into 3 to 4 part.



(c) Ring-shakes : When the cup shakes cover the entire ring they are known as ring shakes.

(d) Star Shakes : These are the cracks which extend from bark towards the sap wood. They are wider on the outside ends and narrower on the inside ends.



Check : A check is a crack which separates fibers of wood. It does not extend from one end to the other.

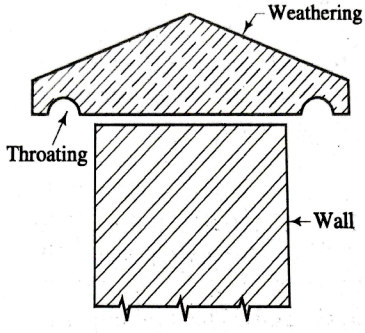
103. *Ans. (b)*

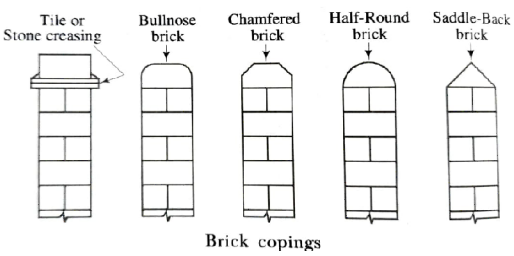
SSD - Saturated, surface dry

The condition in which the aggregate has been soaked in water and has absorbed water into its pore spaces. The excess, free surface moisture has been removed so that the particles are still saturated, but the surface of the particle is essentially dry.

104. *Ans. (d)*

Coping : It is a course of stone, concrete or bricks provided at the top of the wall so as to protect the wall from seepage of rain water through joints at the top most course of wall. This course is generally provided at the top of a parapet wall or compound wall.



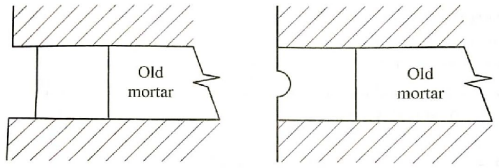


105. *Ans. (d)*

Pointing is the finishing of mortar joints in brick or stone masonry construction.

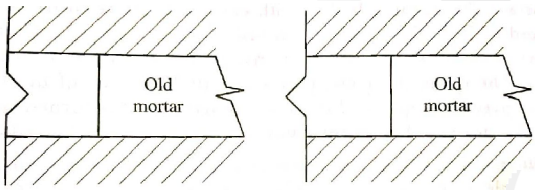
Recessed Pointing :

In this case, mortar is pressing back by 5mm or more from the edges. During placing of mortar the face of the pointing is kept vertical, by a suitable tool. This type gives very good appearance.



Recessed pointing Rubbed pointing

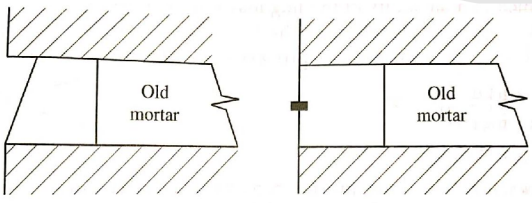
Vee-Pointing : This is formed by forming Vee-shaped groove in the flush-finishing face.



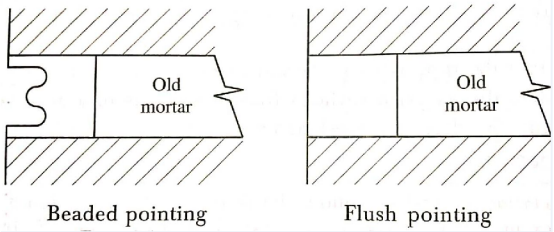
Vee-pointing Weathered pointing

Weathered pointing : This is made by making a projection in the form of V-shape.

Struck pointing : This is a modification of flush pointing in which the face of the pointing is kept inclined, with its upper edge pressed inside the face by 10mm which drains water easily.



Struck pointing Tuck pointing



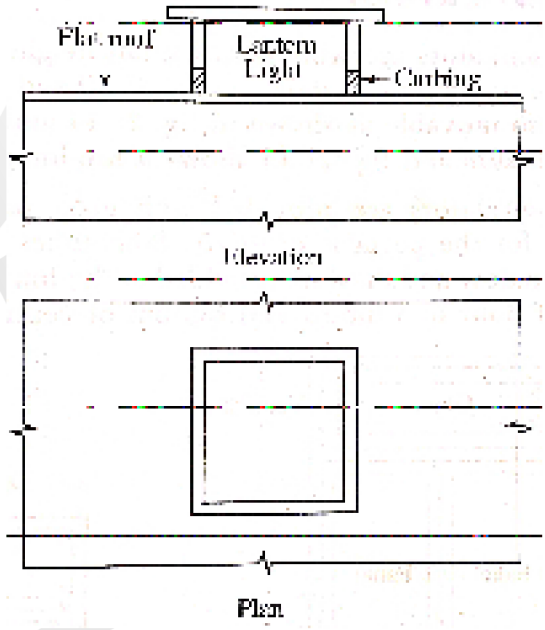
Beaded pointing Flush pointing

106. *Ans. (c)*

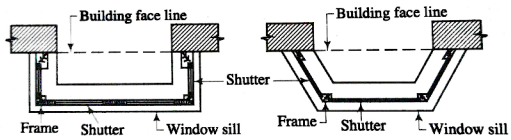
Casement windows : Casement windows are the widely used and common windows nowadays. The shutters are attached to frame and these can be opened and closed like door shutters.

Rebates are provided to the frame to receive the shutters.

Lantern windows : Lantern windows are provided over the flat roofs. The main purpose of this window is to provide the more light and air circulation to the interior rooms.



Bay window : A window projecting outward from the walls of a room is termed as a bay window.



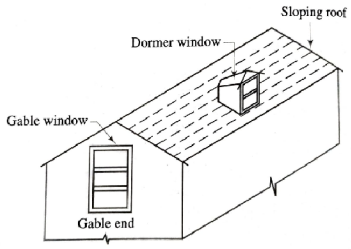
Square bay window Splayed bay window

Corner window : This type of window is essentially located in the corner of a room.

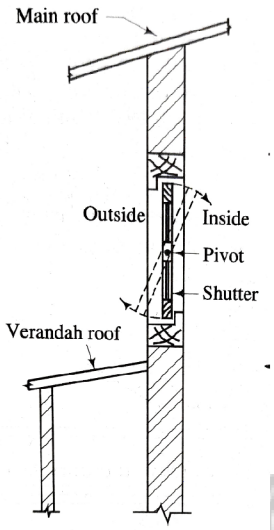
Dormer window : It is a vertical window built in the sloping side of a pitched roof.

Gable window: The window provided in the gable end of a pitched roof is known as gable window.

Clerestory window : A clerestory window is a large window or series of small windows along the top of a structure wall, usually at or near the roof line.



Gable window and dormer window

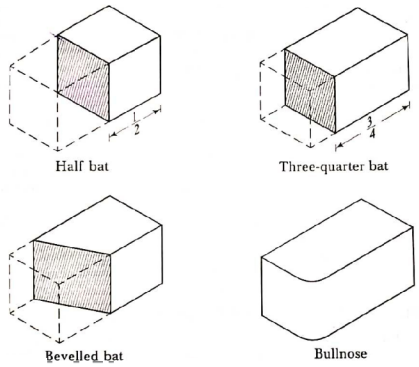


Clerestorey window

107. *Ans. (b)*

108. *Ans. (a)*

109. *Ans. (c)*



110. *Ans. (c)*

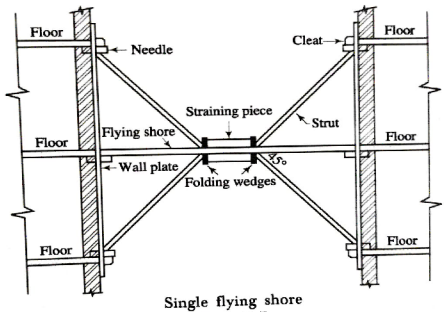
111. *Ans. (c)*

112. *Ans. (b)*

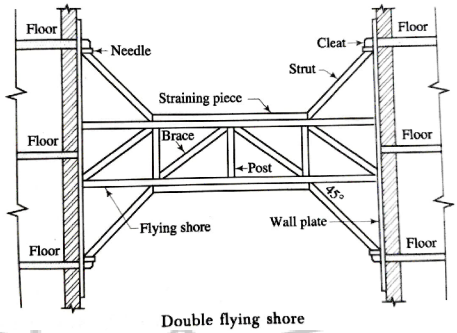
113. *Ans. (b)*

Flying or horizontal shores :–

In this arrangement, the horizontal supports are given to parallel walls which have become unsafe due to the removal or collapse of the intermediate building.



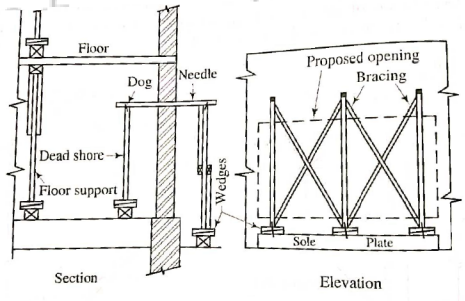
Single flying shore



Double flying shore

Dead or vertical shores :-

In this arrangement, the horizontal members, known as the needles are supported by vertical members known as the dead shores.



Dead shore

114. *Ans. (a)*

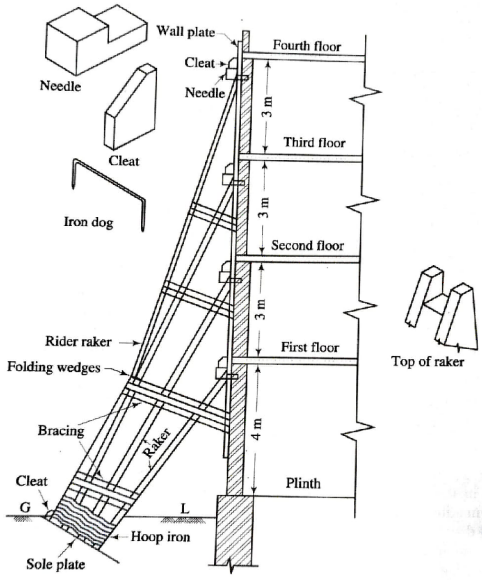
Plaster of paris (POP) is prepared by heated gypsum. Chemical name of gypsum is calcium sulphate dihydrate.

$$\underset{\text{Gypsum}}{CaSO_4 \cdot 2H_2O} \xrightarrow{\text{Heat to 373 K}} \underset{\text{(POP)}}{CaSO_4 \cdot \frac{1}{2}H_2O} + \underset{\text{(Water)}}{\frac{3}{2}H_2O}$$

115. *Ans. (d)*

Raking or inclined shores :–

In this arrangement, the inclined supports are given to the external walls from the ground.



Raking shore

116. *Ans. (c)*

117. *Ans. (a)*

○○○

RRB : SSE

ANSWERS AND EXPLANATIONS

1. *Ans. (a)*

- The chemical reaction between cement and water is known as hydration of cement.
- About an average 23% of water by weight of cement is required for complete hydration of Portland cement. This water combines chemically with the cement compounds and is known as bound water.

About 15% water by weight of cement is required to fill the cement gel pores and is known as gel water.

Therefore, a total of 38% of water by weight of cement is required to complete the chemical reaction.

2. *Ans. (b)*

The process of measuring ingredients or materials to prepare concrete mix is known as batching of concrete

Methods of batching :

1. Volume batching
2. Weight batching

For most important works weight batching is recommended

3. *Ans. (b)*

Gypsum used as a retarder in OPC.

Retarder : Decrease the rate of hydration.

Accelerator : Increase the rate of hydration.

4. *Ans. (a)*

Bonds of Brick work :

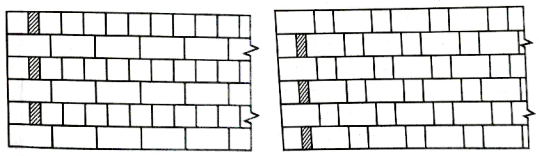
English bond : The bond consists of alternate course of headers and stretchers.

This is commonly used bond because it is stronger than other bonds.

Flemish bond : Each course consists of alternate headers and stretchers.

Flemish bond is weaker than English bond.

Dutch bond : This bond is a modification of English cross bond. Each stretching course starts at the quoin with a three quarter bat.



English bond Flemish bond

5. *Ans. (d)*

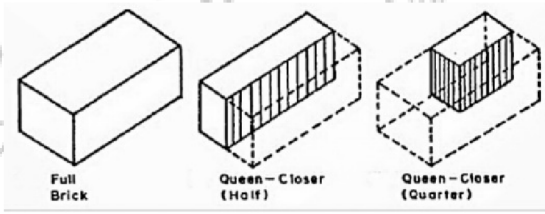
Closer : It is a portion of brick cut in such a manner that its one long face remains uncut.

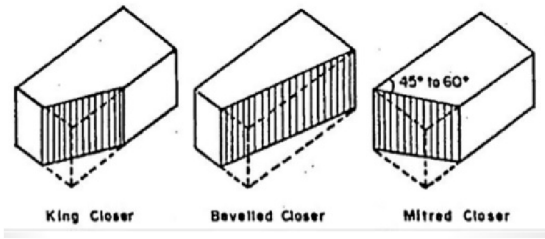
1. **King closer**

   It is a brick which is cut in such a way that the width of one of its end is half of that of a full brick.

2. **Queen closer**

   It is a term applied to a brick which is half as a full brick. Queen closer is made by cutting a brick lengthwise into two portions.





6. *Ans. (b)*

Industrial and commercial buildings will require higher than 4000 psi. Some structures also require an exceptional strength of 10,000 psi, but these cases are not too common. In every day concrete work, professionals usually go for a compression strength of 7,500 psi.

7. *Ans. (d)*

Objective of the seasoning :

1. To allow the timber to burn readily, if used as fuel.
2. To decrease the weight of the timber thereby cost of transportation is reduce.
3. To impart strength, hardness, better electrical resistance to timber.
4. To maintain the size and shape of timber.
5. To make timber easily workable.
6. To make timber fit for receiving treatment of paints, preservation.
7. To make the timber safe from the attack of fungi and insects.

8. *Ans. (b)*

When water is added to cement, the chemical reaction which occur are mostly exothermic, that is, the reactions generate heat.

9. *Ans. (d)*

Bulk density of cement is into used.

10. *Ans. (b)*

The time elapsed between the moment water is added to the ordinary Portland cement and the time when the cement completely loses its plasticity and can resist certain definite pressure is termed as final setting time.

11. *Ans. (c)*

Ingredient	Composition % range
Lime, (CaO)	62-67
Silica (SiO_2)	17-25
Alumina (Al_2O_3)	3-8
Calcium sulphate ($CaSO_4$)	3-4
Iron oxide (Fe_2O_3)	3-4
Magnesia	1-3
Sulphur Trioxide) (SO_3)	1-3
Alkalies [NO_2O + K_2O]	0.2 to 1

12. *Ans. (d)*

13. *Ans. (a)*

The excessive amount of expansion due to unsound cement is usually related to Magnesia.

14. *Ans. (b)*

If inadequate amounts of gypsum are added to the cement, flash set can occur – a rapid development of rigidity in freshly mixed portland cement paste, mortar, or concrete. Further mixing can't dispel this rigidity, and a large amount of heat is produced in the process.

15. *Ans. (c)*

According to IS 456, the accuracy of the measuring equipment shall be with in ±2 percent of the quantity of cement being measured and within ±3 percent of the quantity of aggregate, admixtures and water being measured.

16. *Ans. (d)*

17. *Ans. (b)*

The recommended slump of concrete for had placed pavements is 1-3 inches.

18. *Ans. (c)*

Test Name	Purpose	Used Apparatus
Consistency test	To determine the % of water required for preparing cement paste of standard consistency	Vicat apparatus
Setting time	To determine initial & final setting time of cement	Vicat apparatus
Soundness test	To check soundness of cement (volume change after setting of cement)	(i) Le-Chatelier apparatus (for free lime) (ii) Autoclave machine (for free lime and magnesia)
Fineness test	Measure mean size of grains	Sieve test
	Find specific surface area	Blaine air permeability apparatus
Heat of hydration	To find heat of hydration of cement	Calorimeter apparatus
Specific gravity test	To determine specific gravity of cement	Le-Chatelier flask
Strength test	To determine compressive strength of cement	Cubes tested in compression testing machine
	To determine tensile strength of cement	Briquettes are tested in testing machine

19. *Ans. (d)*

Non-distructive test is a method of testing existing concrete structures to assess the strength and durability of concrete structure.

Following the different methods of NDT on concrete:

1. Rebound hammer test
2. Ultrasonic pulse velocity method
3. Impact echo Testing
4. Profometer for rebar

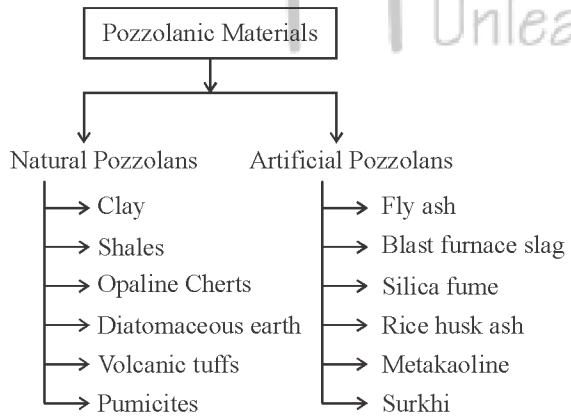
Partially Destructive Test:

1. Penetration Resistance Test
2. Pull out Testing
3. Core Test

20. *Ans. (a)*

21. *Ans. (d)*

Mineral additives also called supplementary cementing materials or pozzolana are finely ground siliceous materials which, as such, do not possess cementing property in themselves, but react chemically with calcium hydroxide $Ca(OH)_2$ released from the hydration of portland cement at normal temperature to form compounds of low solubility having cementing properties. The action is termed pozzolanic action.



22. *Ans. (d)*

23. *Ans. (d)*

The recommended slump for pumped concrete is 4–6 inches.

24. *Ans. (d)*

25. *Ans. (b)*

According to IS : 456, 3 specimen to be tested for estimating the compressive strength.

26. *Ans. (d)*

The coefficient of thermal expansion (CTE) in concrete is the measure of how concrete changes in volume in response to changes in temperature. CTE is defined as the change in unit length per degree of temperature change. It is independent of quality of water.

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