ZONE TECH

Best Institute For J.En.

Tonk Phatek. Jaipur

V

TEST - 111 : GENERAL ÉNäNfEkfAq€1VIL & STRUCTURAL)

101. The thickness of the flange of a tee beam of a fibbed slab is assumed as
    (A) half the thickness Of the rib (B) thickness Of the concrete to depth of the rib
    (D) width Of the rib

102. Co-efficient of wind resistance of a circular surface is
    (A) $\frac{2}{3}$ (B) $\frac{3}{2}$ (C) $\frac{1}{3}$ ● $\frac{1}{2}$

103. Total number of elastic constants of an isotropic material are
    (B) 3 (C) 4 (D) 5

104. The stiffness of a spring is
    (A) load per coil of the spring load required to produce unit deflection (C) load required to compress the spring up to shearing proportional limit
    (D) the load reqUired for breaking the spiin€

105. Creep of a material is   F
    (A) not being ductile
    (B) to become brittle
    (C) disappearance of deformation on removal of load continued deformation with time under sustained loading

106. A propped cantilever is indeterminate externally of
    (A) second degree (B) fourth degree first degree (D) third degree

107. Which of the following is a relatively ductile material ?
    (A) High carbon steel (B) Bronze

108. A beam is supported over three rollers lying in the same plane. The beam is stable for
    (A) loading with no component perpendicular to the direction of beam only when no load except self weight acts   loading with no component in the direction of the beam
    (D) any general loading

109. The resistance of an aggregate to the effect of hydration of cement and weather is called
    (A) impact value soundness
    (C) crushing strength
    (D) abrasion resistance

110. Under which conditions highest water cement ratio is used ?
    ● Heavy sections such as piers, foundations etc. exposed to alternate wetting and drying
    (B) Heavy sections such as piers foundaH tions etc. protected against rain and frost
    (C) Hydraulic structure exposed to rain and snow '
    (D) Light structural members exposed to alternate wetting and drying

111. Snowcem is
    coloured cement
    (B) powdered lime
    (C) chalk powder
    (D) mixture Of chalk powder and lime

112. In a singly reinforced beam, if the cmcrete is stressed to its allowable limit earlier than steel, the section i' said tb be_____
    (A) economical section over reinforced section
    (C) balanced section
    (D) under reinforced section

Mild steel   (D) Cast iron

113. In order to determine the axial compression, Indian Standard Institution has adopted

     Rankine's formula
     (B) Secant formula
     (C) Euler's formula
     (D) Perry-Robertson formula

114. The sag tie in a truss is mainly used to reduce

     (A) moment and deflection
     (B) tension
     ● weight of the truss
     (D) compression

115. A simply supported beam carrying uniformly distributed load will be safe in deflection if the ratio of its span and depth is

     (A) < 24   (B) > 19
     ● < 19   (D) > 24

116. The actual thickness of a butt weld when compared with the thickness of the plate iS less
     (B) more or . leks
     (C) more   (D) equal

117. The fillet weld whose axis is parallel to the direction

     ● side fillet weld
     (B) end fillet weld
     (C) flat fillet weld
     (D) diagonal fillet weld

     of the applied load is known as

118. Tacking rivets in compression plates exposed to weather have a pitch not exceeding 200 mm or

     (A) 8 times the thickness of outside plate
     (B) 16 times the thickness of outside plate
     (C) 24 times the thickness of outside plate
         32 times the thickness of outside plate

940953B6ff1t depth of the section of an upper column is much smaller than the lower column

     (A) bearing plates are provided with column splice

         filler and bearing plates are provided with column splice

     (C) filler plates are provided with column splice

     (D) neither filler nor bearing provided with column splice

     provided with column

                    bearing Plates are

120. Web crippling in beams generally occurs at the points where

) concentrated loads act
     (B) bending moment is maximum
     (C) shear force is maximum
     (D) deflection is maximum

121. The minimum thickness Of the plates used in pressed steel tanks is

     (A) 4 mm   (B) 5 mm
         6 mm   3 mm

122. A column splice is used to increase

     (A) the strength of the column
     (B) the rigidity of the column
     (C) the cross-sectional area Of the column

the length of the column

123. Percentage increase of carbon in steel, decreases its

(A) hardness   ductility

(C) strength   (D) brittleness

124. The process of providing smooæE⁴⁷åä6 regular face to stones is known as
   (A) quarrying   (B) seasoning
   (C) pitching   ● dressing

125. The bulking of sand occurs due to
   (A) Air in voids
   (B) Moisture in voids
   (C) Surface tension
   ● Capillary action

dressing

126. • Ihe compressive strength Of common building bricks should not be less Phan (A) 3•5 N!mm² (B) N /mm²
   ● 7-5' N/mm²   (D) 10•5 N/mm²

127. The natural bedding plane of stones and the direction Of pressure in stone masonry is
   ● normal (B) parallel
   (C) at 30^0 (D) at 45^0

128. Following stone is suitable for damp-proofing
   Slate   (B) Marble
   (C) Laterite(D) Granite

129. The number of standard bricks in one cubic metre of brick masonry is (A) 300   500
   (C) 700   (D) 1000

130. The resistance of a material to penetration is
   (A) Toughness   Hardness
   (C) Fatigue   (D) Roughness

943253⅝ä⁴ cement should have least percentage of
   (A) Aluminium oxide iron oxide
   (C) Silica
   (D) Magnesium oxide

133. Turpentine oil is used in paint as a
   (A) Base   (B) Carrier
   (C) Drier   • Thinner

134. Connecting pipe in mm for septic tank should not be less than
   (A) 150   100 (C) 50   (D) 25

135 Total depreciation during first five years of a cement concrete structure is
   (A) zero per cent (B) per cent O) I per cent
   (D) 2 per cent

136. Estimate for electrical wiring is prepared on the basis of
   (A) Voltage
   (B) Power
   (C) Number of appliances ₋ O) Number of points

137. Which of the following tax generally not applicable to residential building is
   (A) Municipal tax (B) Property tax ₋Sales tax
   (D) Wealth tax

138. The value of demolished material is known
   Scrap value   , (Bf Salvage value

131. The standard size of a masonry brick is

    (A)   IS cm x 8 cm x 8 cm
    (B)   18 cm x 9 cm 9 cm
    .19 cm k9æm x 9 cm
    (D) 19 cm x 8 cm x 8 co

(C) Resultant value (D) Material value

139. Slump test for concrete is carried determine

(A) Strength   (B) Durability

•nWorkability   (D) Water content

14 The leaching action in concrete is the example of

(A) decomposition (B) creeping

(C) crystallization   chemical reaction

141: Poission's ratio of cement concrete is about

0-28 (B) 9.50   040 (D) 0-15

1". The span to depth ratio limit is specified in IS : 456-2000 for the reinforced concreted beams, in order to ensure thåt the

(A) shear failure is avoided

(B), tensile crack width is belo&

deflection of the limiting value stress in the tension ÉfÆ+ment is less than the allowable val_e

143. A 300 x 300 mm R.C. column in reinforced with 8 bars, four bars are Of 12 mm diameter. The diameter of lateral ties is 6•mm. Ihe pitch of lateral ties shall be kept as

288 mm   (B) 160 mm

192 mm   (D) 300 mm

144. The width of lacing bars in mm is kept

145. The bearing [9] stress at bends for limit state method compared to working stress method of design is

1-5 times more (B)   times more

(C)   times less (D) 1 •5 times less

146. The base width of retaining wall of height h is generally taken as, b =

(A) 0-8 h   (B) 0-95 h

0-6 h   (D) 0-3 h

147. The steel beam of light section placed inplain cement concrete are called

filler joists (B) concrete joists

(C)   (C) simple joists   (D) joists

148. Partial safety factor on steel stresses is

(A) 1-67   1-15 (C) 1-77 (D) 1-5

149. When a load is exerted or transferred from one surface to another . in contact, the stress is known as bearing stress (P, shear stress

(C) binding stress (D) direct stress

v. When R.C.C. footing is not to extend in the plot of the neighbouring housé, thé type of footing preferred is

(A)   cellular flat not footing

twice the nominal rivet diameter thrice the nominal rivet diameter

(C) maximum of the all rounded to nearest 5 mm

(D) equal to normal rivet diameter

(B) inverted flat not footing

strap f009ng

(D) both (A) and (B) above

151. The construction joints in cemen 99287±7äZ6,con should not be provided at the comers

(B) should be spaced at a distance of 3 m apart in case of huge structures

(C) should be located where shear force is

(D) should be located where bending moment is large

152. The fineness modulus of an aggregate is roughly proportional to

average size of particles in the aggregate grading of the aggregate (C) specific gravity of the aggregate
(D) shape of the aggregate

153. The aggregate is said to be flaky when

its length is equal to 1 . times its mean dimension

(B) its length is equal to its mean dimension (C) its least dimension is equal to its mean dimension

(O its least dimension is three fifth of its mean dimension

154. The soundness of cement is tested by

(A) Vtcat's apparatus

Le Chatelier's apparatus

(C) Compression testing machi4

(D) Standard briquette test

55 In lime concrete, lime is (A)

admixture binding aggregate (C) fine aggregate

156388¢1 minimum quantity of cement content needed in • one tn^3 of a reinforced concrete which is exposed to sea weather conditions is (in kg)

(A) 350 (B) 200   '250 (D) 300

Shrinkage in concrete increases its
(A) bond strength (B) compressive strength
(C) flexural strength

O) tensile

158. The strength of concrete mainly depends on
(A) quality of fine aggregates (B) water cement ratio fineness of cement
(D) quality of course aggregates

159. Green concrete may be made by adding
(A) iron hydroxide
(B) barium manganate
Iron Oxide
(D) chromium oxide

160. Gypsum is added to cement in small quantity to control initial setting time
(B) control final setting time

(C) give colour to the cement
(D) make cement hydrophobic

16 The Indian standard mix design for fly ash and cement concrete recommends water content

(A) to increase by 3% to 5%
(B) to reduce by 15%
(C) to increase by 15%
(D) to reduce by 3% to 5%

(D) coarse aggregate

Phatak,

162. one cubic metre of mild steel weighs about,

   (A) 1000 kg   (B) 3625 kg

   •—3850 kg   (D--12560 kg

163. The total length of a cranked bar through a distance (d) at 45^0 in case of a beam o! effective length L, and depth (d) is

   (A) L+042d   (B) L+2xO.42d

     $L - 0·4$ ●) $L - 2 \times 0·42\ d$

164. For building project estimate which method is generally used in PWD ?

   (A) Long wall and short wall method

     Centre line method

   (C) Crossing methodc

   (D) Short wall method

165. An estimate is

   (A) cost of the structure using thumb rules

   (B) -random guess of cost of structure probable cost arrived at before construction

   (D) actual cost of construction

166.

. The depth of foundation is usually calculated from

   ● Rankine's formula

   (B) Newton's formula

   (C) De Almbert's formula

   (D) Gutter's formula

167. When two points of åhveying are mutually invisible the following method of ranging is

*3ßQ1 flistance between two ,brass rings in a surveyor's chain IS

   20 cm   (B) 40 cm

   (C) 75 cm   (D) 1 m

169. The sum of the interior angles of a closed traverse is equal to

   (O (2n-4) 900   (B) (3n-4) 909

   • (2n-4) 180^0 (D) (3n24) 180^0

170.

Survey line provided to verify the accuracy off the framework is known as

   (A) Tie line   (B) Base line

€0.   Subsidiary line   Check line

171. The total number of links provided in a Gunter's chain is

   (A) 132   100 (C) 66   (D) 50

172. If the fore bearing of a line is observed to be AB $12^024'$, the back bearing of line AB should be

   (A) $102^024'$ (B) $77^036'$

   (C $167.^036'$ • 192024'

173.

The direction of a line relative to a given meridian is known as

   (A) Angle of line   (B) Direction of line

174.   Bearing of line (P' Relative meridian

When compared with chain surveying plane table is more accurate (B) less accurate

   (Ck not accurate   (D) accurate

175.

(A) Direct ranging

    Indirect ranging

(C)   Horizontal ranging

(D)   Vertical ranging

Number of satellites involved in the orbit for the GPS survey-technique

IA) 14   24 (C) 34   (D) 44

HAO

176. Harbour model are based on tk ⁸FofiÆ71fig9 law

    (A) Froude law   Reynold's law

    (C) Stoke's law   (D) Euler's law

177. For stability of floating bodies, the metacentre should be ⬤ above the centre of gravity

    (B) below the centre of gravity (C) above the centre of buoyancy

    (D) below the centre of buoyancy

178. A vessel containing water of depth h is accelerated upward with an acceleration of g. The pressure at the bottom of the vessel is

    γh (B) $\dfrac{\gamma h}{2}$ (C) $2\gamma h$ ⬤ $\dfrac{3}{2}$—rh

179. The most desirable alignment of an irrigation canal is along

    (A) the contour line

    ⬤ the ridge line

    (C) normal to contour line

    (D) the valley line

180. Clay is an example of

    (A) aquifer aquitård

    (C). aquifuge   (D) aquiclude

181. Aggregate impact value indicates which of the following properties of aggregates ? (A) Durability Toughness

    (C) Hardness   (D) Strength

182. The shape of the STOP sign according to IRC: 67-2001 is

    (A) Circular   (B) Triangular

    Rectangular • -'Octogonal

60838$pilution potential of domestic sewage generated in a town and its industrial sewage can be compared with reference to

    (A) their BOD value

    population equivalent

    (C) their volume

    (D) the relative density

184. e valve which protects the water meter from the damages Of water hammer

    O) pressure relief valve

    (B) stop cock

    (C) reflux valve

    (D) water hammer Valve

185. In Brinell Hardness test, the type of indentor used is

    (A) hard steel ball (B) diamond cone mild steel

    ball (D) hard steel cone

186. The The intensity of direct longitudinal stress in the cross-section at any point distant r from the neutral axis, is proportional to

    $\dfrac{1}{r^2}$ (B) $\dfrac{1}{r}$ (C) r (D) r^2

187. A column is known as medium size if its slenderness ratio is between

    (A) 160 and 180. (B) 20 and n

    32 and 120   120 and 160

188. An a 188 An arch may be subjected to shear force and thrust

    (B) bending moment and shear force

    (C) shear and axial force

    (D) bending moment and axial force

189. Mean sea level (MSL) adopted by Survey of India for reference, is located at (A) Kolkata (B) Mumbai

   Karachi   (D) Delhi

•190. Black cotton soil is not suitable for founda- tion because of its

   (A) low bearing   (D) black colour
   (B) cohesive part
   ● swelling and shrinkage

9 Optimum moisture content

 is obtained from

   (A) triaxial test standard'
       prOctor test
   -(0 consolidation test
   (D) hydrometer test

192. The effective size of particles of soil is denoted by

          10
   (C) D30   (D) D60

193. When the plasticity index of a soil IS zero the soil is

   (A) Clay   (B) Silt
   ● Sa   Silty sand

194. Francis
   ● a

   Sand   (D) Silty sand

    turbine   is   a
   reaction turbine
   (B) an impulse turbine
   (C) a tangential flow impulse⁹rurbine an axial flow turbine

systems are said to be equivalent wher

   (A) they carry same discharge
   (B) they are satisfying Bernoulli's theorem
   ● ooth have same hea   00th have same
      values   head loss and
   (D) they are of same discharge
        same head loss

                              they are
o.f   length and having 197. The specific speed of a pump is defined as the speed of a unit of such a size that it discharges unit discharge at unit power

   (B) unit work at unit head loss unit
       discharge at unit head

   (D) unit volume at unit time

198. The dimensions of Chezy's C is

   (A)   non-   (B)   dimensional L / T

                              '[L/T21ä

199. The velocity distribution for turbulent flow through circular pipes is
   (A)   uniform linear
   (B)   parabolic logarithmic

200. With increase in temperature the viscosity of ___ air and water varies as

   viscosity of air increases and viscosity of water decreases e • (P) viscosity of air increases and viscosity of water increases viscosity of air decreases and viscosity of water decreases

   (D) viscosity. of air decreases and viscosity of water increases

195. Most economical circular channel grves maximum discharge while flow depth = 0-95 diameter

(B) flow velocity high

(C) area of flow is full wetted perimeter is least