BRAINWARE UNIVERSITY

Term End Examination 2020 - 21

Programme – Diploma in Civil Engineering

Course Name – Concrete Technology

Course Code - DCE303

Semester / Year - Semester III

Time allotted : 75 Minutes Full Marks : 60

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question) 1 x 60=60

1. *(Answer any Sixty)*

(i) The ease with which concrete can be compacted fully without segregation is called

a) bleeding b) segregation

c) workability d) none of these

(ii) Bleeding can be prevented by

a) controlling water content b) using finely ground cement

c) controlling compaction d) All of these

(iii) Strength of concrete increases with

a) increase in water-cement ratio b) increase in fineness of cement

c) decrease in curing time d) decrease in size of aggregate

(iv) Increase in the moisture content in concrete

a) reduces the strength b) increases the strength

c) does not change the strength d) All of these

(v) As compared to ordinary portland cement, use of pozzolanic cement

a) reduces workability b) increases bleeding

c) increases shrinkage d) increases strength

(vi) The percentage of voids in cement is approximately

a) 0.25
b) 0.4
c) 0.6
d) 0.8

(vii) As compared to ordinary portland cement, high alumina cement has

a) higher initial setting time but lower final setting time
b) lower initial setting time but higher final setting time
c) higher initial and final setting times
d) lower initial and final setting times

(viii) In order to obtain the best workability of concrete, the preferred shape of aggregate is

a) rounded
b) elongated
c) angular
d) All of these

(ix) 22.The effect of adding calcium chloride in concrete is i)to increase shrinkage ii)to decrease shrinkage iii)to increase setting time iv)to decrease setting time The correct answer is

a) (i) and (iii)
b) (i)and(iv)
c) (ii) and (iii)
d) (ii) and (iv)

(x) Bulking of sand is maximum if moisture content is about

a) 0.02
b) 0.04
c) 0.06
d) 0.1

(xi) Finer grinding of cement

a) affects only the early development of strength
b) affects only the ultimate strength
c) both affects only the early development of strength and affects only the ultimate strength
d) does not affect the strength

(xii) Poisson’s ratio for concrete

a) remains constant
b) increases with richer mixes
c) decreases with richer mixes
d) none of these

(xiii) 1% of voids in a concrete mix would reduce its strength by about

a) 0.05
b) 0.1
c) 0.15
d) 0.2

(xiv) The fineness modulus of fine aggregate is in the range of

a) 2.0 to 3.5
b) 3.5 to 5.0
c) 5.0 to 7.0
d) 6.0 to 8.5

(xv) For concreting of heavily reinforced sections without vibration, the workability of concrete expressed as compacting factor should be

a) 0.75-0.80
b) 0.80-0.85
c) 0.85 – 0.92
d) above 0.92

(xvi) Maximum quantity of water needed per 50 kg of cement for M 15 grade of concrete is

a) 28 litres
b) 30 litres
c) 32 litres
d) 34 litres

(xvii) The individual variation between test strength of sample should not be more than

a) ±5% of average
b) ± 10% of average
c) ± 15% of average
d) ±20% of average

(xviii) Which of the following statements is incorrect ?

a) Higher Vee-Bee time shows lower workability.
b) Higher slump shows higher workability.
c) Higher compacting factor shows higher workability.
d) none of these

(xix) The property of the ingredients to separate from each other while placing the concrete is called

a) segregation
b) compaction
c) shrinkage
d) bulking

(xx) Which compound is liberates lower heat?

a) C2S
b) C3S
c) C3A
d) C4AF

(xxi) Which compound may lead to a rapid stiffening of the paste with a large amount of the heat generation?

a) C2S
b) C3S
c) C3A
d) C4AF

(xxii) In order to prevent this rapid reaction _____ is added to the clinker.

a) C4AF
b) Gypsum
c) Water
d) Extra cement

(xxiii) What is the size of fine aggregates?

a) 4.75mm
b) < 4.75mm
c) > 4.75mm
d) 12mm

(xxiv) Workability of concrete is measured by _____

a) Vicat apparatus test
b) Slump test
c) Minimum void method
d) Talbot Richard test

(xxv) Which test gives good results for rich mixes?

a) Slump test
b) Compacting factor test
c) Flow table test
d) VeBe test

(xxvi) Which test used for low workable concretes?

a) Slump test
b) Compacting factor test
c) Flow table test
d) VeBe test

(xxvii) What is the compaction factor for medium degree of workability?

a) .78
b) .85
c) .92
d) .95

(xxviii) How many times in each layer of concrete rodded in a slump cone?

a) 75
b) 25
c) 12 to 15
d) 35 to 65

(xxix) How many layers of concrete are placed to fill a slump cone?

a) 5 layers
b) 3 equal layers by volume
c) 3 equal layers by height
d) 5 layers by volume

(xxx) To determine the fineness of cement ____

a) Grain size is smaller than specified mesh size
b) Grain size is larger than specified mesh size
c) Grain size is equal to specified mesh size
d) Grain size is 1mm

(xxxi) Which apparatus is generally used to measure the soundness of the cement?

a) Vicat Apparatus
b) Le-Chatelier apparatus
c) Soundness meter
d) Duff Abrams apparatus

(xxxii) Water cement ratio is _____

a) Volume of water to the volume of cement
b) Volume of water to the volume of concrete
c) Volume of concrete to the volume of cement
d) Volume of water to the volume of aggregates

(xxxiii) A lower ratio leads to _____

a) High strength
b) Low strength
c) Low durability
d) Ease to work

(xxxiv) For concrete exposed to a very aggressive environment the w/c should be lower than _____

a) 1
b) .5
c) .4
d) .8

(xxxv) What is the range of water in M20?

a) 34-36L
b) 29-32L
c) 26-30L
d) 21-27L

(xxxvi) What is the range of water in M25?

a) 34-36L
b) 29-32L
c) 26-30L
d) 21-27L

(xxxvii) What could be the possible answer among the following for compressive strength of high strength concrete?

a) 10MPa
b) 20MPa
c) 30MPa
d) 40MPa

(xxxviii) What could be the possible answer among the following for water cement ratio for high strength concrete?

a) .5
b) .45
c) .4
d) .35

(xxxix) What is the moisture content in slurry for wet process?

a) 35-50%
b) 0.12
c) 40-45%
d) 1

(xl) The slurry, in its movement down the kiln, encounters a progressively higher temperature. At first, the water is driven off and _____ is liberated.

a) SiO_2
b) CO_2
c) Gypsum
d) CaO

(xli) For complete hydration of cement the w/c ratio needed is _____

a) More than 0.25
b) More than 0.25 but less than 0.35
c) More than 0.35 but less than 0.60
d) More than 0.60

(xlii) The minimum water to cement ratio for cement concrete to hydrate is _____

a) 0.65
b) 0.5
c) 0.38
d) 0.27

(xliii) What do you mean by bulking?

a) The volume increase of fine aggregate due to presence of moisture content in it
b) The moisture present in aggregate forms a film around each particle
c) Fine aggregate shows completely realistic volume
d) The state of setting someone or something apart from others

(xliv) Fine sand bulks _____ than coarse sand.

a) Less
b) More
c) Equal
d) Depends on volume

(xlv) If h = height of sand when moist and h1 is the height when saturated then what is the percentage of bulking?

a) {(h-h1)/h1}*100
b) {(h1-h)/h1}*100
c) {(h-h1)/h}*100
d) {(h1-h)/h}*100

(xlvi) Which apparatus we don’t need to calculate the bulking of fine aggregates?

a) Measuring cylinder
b) Weighing balance
c) Steel rule
d) Vicat’s mould

(xlvii) When sand is fully dry then it’s volume is _____

a) Equal
b) Less
c) More
d) Can’t say

(xlviii) What is wet process?

a) Grinding and mixing of the raw materials in their dry state
b) Grinding and mixing of the raw materials in their medium state
c) Grinding and mixing of the raw materials in their wet state
d) Grinding and mixing of the raw materials in their overheated state

(xlix) Size of the kiln needed to manufacture the cement is bigger for wet process.

a) True
b) False

(l) The slurry, in its movement down the kiln, encounters a progressively higher temperature. At first, the water is driven off and ___ is liberated.

a) SiO_2
b) CO_2
c) Gypsum
d) CaO

(li) The machinery and equipments do not need much maintenance.

a) True
b) False

(lii) When chalk is used _____

a) It is finely broken up and dispersed in water in a wash mill
b) It has to be blasted, then crushed, usually in two progressively smaller crushers
c) It is sieved and fed into a rotating dish called a granulator
d) The raw materials are crushed and fed into a grinding mill, where they are dried and reduced into fine powder

(liii) In the wet process, the kiln is _____

a) Horizontal
b) Vertical
c) Slightly inclined with vertical
d) Slightly inclined with horizontal

(liv) In the wet process of cement manufacturing raw material is heated to about _____

a) 650-900 °C
b) 900-1300 °C
c) 1300-1450 °C
d) 900-1050 °C

(lv) Tensile test can be performed on _____

a) Impact testing machine
b) Universal testing machine
c) Rockwell tester
d) Brinell tester

(lvi) Which machine records the change in length of specimen?

a) Impact testing machine
b) Universal testing machine
c) Rockwell tester
d) Brinell tester

(lvii) The ability of the material to resist stress without failure is called _____

a) Strength
b) Hardness
c) Stiffness
d) Toughness

(lviii) The shape of specimen used in compression test is Cube and cylinder.

a) True
b) False

(lix) The property of a material that resists penetration or indentation by means of abrasion or scratching is known as _____

a) Strength
b) Hardness
c) Stiffness
d) Toughness

(lx) The indenter used in Brinell hardness test is a _____

a) Ball
b) Cone
c) Cylinder
d) Pyramid