MODEL PAPER OF LATERAL ENTRY ENTRANCE EXAMINATION - CIVIL ENGINEERING

I – PHYSICS

1.The maximum value of static friction is called

a. Limiting friction b.rolling friction c. normal bt3.reaction d. none of these

2. The position x of a particle varies with time t as $x=at^2–bt^3$. What time the particle has zero acceleration

a. a/3b b. 3b/a c. a/b d. none of these

3. A train covers the first half of the distance between two stations at a speed of 40 km/h and other half at 60km/h . Then its average speed is

a.50km/h b. 100km/h c . 0 km/h d. None of these

4. Velocity is a

a. vector quantity b. scalar quantity neither scalar nor vector d none of these

5. Swimming is possible by

a. First law of motion b. second law of motion c. third law of motion d. none of these

6. The correct expression for kinetic energy of body in terms of mass (m) and velocity (v) of body:

a. v^2/m b. mv^3 c. $1/2mv^2$ d. none of these

7. If a force F is applied on a body displaces it through a distance S , then work done is

a. W = F/S b. W = F. S c. $W= F. S^2$ d. none of these

8. A car of mass 1600kg is moving with a uniform speed of 72km/h . The kinetic energy of car is

a. 32 ×× 10^4 joule b. $30×10^4$ joule c. $36×10^4$ joule d. None of these

9. A light and heavy body have equal kinetic energy .Which has greater momentum

a. the heavy body b. Both have equal c. the light body d. the data is incomplete

10 . The unit of acceleration is

a. $m\ sec^{-2}$ b. $m\ sec^2$ d. $m\ sec^{-1}$ d . none of these

11. One dyne of force is equal to

a. 10^{-4} N b. 10^{-3} N c. 10^{-5} N d. none of these

12. One nano meter is equal to

a. 10^{-8} m b. 10^{-9} m c. 10^{-10} m d. none of these

13. When will a body under the action of serveral forces have zero accelration

a. when the body is very light b. when the body is very heavy c. when the vector sum of all the forces acting on it zero d. none of these

14. A particle moves with uniform velocity .Which of the following statements about the motion of the particle is true .

a. its speed is zero b. its acceleration is zero c. is speed may be variable d. none of these

15. In doubling the mass and doubling the acceleration of the a mass , the force acting on the mass with respect to the previous value

a. remains same b. Increases two times c. increases four times d. none of these

II – CHEMISTRY

16: Quick like (CaO - Calcium Oxide) reaction with water is regarded as exothermic. A student mixes these two products in a test tube and touches its side surface. Which of the following statement correctly describes the student's observation?
(a) The test tube becomes cold due to release of heat energy.
(b) The test tube becomes hot due to release of heat energy.
(c) The test tube becomes hot due to absorption of heat energy.
(d) The test tube becomes cold due to absorption of heat energy.

17: What are the coefficients of the correctly balanced equation?
? $BaCl_2$ + ? $Al_2(SO_4)_3$ → ? $BaSO_4$ + ? $AlCl_3$ (aq)
(a) 1, 1, 1, 2
(b) 3, 2, 3, 2
(c) 3, 1, 3,2
(d) 2, 1, 1, 2

18: $2Pb(NO_3)_2 \rightarrow 2PbO + nA + O_2$
What is nA in the given reaction?
(a) 4NO
(b) $2NO_2$
(c) $2PbNO_2$
(d) NO_2

19: The equation:
$Cu + XHNO_3 \rightarrow Cu(NO_3)_2 + YNO_2 + 2H_2O$, the value of X and Y are:
(a) 3 and 1 respectively
(b) 8 and 6 respectively
(c) 4 and 2 respectively
(d) 7 and 1 respectively

20: What is the chemical name of quick lime ?
(a) Calcium oxide
(b) Calcium carbonate
(c) Calcium hydroxide
(d) Carbon dioxide

21: Two neighbours of homologous series differ by
(a) -CH
(b) $-CH_2$
(c) $-CH_3$
(d) $-CH_4$

22: General formula of alkyne is
(a) C_nH_{2n+2}
(b) C_nH_{2n}
(c) C_nH_{2n-2}
(d) C_nH_n

23: Which of the following represents alkynes?

(a) -C−C-

(b) -C=C-
(c) -C≡C-
(d) none of these

24: Complete combustion of a hydrocarbon gives
(a) CO + H_2O
(b) CO_2+ H_2O
(c) CO + H_2
(d) CO_2 + H_2

25: Which is NOT correct for isomers of a compound?
(a) they differ in physical properties
(b) they differ in chemical properties
(c) they have same molecular formula
(d) they have same structural formula

26: In general the number of electrons in the outermost shell of a metal atom is
(a) 1
(b) 1 to 3
(c) 5 to 8
(d) 8

27: Bauxite is an ore of which metal
(a) iron
(b) aluminium
(c) copper
(d) tin

28: Which of the following pairs will give displacement reactions?
(a) NaCl solution and copper metal
(b) $MgCl_2$ solution and aluminium metal
(c) $FeSO_4$ solution and silver metal
(d) $AgNO_3$ solution and copper metal.

29: Which of the following methods is suitable for preventing an iron frying pan from rusting?
(a) Applying grease
(b) Applying paint
(c) Applying a coating of zinc
(d) All of the above.

30: An element reacts with oxygen to give a compound with a high melting point. This compound is also soluble in water. The element is likely to be
(a) calcium
(b) carbon
(c) silicon
(d) iron.

III – MATHEMATICS

31 For what value of k, the quadratic equation $2kx^2 - 40x + 25 = 0$ has real roots.
1)1/8 2)-1/8 3)-8 4)8

32 The product of Rajus age five years ago with his age nine years later is fifteen.Present age of Raju is..
1) 10 2) 9 3) 6 4) 5

33 If $b^2 - 4ac$ is negative,then equation has
1)real roots 2)unequal roots 3)no real roots 4)none of these

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34 The roots of the quadratic polynomial $9x^2 - 15x - 14 = 0$, where $x \in R$, are

1)7/3 ,2/3 2)-7/3,2/3 3)-7/3,3/2 4)-3/7,3/2

35 If α, β be the roots of of $x^2 + px + 7 = 0$ and $\alpha^2 + \beta^2$ =35. The values of p are ..

1) ± 1 2) ± 6 3) ± 7 4) ± 8

36 If cot A = $\frac{12}{5}$, Then the value of (Sin A +Cos A) Cosec A is ...

1)13/5 2)17/5 3)14/5 4)1

37 The angle of elevation of the sun ,when the length of the shadow of a pole is √3 times the height of the pole is ....

1)30^0 2)45^0 3)60^0 4)90^0

38 $9Sec^2\theta - 9Tan^2\theta$ is equal to

1)1 2) -1 3)9 4) -9

39 Which of the following is not possible ..

1) $Co\sec x = 1/\sqrt{2}$ 2) $Secx = 1/\sqrt{3}$ 3) $Co\sec x = 0$ 4) All of these

40 $Cos(\pi - \theta)$ is equal to

1) $Cos\theta$ 2) $-Cos\theta$ 3) $Sin\theta$ 4) $-Sin\theta$

41 The radii of two spheres are in the ratio 3:2,their volumes will be in the ratio

1) 8:27 2) 27:8 3) 9:4 4) 4:9

42 Find the side of a cube whose surface area is 600 cm^2

1)9cm 2)7cm 3) 10cm 4)11cm

43 Find the height of a cylinder whose volume is 1.54m^3 and diameter of the base is 140cm

1)1cm 2)2cm 3)3cm 4)none of these

44 If the height of the cone is doubled ,then its volume will be increased by

1)400% 2) 300% 3) 200% 4) 100%

45 volume of hemisphere is equal to

1) $2\pi r^3$ 2) $\frac{2}{3}\pi r^3$ 3) $\frac{4}{3}\pi r^3$ 4) $\pi r^2 h$

IV– TECHNICAL

46 In which of the following directions is the strength of timber maximum:
   a) Parallel to grains
   b) 45° to grains
   c) Perpendicular to grains
   d) Same in all directions

47 The first class timber has an average life of
   a) < 1 year
   b) 1 to 5 years
   c) 5 to 10 years
   d) > 10 years

48 Percentage of silica in brick earth is:
a) 5 to 10%
b) 20 to 30%
c) 50 to 60%
d) 70 to 80%

49 Plywood is made by bounding together thin layers of wood in such a way that the angle between grains of any layer and grains of adjacent layers is:
a) 0°
b) 30°
c) 45°
d) 90°

50 Which of the following trees yields hardwood?
a) Deodar
b) Chir
c) Shisham
d) Pine

51 Plywood has advantage of:
a) Greater tensile strength in longer direction
b) Greater tensile strength in shorter direction
c) Same tensile strength in all directions
d) None of above

52 The most commonly used retarder in cement is:
a) Gypsum
b) Calcium Chloride
c) Calcium Carbonate
d) None of above

53 Dug Mill is used for:
a) overburnt bricks
b) underburnt bricks
c) refractory bricks
d) first class bricks

54 Early attainment of strength in rapid hardening cement is mainly due to:
a) Gypsum
b) Finer grinding
c) Tricalcium silicate
d) Tricalcium aluminate

55 After storage, the strength of cement
a) Decreases
b) Increases
c) Remains same
d) May increase or decrease

56 The initial settling time for ordinary Portland cement as per IS Specifications should not be less than:
a) 10 min
b) 30 min
c) 60 min
d) 600 min

57 For testing compressive and tensile strength of cement, the cement mortar is made by
a) 1:2
b) 1:3
c) 1:4
d)1:6

58 Quick lime is
a) Calcium carbonate
b) Calcium oxide
c) Calcium hydroxide
d) None of above

59 A mortar joint in masonry which is normal to the face of wall is known as:

a) Bed joint
b) Wall joint
c) Cross joint
d) Bounded joint

60 The minimum number of holdfasts recommended on each side of a door frame and a window frame respectively are:
a) 2 and 1
b) 3 and 2
c) 2 and 2
d) 2 and 3

61 number of vertical joints in a stretcher course is X times the number of joints in the header course, where X is equal to:
a) 1/2
b) 1
c) 2
d) 1/4

62 Allowable bearing pressure for a foundation depends upon:
a) allowable settlement only
b) ultimate bearing capacity of soil only
c) both a and b
d) None of the above

63 The differential settlement in case of foundations on sandy soils should not exceed:
a) 25 mm
b) 40 mm
c) 65 mm
d) 100 mm

64 A shallow foundation is defined as a foundation which :
a) has low bearing capacity
b) has a depth of embedment less than its width
c) is resting on the ground surface
d) causes less settlement

65 The minimum depth of foundation in clayey soil is:
a) 0.5 m
b)0.7 m
c) 0.9 m
d)1.2 m

66 Modulus of Rupture of concrete is a measure of:
a)Flexural tensile strength
b)Direct tensile strength
c) Compressive strength
d) split tensile strength

67 as compared to top rail, the bottom and lock rails in a door frame are normally made:
a) Thinner
b) Thicker
c) Wider
d) Narrower

68 The approximate value of the ratio between direct tensile strength and flexural strength is:
a) 0.33
b) 0.5
c) 0.75
d) 1

69 Which of the following mortar is most suitable for construction work in water logged areas?
a) lime mortar
b) gauged mortar

c) cement mortar
d) mud mortar

70 Air entrapment in concrete increases
a) Workability
b) Strength
c) Effects of temperature variations
d) Unit weight

71 Workability of concrete is directly proportional to:
a) Aggregate cement ratio
b) Time of transit
c) Grading of aggregate
d) All of above

72 Ratio of compressive strength to tensile strength of concrete
a) increases with age
b) decreases with age
c) remains constant
d) None of above

73 The percentage of voids in cement is approximately:
A) 25%
b) 40%
c) 60%
d)80%

74 Shrinkage of concrete depends upon:
1) Humidity of atmosphere 2) passage of time 3) stress
The correct answer is:
a) 1 & 2
b) 2 & 3
c) Only 3
d) 1, 2 and 3

75 Finer grinding of cement:
a) affects only the early development of strength
b) affects only the ultimate strength
c) both a and b
d) does not affect the strength

76 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 the above

77 The factor of safety for:
a) Steel and concrete are same
b) Steel is lower than for concrete
c) Steel is higher than for concrete
d) None of above

78 For a given aggregate content, increasing the water cement ratio in concrete:
a) increases shrinkage
b) decreases shrinkage
c) does not change shrinkage

d) None of above

79 Curing period required is minimum for the concrete using:
a) Ordinary Portland Cement
b) Portland slag Cement
c) Rapid Hardening Cement
d) Low heat Portland Cement

80 Impact strength of concrete is greater for:
i) water stored concrete than for dry concrete
ii) angular crushed aggregates
iii) rounded aggregates
the correct answer is:
a) i & ii
b) i & iii
c) only i
d) only ii

81 For a constant water-cement ratio, decrease in aggregate-cement ratio causes:
a) increase in workability
b) decrease in workability
c) no change in workability
d) none of above

82 If the angularity number of an aggregate is increased, then the workability of the concrete using this aggregate will:
a) increase
b) decrease
c) not change
d) None of above

83 Soundness test of cement by Le-Chatlier's Apparatus gives unsoundness due to:
a) Free lime only
b) Magnesia only
c) Both a and b
d) None of above

84 The damp proof course:
a) Should be good impervious material
b) May be horizontal or vertical
c) Should be continuous
d)all of these

85 In brick masonry the bond produced by laying alternate headers and stretchers in each course is known as:
a) English bond
b) Double Flemish bond
c) Zig Zag bond
d) Single Flemish bond

86 The thickness of DPC used is:
a) 10mm
b) 40mm
c) 20mm
d) 100mm

87 Minimum thickness of wall where Single Flemish bond can be used is:
a) Half brick thick
b) One brick thick

c) One and a half Brick thick
d) Two brick thick

88 The process of mixing clay, water and other ingredients to make brick is known as:
a) Kneading
b) Moulding
c) Pugging
d) Drying

89 The percentage of alumina in a good brick earth lies between:
a) 5 to 10%
b) 20 to 30 %
c) 50 to 60%
d) 70 to 80%

90 For testing compressive strength of cement, the size of cube used is:
a) 50 mm
b) 70.6mm
c) 100mm
d) 150mm

91 which among the following lines indicate the repeated details on a drawing
a) dotted lines
b) ditto lines
c)thick lines
d) thin lines

92 isometric projections are drawn at
a) 30^0
b) 45^0
c) 90^0
d)60^0

93 A line generally placed outside the outline of the object of the object and terminating at each end by an arrow head giving the size or ,length of the object is
a) centre line
b) section lines
c) dimension line
d) none of the above

94 Symbol of unmetalled road

95 Below symbol represents stone ware

96 Section lines are drawn at following angle
a) 25^0
b) 45^0
c) 60^0
d) 75^0

97 Height of title of drawing should be taken as
a) 5
b) 6

c) 7
d) 8

98 Symbol of dam

99 Object line come under following line category
a) thin
b) thick
c) both
d) none

100 Symbol of Single Track Railway Line is