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Kerala PSC

Previous Year Paper
Polytechnic Lecturer
(Civil Engineering) 2016

170/2016

1. Vaikam Sathyagraha was started at the time of :
   - (A) Sree Moolam Thirunal
   - (B) Swathi Thirunal
   - (C) Visakham Thirunal
   - (D) Rani Lakshmi Bai

2. Who was known as "Kerala Valmeeki"?
   - (A) C.V. Raman Pillai
   - (B) Kumaranasan
   - (C) N. Krishna Pillai
   - (D) Vallathol

3. "Ethu Bhoomiyanu" was the famous Drama written by :
   - (A) K. Damodaran
   - (B) V.T. Bhattathirippadu
   - (C) K.T. Muhammad
   - (D) Premji

4. The Constitution of India was adopted on :
   - (A) January 26; 1950
   - (B) November 26; 1949
   - (C) August 15; 1947
   - (D) January 26; 1949

5. Who was the first lady Magistrate of India?
   - (A) Anna Chandi
   - (B) Sujatha Manohar
   - (C) Omana Kunjamma
   - (D) K.K. Usha

6. World Aids Day is on :
   - (A) Dec. 1
   - (B) Nov. 1
   - (C) Dec. 30
   - (D) Nov. 30

7. Founder of Sadhujana Paripalana Sangam :
   - (A) Vaybhadananda
   - (B) Sree Narayana Guru
   - (C) Velukkutty Arayan
   - (D) Ayyankali

8. Rajaji National Park is situated at :
   - (A) Gujarat
   - (B) Utharakhandu
   - (C) Orissa
   - (D) Assam

9. Kerala Sangeetha Nadaka Akkadami is situated at :

    (A) Thrissur   (B) Ernakulam

    (C) Kottayam   (D) Thiruvananthapuram

10. The Smallest Taluk in Kerala :

    (A) Eranadu   (B) Kunnathur

    (C) Kochi   (D) Alappuzha

11. If A and B are any two nonsingular matrices of the same order, then $(AB)^{-1} =$:

    (A) $B^{-1}A^{-1}$ (B) $A^{-1}B^{-1}$

    (C) 0   (D) 1

12. Solutions of the system of equations $x + y + z = 9$, $2x + 5y + 7z = 52$, $2x + y - z = 0$ is :

    (A) $x = 1, y = 3, z = 4$ (B) $x = -1, y = 4, z = 4$

    (C) $x = -1, y = 5, z = 5$ (D) $x = 1, y = 3, z = 5$

13. The term independent of x in the expansion of $\left(x^2 - \dfrac{1}{x}\right)^9$ is :

    (A) 74   (B) 94

    (C) 84   (D) 64

14. $(\sec A + \tan A)(1 - \sin A) =$:

    (A) $\sin A$ (B) $\cos A$

    (C) $\tan A$ (D) $\sec A$

15. If a line makes angles A, B, C with the axes, then $\sin^2 A + \sin^2 B + \sin^2 C =$:

    (A) 1   (B) 2

    (C) 3   (D) 4

16. If $x^2 + y^2 = 3xy + 5$, then $\dfrac{dy}{dx} =$

    (A) $\dfrac{2x - 3y}{3x + 2y}$ (B) $\dfrac{3x + 2y}{2x + 3y}$

    (C) $\dfrac{2y - 3x}{3y - 2x}$ (D) $\dfrac{3y - 2x}{2y - 3x}$

17. The equation of the tangent to the curve $x^2 + 3y = 3$ which is parallel to the line $y - 4x + 5 = 0$ is :

(A) $4x - y + 13 = 0$

(B) $5x + 2y + 6 = 0$

(C) $x + 3y = 3$

(D) $2x - 3y + 6 = 0$

18. $\int \dfrac{(\log x)^2}{x} dx = :$

(A) $x(\log x)^2 + C$

(B) $\dfrac{(\log x)^3}{3} + C$

(C) 1

(D) Not defined (C used in the choices is constant of integration)

19. The area included between the curve $ay^2 = x^3$, the X-axis and the ordinate $x = a$ is :

(A) $\dfrac{2a^2}{5}$

(B) $\dfrac{2a^3}{7}$

(C) $\dfrac{3a^2}{2}$

(D) 1

20. Solution of the differential equation $\dfrac{dy}{dx} = x + y + xy + 1$ is :

(A) $\dfrac{x^2}{2} + \dfrac{y^2}{2} + \dfrac{xy^2}{2} + xy + C$

(B) $\dfrac{x^2}{2} + \dfrac{y^2}{2} = C$

(C) $\log(y + 1) = \dfrac{x^2}{2} + x + C$

(D) Solution does not exist (C used in the choices is constant of integration)

21. In chain surveying at what circumstances ranging is done?

(A) when the stations are intervisible

(B) when the length of the survey line is more than the chain length

(C) to set out the foot of a perpendicular from a point outside the survey line

(D) when the ranging rods are not available

A

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[P.T.O.]

22. A dumpy level is set up between stations A and B. Staff is held at A whose reduced level is 100.000 and Back Sight is noted as 1.100, then Fore Sight is noted as 1.000 after holding the staff at B. What is the reduced level of B?

    (A) 100.100   (B) 101.000

    (C) 99.900   (D) 101.100

23. Which of the following types of bond contains, alternate courses of headers and stretchers as the main feature?

    (A) Flemish Bond   (B) Stretcher Bond

    (C) English Bond   (D) Header Bond

24. What is meant by batching of concrete?

    (A) Process of measuring the required quantities of cement, fine aggregate, coarse aggregate and water

    (B) Process of determining the required proportions of cement, fine aggregate, coarse aggregate and water for a particular mix.

    (C) Process of mixing the required quantities of cement, fine aggregate, coarse aggregate and water for a particular mix

    (D) Process of separating the different types of concrete into different batches

25. Which among the following is not a structural steel section?

    (A) Channel section   (B) Angle section

    (C) T – section   (D) Tor steel

26. In a two stroke engine, the working cycle is completed by ———— revolution of the crankshaft.

    (A) two   (B) one

    (C) three   (D) four

27. The fuel injector used in :

    (A) diesel engine   (B) gas engine

    (C) petrol engine   (D) steam engine

28. The clutch is located between the engine and :

    (A) gear box   (B) universal joint

    (C) rear axle   (D) differential

29. Uranium is used as a primary fuel in ――――― power plant.

 (A) Steam
 (B) Hydroelectric

 (C) Diesel
 (D) Nuclear

30. In an automobile transmission system the drive from gear box to the rear axle is taken by :

 (A) Clutch
 (B) Universal joint

 (C) Propeller shaft
 (D) Differential

31. A 4-ohm resistor is connected across a 12 V battery. The current flowing will be :

 (A) 4 A
 (B) 6 A

 (C) 3 A
 (D) 2 A

32. A series RL circuit is connected to a 100 V 50 Hz supply. The resulting current in 10 A and power consumed is 500 W. The power factor of the circuit is :

 (A) 0.5 lag
 (B) 0.5 lead

 (C) unity
 (D) zero

33. Earthing of electric installations are done using :

 (A) Insulated Copper wire

 (B) Bare Aluminium wire

 (C) Insulated aluminium wire

 (D) Bare Copper Conductor

34. A 3-ohm resistor is connected is parallel to 6-ohm resistor. The combination is connected in series to an 8-ohm resistor. A 10-ohm resistor is connected in parallel to the whole combination. The effective resistance is

 (A) 10 ohms
 (B) 5 ohms

 (C) 26 ohms
 (D) 20 ohms

35. A 10 ohm resistor is connected across a 20 V battery. Power consumed is :

 (A) 400 W
 (B) 200 W

 (C) 80 W
 (D) 40 W

36. All CDMA based technologies have —————— handovers.

    (A)   hard   (B)   soft

    (C)   softer   (D)   none of above

37. What is the toxic substance contained by typical electronic waste?

    (A)   PCBs   (B)   dioxin

    (C)   pesticides like compounds   (D)   heavy metals

38. How are microcontrollers classified on the basic of internal bus width?

    (A)   8, 16, 32, 64 bits   (B)   4, 8, 16, 32 bits

    (C)   8, 16 bits   (D)   4, 16, 32 bits

39. For a full wave rectified sine wave, mean value is :

    (A) $0.70\, i_m$ (B) $0.636\, i_m$

    (C) $0.5\, i_m$ (D) $0.318\, I_m$

40. System on chip means :

    (A)   It consist of both analog and digital IC

    (B)   only analog IC

    (C)   only digital IC

    (D)   none of above

41. The rocks formed due to consolidation of weathered particles of the existing rocks are called :

    (A)   Sedimentary rocks   (B)   Igneous rocks

    (C)   Metamorphic rocks   (D)   Stratified rocks

42. In brick masonry the frog of the brick is generally kept on :

    (A)   Top face   (B)   Bottom face

    (C)   Exposed face   (D)   Interior face

43. First class bricks should not absorb water more than :

    (A)   20%   (B)   22%

    (C)   25%   (D)   15%

44. The innermost part of the stem, which consists entirely of cellular tissues, is called :

    (A)   Heart   (B)   Bark

    (C)   Cambium   (D)   Sap wood

45. Pulverizing clinkers and mixing —————— results in the material called cement.

    (A) Gypsum   (B) Limestone

    (C) Clay   (D) Silica

46. The exposed vertical surfaces perpendicular to window or door frame are called :

    (A) Sill   (B) Jamb

    (C) Reveals   (D) Cornice

47. The treatment of joints in masonry construction is called :

    (A) Plastering   (B) Pointing

    (C) Painting   (D) None of the above

48. The under surface of a stair is called :

    (A) Head room   (B) Scotia

    (C) Soffit   (D) None of the above

49. The operation of providing new permanent foundations is called :

    (A) Shoring   (B) Scaffolding

    (C) Under pinning   (D) None of the above

50. Plastics can be broadly classified as :

    (A) Monomers and polymers

    (B) Thermosetting and thermoplastic

    (C) Soft and hard

    (D) Elastic and Rigid

51. Which of the following is not an excavating equipment?

    (A) Power showel   (B) Scraper

    (C) Dragline   (D) Hoe

52. In PERT analysis the actual performance of task is known as :

    (A) Activity   (B) Event

    (C) Task   (D) Work

53. The survey in which curvature of earth is taken into consideration is called :

    (A) Plane survey   (B) Geodetic survey

    (C) Geological survey   (D) Aerial survey

54. The longest chain line passing through the center of the area is known as :

    (A) Base line   (B) Tie line

    (C) Check line   (D) All the above

55. The total station instrument is a :

    (A) infrared wave instrument   (B) light wave instrument

    (C) microwave instrument   (D) none of the above

56. Turning the telescope in horizontal plane is called :

    (A) transiting   (B) centering

    (C) swinging   (D) none of the above

57. The level tube/bubble tube is filled with :

    (A) Air   (B) Water

    (C) Alcohol   (D) None of the above

58. Instrument used to enlarging and reducing plans :

    (A) Clinometer   (B) Pantagraph

    (C) Ceylon ghat tracer   (D) None of the above

59. The point on the celestial sphere exactly above the observer's station is known as :

    (A) Zenith   (B) Pole

    (C) Nadir   (D) None of the above

60. The process of determining the present value of a building is called :

    (A) Estimation   (B) Valuation

    (C) Costing   (D) None of the above

61. The method of quantity surveying used in Government Departments :

    (A) Center line method   (B) Separate wall method

    (C) Rate analysis   (D) None of the above

62. Estimate expected to be least accurate is :

    (A) Supplementary estimate   (B) Plinth area estimate

    (C) Detailed estimate   (D) Revised estimate

63. How many bricks are required for making one cubic meter wall?

    (A) 300   (B) 700

    (C) 500   (D) 900

64. The gradual reduction in value with age of a property is known as :

    (A) Devaluation   (B) Revaluation

    (C) Depreciation   (D) Appreciation

65. Stable equilibrium of a submerged body can be achieved if :

    (A) B is above G   (B) G is above B

    (C) G and B coincide   (D) None of the above

66. Pitot tube is used to measure :

    (A) Pressure in a static fluid   (B) Velocity in a flowing stream

    (C) Total pressure   (D) Dynamic pressure

67. The depth of flow at which specific energy is minimum is called :

    (A) Normal depth   (B) Alternate depth

    (C) Critical depth   (D) None of the above

68. Hydrograph is a plot of :

    (A) Rain fall intensity against time   (B) Discharge against time

    (C) Cumulative rain fall against time   (D) None of the above

69. For an area of 1000 sq km, the number of rain gauge stations will be :

    (A) 2   (B) 10

    (C) 40   (D) 5

70. Sugar cane is :

    (A) Perennial crop   (B) Kharif crop

    (C) Rabi crop   (D) None of the above

71. The most efficient cross section of a channel is :

    (A) Triangular   (B) Square

    (C) Semicircular   (D) Trapezoidal

72. The stabilizing force in gravity dam is :

    (A) wind force   (B) water force

    (C) uplift   (D) weight of the dam

73. To estimate the water quantity which one of the following is most important?
   - (A) rate of demand and population
   - (B) cost of supply and population
   - (C) adequacy of source and cost of supply
   - (D) all the above

74. The quantity of water requirement for domestic purpose is :
   - (A) 50 l/c/d
   - (B) 85 l/c/d
   - (C) 135 l/c/d
   - (D) 300 l/c/d

75. The permissible pH value of potable water is :
   - (A) 7
   - (B) 7 to 8.5
   - (C) 6 to 7
   - (D) Zero

76. B O D in potable water may be :
   - (A) Zero
   - (B) 5
   - (C) 10
   - (D) None of the above

77. The rise of the carriage way at the outer edge is termed
   - (A) gradient
   - (B) super elevation
   - (C) camber
   - (D) transition curve

78. Bottommost layer of pavement is known as :
   - (A) wearing course
   - (B) base course
   - (C) sub base course
   - (D) subgrade course

79. Tyre pressure influences the :
   - (A) Total depth of pavement
   - (B) Quality of surface course
   - (C) Both of the above
   - (D) None of the above

80. Tie bars in cement concrete pavements are at :
   - (A) expansion joints
   - (B) contraction joints
   - (C) warping joints
   - (D) longitudinal joints

81. Which of the following test measures the hardness of road aggregates?
   - (A) crushing test
   - (B) abrasion test
   - (C) impact test
   - (D) soundness test

82. The max design gradient for vertical profile of a road is :
   - (A) Ruling gradient
   - (B) Limiting gradient
   - (C) Exceptional gradient
   - (D) Minimum gradient

83. Grading curve is drawn from the test data of :
    (A) Liquid limit test
    (B) Sieve analysis
    (C) Compaction test
    (D) Shear box test

84. A well graded sandy soil containing clay is represented by the symbol as per IS classification :
    (A) SW
    (B) SC
    (C) SB
    (D) CS

85. The possibility of quick sand condition will be there when flow of water to soil is :
    (A) Horizontal
    (B) Upwards
    (C) Downwards
    (D) None of the above

86. Compaction of soil is measured in terms of :
    (A) Specific gravity
    (B) Voids ratio
    (C) Compressibility
    (D) Dry density

87. Static sheep foot roller is most effective in compacting :
    (A) Gravel
    (B) Sand
    (C) Clay
    (D) None of the above

88. In a shear box test the failure plane is :
    (A) weakest plane
    (B) horizontal plane
    (C) vertical plane
    (D) principal plane

89. Slope deflection method is :
    (A) Equilibrium method
    (B) Deformation method
    (C) Stiffness coefficient method
    (D) All of the above

90. The most important tool in obtaining influence lines is :
    (A) Eddy's theorem
    (B) Willot Mohr diagram
    (C) Muller Breslau Method
    (D) Column analogy method

91. Which arch is statically determinate structure?
    (A) Single hinged arch
    (B) Two hinged arch
    (C) Three hinged arch
    (D) Fixed arch

92. Which of the following is a force method?

   (A) Slope deflection method
   (B) Column analogy method
   (C) Moment distribution method
   (D) None of the above

93. For splicing tension reinforcement in flexural members, the most suitable location is :

   (A) Point of inflexion
   (B) Point of max BM
   (C) At the supports
   (D) None of the above

94. For the same sectional area which beam will deflect least :

   (A) T - beam
   (B) Rectangular beam
   (C) Circular beam
   (D) I - beam

95. Which of the following is generally not designed for shear?

   (A) Slab
   (B) Cantilever beam
   (C) Footing
   (D) None of the above

96. In RCC columns if ties are not provided, the column will likely to :

   (A) Fail by crushing
   (B) Fails by buckling
   (C) Behave like a beam
   (D) None of the above

97. A surface water tank will be economical if the shape is :

   (A) Circular
   (B) Square
   (C) Rectangular
   (D) All the above

98. AT – shaped retaining wall consists of :

   (A) One cantilever
   (B) Two Cantilevers
   (C) Three cantilevers
   (D) None of the above

99. Which of the following is not considered in footings?

   (A) Bending moment
   (B) Shear
   (C) Punching stress
   (D) Torsion

100. Design consideration for a steel beam is :

   (A) Flexural strength
   (B) Stiffness
   (C) Economy
   (D) All the above