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PUBLIC WORKS DEPARTMENT

WRITTEN EXAMINATION FOR THE POST OF JUNIOR ENGINEER (CIVIL) UNDER PWD
2020

PAPER IV
(200 MARKS)

Signature of Invigilator_____

CODE NO.

(For Official use)

MARKS TABULATION			
Subject	Marks carried by each question	No. of correct answers	Marks
Estimating, Costing and Valuation, Transportation Engineering and Surveying, Environmental Engineering, Design of Steel Structures and Steel Water Tanks, Professional Practices, Aptitude Test	2		
Total Marks obtained:			

Signature of Examiner _____

Signature of Scrutiniser _____

PUBLIC WORKS DEPARTMENT
EXAMINATION FOR RECRUITMENT FOR THE POST OF
JUNIOR ENGINEER (CIVIL) 2020

PAPER-IV

Time Allowed : 3:00 Hrs   **Full Marks : 200**

(Answer all Questions, each question carry 2 marks)
Put a tick (√) mark against the correct answer in the bracket ( )

1. Surveys which are carried out to provide a national grid of control for preparation of accurate maps of large areas, are known as
   - (a) Cadastral surveying ( )
   - (b) Geodetic surveying ( )
   - (c) Topographical surveying ( )
   - (d) Plane survey ( )

2. If the bearing of a line AB is 320° and AC is 35°. The included angle is :-
   - (a) 75° ( )
   - (b) 105° ( )
   - (c) 145° ( )
   - (d) 285° ( )

3. When the length of chain used in measuring distance is longer than the standard length, the error in measured distance will be
   - (a) Positive error ( )
   - (b) Negative error ( )
   - (b) (c) Compensating error ( )
   - (d) None of the above ( )

4. Which of the following methods of contouring is suitable for hilly terrain?
   - (a) Direct method ( )
   - (b) Indirect method ( )
   - (b) Cross-sections method ( )
   - (d) Tacheometric method ( )

5. Size of a theodolite is specified by
   - (a) Length of the telescope ( )
   - (b) Diameter of vertical angle ( )
   - (c) Diameter of upper plate ( )
   - (d) None of the above ( )

6. If the RL of a BM is 100.00 m, the back sight is 1.215 m and the foresight is 1.870 m, the RL of the forward station is
   - (a) 99.345 ( )
   - (b) 100.345 ( )
   - (c) 100.655 ( )
   - (d) 99.645 ( )

7. A bench mark has been established at the soffit of an ornamental arch at the known elevation of 100.0m above sea level. The back sight used to establish height of instrument is an inverted staff reading of 2.105m. A forward sight reading with normally held staff of 1.105m is taken on a recently constructed plinth. The elevation of the plinth is
   - (a) 96.790 m ( )
   - (b) 98.895 m ( )
   - (c) 99.00 m ( )
   - (d) 103.210 m ( )

8. Contour lines with U-shape with convexity towards lower ground indicate____
   - (a) Valley ( )
   - (b) Ridge ( )
   - (c) Hills ( )
   - (d) Depression ( )

9. Find out the volume of earthwork in a road cutting 120 metres long from the following data:
   Formation width = 10 m; Side slope = 1:1 ; Average depth of cutting along the centre of line = 5.00 m; Slope of ground in cross section =10 to 1
   a) 8470 Cum   (   )   (b) 9120 cum   (   )
   (c) 8940 Cum   (   )   (d) 9650 Cum   (   )

10. In prismatic compass, the zero is marked on the
    (a) East end   (   )   (b) West end   (   )
    (c) North end   (   )   (d) South end   (   )

11. Which of the following methods is not used for removing permanent hardness in water?
    (a) Boiling   (   )   (b) Lime-soda process   (   )
    (c) Zeolite process   (   )   (d) Reverse osmosis   (   )

12. The suitable layout of a distribution system for well planned cities is
    (a) Dead end system   (   )   (b)Radial system   (   )
    (c) Ring system   (   )   (d) Grid iron system   (   )

13. When the topography is flat necessitating deep excavation for combined sewer, type of sewerage system suitable is
    (a) Combined system   (   )   (b) Separate system   (   )
    (c) Partially separate system (   )   (d) Partially combined system   (   )

14. The most commonly used disinfectant for drinking water throughout the world is
    (a) Alum   (   )   (b) Chlorine   (   )
    (c) Nitrogen   (   )   (d) Lime   (   )

15. The operation which takes place in secondary treatment of sewage is
    (a) Removal of heavier suspended inorganic material   (   )
    (b) Removal of lighter floating material   (   )
    (c) Removal of fine dissolved organic material   (   )
    (d) Removal of harmful bacteria and other organism   (   )

16. The term Municipal Solid Waste (MSW) is generally used to describe
    (a) Wastes from industrial processes, construction and demolition debris.   (   )
    (b) Agricultural wastes   (   )
    (c) Mining wastes   (   )
    (d) Wastes from Private homes, commercial establishments and institutions.   (   )

17. Which of the following solid waste disposal method is ecologically most acceptable ?
    (a) Composting   (   )   (b) Incineration   (   )
    (b) (c) Sanitary landfill   (   )   (d) Pyrolyis   (   )

18. The intensification of green house effect is most attributed to the increase level of ____
    (a) Carbon dioxide   (   )   (b) Carbon monoxide   (   )
    (c) Chloroflurocarbons   (   )   (d) Sulphur dioxide   (   )

19. Which of the following measures may have an effective control on noise pollution ?
    (a) Town Planning   (   )   (b) Planting of trees   (   )
    (c) Legislative measures   (   )   (d) All of the above   (   )

20. Secondary air pollutant is
    (a) Ozone   (   )   (b) Carbon monoxide   (   )
    (c) Nitrogen Dioxide   (   )   (d) Sulphur dioxide   (   )

21. In moment resistance connections, the moment resistance of riveted connection depends upon
    (a) Shear in rivets   (   )   (c) Compression in rivets   (   )
    (b) Tension in rivets   (   )   (d) Strength of rivets in bearing   (   )

22. To minimise the effect of bending in lap joint, at least number of bolt in a line to be provided is--
    (a) One number   (   )   (b) Two numbers   (   )
    (c) Three numbers   (   )   (c) Four numbers   (   )

23. The rivets subjected to unpredictable tension during placement are-----
    (a) Hot rivets   (   )   (b) Shop rivets   (   )
    (c) Fillet rivets   (   )   (d) Cold rivets   (   )

24. The effective length of fillet weld is taken as
    (a) The actual length plus twice the size of the weld   (   )
    (b) The actual length minus twice the size of the weld   (   )
    (c) The actual length plus thrice the size of the weld   (   )
    (d) The actual length minus thrice the size of the weld   (   )

25. Steel tanks are mainly designed for
    (a) Weight of tank   (   )   (b) Wind pressure   (   )
    (c) Water pressure   (   )   (d) Earthquake forces   (   )

26. The maximum size of fillet weld is obtained by subtracting
    (a) 1.5mm from the thickness of the thinner member to be jointed   (   )
    a) 1.8mm from the thickness of the thinner member to be jointed   (   )
    b) 1.00mm from the thickness of the thinner member to be jointed   (   )
    c) 1.2mm from the thickness of the thinner member to be jointed   (   )

27. Rivet value is equal to
    (a) Strength of rivet in shearing   (   )
    (b) Strength of rivet in bearing   (   )
    (c) The minimum of the value obtained in (a) and (b)   (   )
    (d) Maximum of the value obtained in (a) and (b)   (   )

28. A butt weld is specified by
    (a) Penetration thickness   (   )   (c) Plate thickness   (   )
    (b) Size of weld   (   )   (d) Effective throat thickness (   )

29. The effective length of structural steel compression member of length 'L' column with one end
    effectively held in position and restrained against rotational but neither held in position nor
    restricted against rotation at the other end is
    (a) 2.0L   (   )   (b) 1.0L   (   )
    (c) 1.2L   (   )   (d) 0. 65L   (   )

30. Pressed steel tanks are not recommended for depth greater than_____
    (a) 3.00 metres   (   )   (b) 5.00 metres   (   )
    (c) 7.00 metres   (   )   (d) 9.00 metres   (   )

31. The Schedule of Rates (ROR) is prepared on the basis of____
    (a) Detailed Estimate   ( )   (b) Analysis of Rates   ( )
    (c) Item Rates   ( )   (d) Market   ( )

32. The sanction of the detailed estimate, design calculations, quantities of works, rates and cost of the work by the competent authority is known as
    (a) Administrative sanction   ( )   (c) Expenditure sanction   ( )
    (b) Technical sanction   ( )   (d) Approved estimate   ( )

33. Which indicates the increase or decrease of the cost above the cost at the certain base year, and is expressed by percentage rise or fall
    (a) Depreciation   ( )   (b) Deviation   ( )
    (c) Cost index   ( )   (d) Analysis of rates   ( )

34. The most reliable of cost estimate is_____
    (a) Plinth Area Estimate   ( )   (c) Quantity Rate Estimate   ( )
    (b) Preliminary Estimate   ( )   (d) Item Rate Estimate   ( )

35. There are four main stages as follows in the execution of works. The correct sequence is____
    (a) Administrative approval, Expenditure sanction, Technical sanction, Fund availability
    (b) Fund availability, Administrative approval, Expenditure sanction, Technical sanction   ( )
    (c) Administrative approval, Fund availability, Expenditure sanction, Technical sanction   ( )
    (d) Fund availability, Administrative approval, Technical sanction, Expenditure sanction   ( )
                                                                                                        ( )

36. The conventional method of scheduling used in construction industry is
    (a) Graph   ( )   (b) Bar chart   ( )
    (c) Network   ( )   (d) Flow chart   ( )

37. Choose the wrong statement
    (a) The contractor shall deposit an amount equal to 5% of the tendered amount and accepted value of work as performance security   ( )
    (b) The security deposit shall be collected by deduction from the running bill ( )
    (c) The earnest money deposited at the time of tender can be treated as part of security deposit   ( )
    (d) For work estimated to cost up to Rs.20 crores, 2% of the estimated cost shall be deposited as earnest money   ( )

38. The money deposited by contractor on acceptance of the tender, amounting to 10 % of the tendered amount is called
    (a) Earnest money   ( )   (b) Advance payment   ( )
    (c) Performance guarantee   ( )   (d) Security deposit   ( )

39. The miscellaneous petty items which do not fall under any sub-head of items of works inthe sanctioned estimate are provided under____
    (a) Miscellaneous item   ( )   (c) Incidental charge   ( )
    (b) Work-charged establishment ( )   (d) Contingencies   ( )

40. An agreement without free consent is____
   (a) Always void ( )   (b) Voidable ( )
   (c) Unlawful ( )   (d) Either void or voidable ( )

41. The works of construction or repair, the cost of which is met out of funds from non-Government sources, which may be deposited in cash or otherwise placed at the disposal of the Divisional Officer is termed as
   (a) Deposit work ( )   (b) Contract work ( )
   (c) Contribution work ( )   (d) Repair work ( )

42. The correct sequence in the formation of contract is_____
   (a) Officer, acceptance, agreement, consideration ( )
   (b) Agreement, consideration, offer, acceptance ( )
   (c) Offer, consideration, acceptance, agreement ( )
   (d) Offer, acceptance, consideration, agreement ( )

43. The attendance of labour in Muster Roll should be checked and initialled frequently by
   (a) Section Assistant ( )   (c) Sub-Divisional Officer ( )
   (b) Junior Engineer ( )   (d) Executive engineer ( )

44. In a professional practice, a promise made without intention to perform is___
   (a) Fraud ( )   (b) Coercion ( )
   (c) Misinterpretation ( )   (d) Undue influence ( )

45. The type of contract system in which the contractor takes full responsibility for the design and execution of works and payment to contractor is made on the basis of stage-wage completion of work as per terms of the contract is termed as
   (a) Item rate contract ( )   (c) Percentage rate contract ( )
   (b) Lump sum contract ( )   (d) Turnkey contract ( )

46. Insert the missing number: **2, 9, 28, 65, 126,** (..........)
   (a) 186 ( )   (b) 195 ( )
   (c) 217 ( )   (d) 244 ( )

47. What number will come at the place of question mark?
   8, 28, 116, 584, (...?)
   (a) 1752 ( )   (b) 3504 ( )
   (c) 3508 ( )   (d) 3502 ( )

48. Find the missing number.

56	65	78
12	?	30
44	14	48

   (a)   51 ( )   (b) 62 ( )
   (c)   44 ( )   (d) 14 ( )

49. Find out the wrong number in the series :
    1, 4, 27, 16, 126, 36, 343
    (a)   36   (   )   (b) 27   (   )
    (c)   16   (   )   (d) 126   (   )

50. Vincent has a paper route. Each morning he delivers 37 newspapers to customers in his neighborhood. It takes Vincent 50 minutes to deliver all the papers. If Vincent is sick or has another plans, his friend Thomas, who lives on the same street, will sometimes deliver the papers for him.
    (a) Vincent and Thomas live in the same neighbourhood.   (   )
    (b) It takes Thomas more than 50 minutes to deliver the papers.   (   )
    (c) It is dark outside when Vincent begins the deliveries.   (   )
    (d) Thomas would like to have his own paper route.   (   )

51. If a day before yesterday Saturday, then what day of the week will it be on a day after tomorrow ?
    (a) Wednesday   (   )   (b) Thursday   (   )
   (c) Friday   (   )   (d) Tuesday   (   )

52. Select the pair which has the same relationship as **LIGHT : BLIND**
    (a) Speech : Dumb   (   )   (b) Language : Deaf   (   )
    (b) (c) Tongue : Sound   (   )   (d) Voice : vibration   (   )

53. In a row of 40 girls, when Angela was shifted to her left by 4 places, her place from the left end of the row became 10. What is the position of Dapin from the right end of the row if Dapin was three places to the right of Angela's original position ?.
    (a) 22   (   )   (b) 23   (   )
    (c) 24   (   )   (d) 25   (   )

54. Identify the figure that completes the pattern.
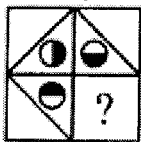
    (a) 1   (   )   (b) 2   (   )
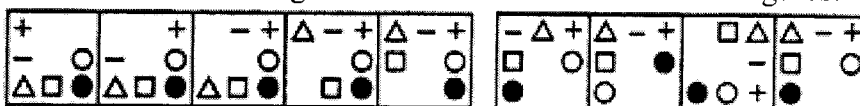   (c) 3   (   )   (d) 4   (   )

55. Select a figure from amongst the Answer Figures which will continue the same series as established by the five Problem Figures.
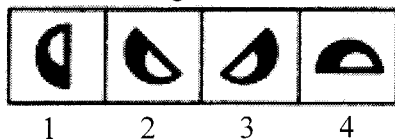

    (a) 1   (   )   (b) 2   (   )
    (c) 3   (   )   (d) 4   (   )

56. Choose the figure which is different from the rest.

1	2	3	4

  a) 1   ( )   b) 2   ( )
  c) 3   ( )   d) 4   ( )

57. A cube of 3 cm side is divided into a smaller cube of side 1 cm. How many times will it be cut to obtain smaller cubes ?
  (a) 2   ( )   (b) 4   ( )
  (c) 6   ( )   (d) 8   ( )

58. A number of friends decided to go on a picnic and planned to spend Rs. 96 on eatables. Four of them, however, did not turn up. As a consequence, the remaining ones had to contribute Rs. 4 each extra. The number of those who attended the picnic was
  (a) 8   ( )   (b) 12   ( )
  (c) 16   ( )   (d) 24   ( )

59. If LOFTY is coded as LPFUY, then DWARF will be written as ___
  (a) DXBSG   ( )   (b) DWBSG   ( )
  (c) DXATF   ( )   (d) DXASF   ( )

60. A father said to his son, "I was as old as you are at the present at the time of your birth". If the father's age is 38 years now, the son's age five years back was
  (a) 38 years   ( )   (b) 33 years   ( )
  (c) 19 years   ( )   (d) 14 years   ( )

61. For 1000 m length and 50 mm thick bituminous concrete in a double lane highway, if the rate of BC is Rs. 15,500/m^3, thus the cost estimate for BC (Neglecting the cost of prime coat, tack coat, etc) will be
  a) Rs. 29,06,250/-   ( )   (b) Rs. 54,25,000/-   ( )
  (c) Rs. 58,12,500/-   ( )   (d) Rs. 62,45,250/-   ( )

62. Calculate approximate construction cost of a building using the following data:-
Proposed area of building = 150 Sq.m. Similar type of building was recently constructed in nearby locality having built-up area of 110 Sq.m and total construction cost is Rs.12 lakhs
  (a)   Rs.14,40,050/-   ( )   (b) Rs.16,36,365/-   ( )
  (b)   Rs.18,76,100/-   ( )   (d) Rs.15,40,055/-   ( )

63. The value of property for a particular year which is obtained by original cost minus the amount of depreciation up to the previous year is called
 (a) Salvage value   ( )   (b) Book value   ( )
  (c) Market value   ( )   d) Scrap value   ( )

64. Which of the following is not method of valuation
  (a) Rental method of valuation   ( )
  (b) Depreciation method of valuation   ( )
  (c) Valuation based on loss   ( )
  (d) Valuation based on profit   ( )

65. In building works, the cost on account of labour is
    (a) 30% to 35% of the whole cost   ( )
    (b) 70% to 65% of the whole cost   ( )
    (c) 40% to 45% of the whole cost   ( )
    (d) 60% to 55% of the whole cost   ( )

66. The quantity of cement, sand and aggregate required for a concrete block of 10 cum of M15 grade concrete are approximately
    a) $1.43 \ m^3, 2.86 \ m^3, 5.72 \ m^3$ ( )
    b) $2.14 \ ^{m3}, 4.28 \ ^{m3}, 8.56 \ ^{m3}$ ( )
    (c) $1.43 \ ^{m3}, 4.29 \ ^{m3}, 8.58 \ ^{m3}$ ( )
    (d) $2.14 \ m^3, 6.42 \ m^3, 12.84 \ m^3$ ( )

67. Pick up the item of work not included in the plinth area rate estimate ?
    (a) Wall thickness   ( )   (b) Verandah   ( )
    (c) Room area   ( )   (d) Courtyard area   ( )

68. In specification of earthwork in foundation trenches, drains, etc. specified lead and lift are
    (a) 50 m and 1.5 m   ( )   (b) 50 m and 3 m   ( )
    (c) 30 m and 1.5 m   ( )   (d) 30 m and 3 m   ( )

69. In detailed estimate, the salary of temporary staff like works supervisor, chowkiders, mates, munshies etc. Which are required to be employed during construction of a building or any other project is provided under ?
    (a) Work-charged establishment ( )   (b) Contingencies   ( )
    (c) Analysis of rates   ( )   (d) All of above   ( )

70. As per IS- 2470(part 1):1985, the minimum width of a septic tank is taken as
    (a) 100 cm   ( )   (b) 90 cm   ( )
    (c) 85 cm   ( )   (d) 75 cm   ( )

71. A circular RCC water tank having a capacity 12000 litres is to be constructed at site; the external diameter is limited to 5.30 m and the thickness of the side wall is 150 mm, the bottom thickness is 200 mm and the top surface is open to the air. If the rate of cement concrete and steel are Rs. 9,500/m³ and Rs. 121/Kg respectively, what will be the total cost estimate neglecting all the other costs. (Assume M25 concrete and steel coefficient for RCC works as 100 Kg/m³)
    (a) Rs. 2,16,000/-   ( )   (b) Rs. 2,21,184/-   ( )
    (c) Rs. 2,22,485/-   ( )   (d) Rs. 2,23,128/-   ( )

72. The determination of rate per unit of a particular item of work from the cost of quantities of materials, the cost of labourers and other miscellaneous petty expenses require for its completion is known as:
    (a) Detailed estimate   ( )   (b) Schedule of rates   ( )
    (c) Analysis of rate   ( )   (d) Valuation   ( )

73. The total quantity of earthwork for 1.00 m depth of the given plan of foundation by *centre line method* in cum. is

(All dimensions are in 'mm')
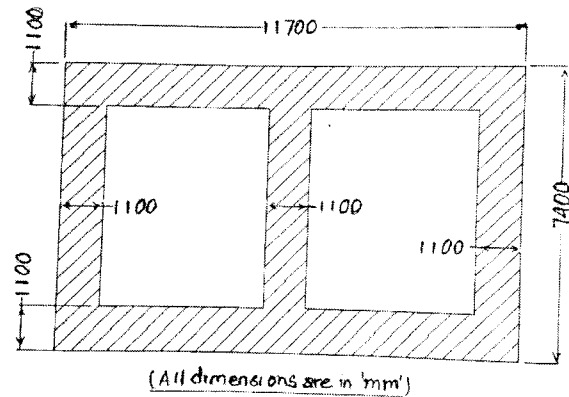
(a) 42.90 cum   ( )   (b) 42.11 cum   ( )
(c) 44.11 cum   ( )   (d) 44.90 cum   ( )

74. The quantity of loose metal (ballast, bolder, etc.) required for IRC single lane road for one kilometre length for one layer of 8 cm compacted thickness (considering volume of loose metal gets reduced $1/3^{rd}$ on compaction) is
(a) 444.00 cum   ( )   (b) 450.00 cum   ( )
(c) 300.00 cum   ( )   (d) 150.00 cum   ( )

75. Whenever white washing or distempering is done on corrugated iron sheets, the plan area of the sheets is increased in the estimation by ?
(a) 2%   ( )   (b) 7%   ( )
(c) 10%   ( )   (d) 14%   ( )

76. An old building has been purchased by a person at a cost of Rs. 30,000/- excluding the cost of the land. What will be the amount of annual sinking fund at 4% interest, assuming the future life of the building as 20 years and the scrap value of the building at 10% of the cost of purchase.
(a) Rs. 1008.00   ( )   (b) Rs. 917.20   ( )
(c) Rs. 907.20   ( )   (d) Rs. 99.20   ( )

77. The weight of 10mm diameter of mild steel per metre length is equal to ?
(a) 0.22 kg   ( )   (b) 0.32 kg   ( )
(c) 0.42 kg   ( )   (d) 0.62 kg   ( )

78. The quantity of stone required for 10 cubic metre of rubble stone masonry is:
(a) 12.50 m^3 ( )   (b) 8.00 m^3 ( )
(c) 10.50m^3 ( )   (d) 15.00m^3 ( )

79. For calculating the volume for earthwork from contour plan for filling a depression or pond and for cutting hillock, it is convenient to use :
(a) Mid-sectional area formula   ( )   (c) Trapezoidal formula   ( )
(b) Prismoidal formula   ( )   (d) Mean-sectional area formula   ( )

80. Pick up incorrect statement from the following
(a) Lead is the average horizontal straight distance between the borrow pit and the place of spreading soil   ( )

(b) The lead is calculated for each block of the excavated area ( )

(c) The unit of lead is 50 m for a distance upto 500 ( )

(d) The unit of lead is 1 km where the lead exceeds 2 km ( )

81. An excavation is to be made on a level ground for a 40 m reservoir long and 30 m wide at the bottom. The side slope of the excavation has to be 2:1. If the depth of excavation is 5 m, the volume of earth work according to Trapezoidal formula is

(a) 10166.66 m^3 ( ) (b) 10250.00 m^3 ( )

(c) 9500.00 m^2 ( ) (d) 10000.00 m ( )

82. Pick up correct statement from the following

(a) The incidental expenses of a miscellaneous character which could not be predicted during preparation of the estimate, is called contingencies ( )

(b) Additional supervising staff engaged at work site, is called work charged establishment ( )

(c) Detailed specifications specify qualities, quantities and the proportions of materials to be used for a particular item ( )

(d) All the above ( )

83. The cost of dismantling and removal of rubbish material is deducted from the total receipt from the sale of the useable material to get the ... ?

(a) Salvage value ( ) (b) Scrap value ( )

(c) Market value ( ) (d) Book value ( )

84. Choose any one from the following which is not a direct method of valuation

(a) Rental method ( ) (b) Sinking fund method ( )

(c) Development method ( ) (d) Depreciation method ( )

85. Calculate the depreciated value of building from the data given below:-
Life of a building = 75 yrs; Age of a building (n) = 10 yrs
Cost of building at present market rate (P) = Rs. 10 lakhs

(a) Rs. 9.04 lakhs ( ) (b) Rs.8.17 lakhs ( )

(c) Rs.8.59 lakhs ( ) (d) Rs.8.77 lakh ( )

86. The maximum banking/cant on a hill road should not exceed ..

(a) 10% ( ) (b) 9 % ( )

(b) 7 % ( ) (d) 8 % ( )

87. A very light application of bituminous material to an existing bituminous or cement concrete surface, used to ensure a bond between the surface being paved and the overlying course is called

(a) Prime coat ( ) (b) Bituminous surface treatment ( )

(c) Seal coat ( ) (d) Tack coat ( )

88. The Ruling Gradient in Hill Roads as per IRC recommendation is ..

a) 4 % ( ) b) 5% ( )

c) 6% ( ) d) 7% ( )

89. The maximum permissible value of AIV for WBM base course is

(a) 25 % ( ) (b) 30 % ( )

(c) 35 % ( ) (d) 40 % ( )

90. Maximum stress due to application of load in a rigid pavement occurs at
    (a) The interior ( ) (b) The edges ( )
    (c) The bottom surface ( ) (d) The top surface ( )

91. In bituminous pavement, alligator cracking is mainly due to
    (a) Inadequate wearing course ( )
    (b) Inadequate thickness of sub-base ( )
    (c) Use of excessive bituminous material ( )
    (d) Fatigue arising from repeated stress application ( )

92. What is the safe stopping sight distance for design speed of 50 Km/hr two way traffic on a two lane road assuming coefficient of friction as 0.37 and reaction time as 2.5 seconds?
    (a) 55.2 m ( ) (b) 61.4 m ( )
    (c) 71.5 m ( ) (d) 65.6 m ( )

93. The thickness of a single compacted WBM/WMM layer shall not be less than
    (a) 75.00 mm ( ) (b) 100.00 mm ( )
    (c) 125.00 mm ( ) (d) 150.00 mm ( )

94. For the construction of water bound macadam pavement, the correct sequence of operation after spreading course aggregate is........
    (a) Dry rolling, application of screening, wet rolling, application of filler ( )
    (b) Dry rolling, application of filler, wet rolling, application of screening ( )
    (c) Wet rolling, application of filler, dry rolling, application of screening ( )
    (d) Wet rolling, application of screening, dry rolling, application of filler. ( )

95. Compaction by Pneumatic tyre roller specified in which of the following bituminous construction?
    (a) Premixed carpet ( ) (b) Bituminous macadam ( )
    (c) Bituminous concrete ( ) (d) Surface dressing ( )

96. For NH and SH, the background colour of informatory or guide signs shall be
    (a) White ( ) (b) Yellow ( )
    (c) Green ( ) (d) Blue ( )

97. Select the incorrect statement in respect of rigid pavement construction
    (a) Contraction joints are spaced closer then expansion joints ( )
    (b) Longitudinal joints are provided to prevent longitudinal cracking ( )
    (c) Dowel bars are provided in longitudinal joints ( )
    (d) Warping joints are provided to relieve stress induced due to warping ( )

98. In patch repair, pot holes shall be cut to rectangular shape and all loose and defective material should be removed and cutting edge of excavation shall be
    (a) Inclined inward ( ) (b) Inclined outward ( )
    (c) Horizontal ( ) (d) Vertical ( )

99. When the speed of traffic flow becomes zero, then traffic density
    (a) Becomes zero whereas traffic volume attains maximum value ( )
    (b) And traffic volume both attain maximum value ( )
    (c) And traffic volume both become zero ( )
    (d) Attains maximum value whereas traffic volume becomes zero ( )

100. 'End of speed limit' is a ___
    (a) Regulatory sign ( ) (b) Warning sign ( )
    (c) Informatory sign ( ) (d) None of the above ( )