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Q : 1) The length of national highway (km) as per Lucknow road plan is given by

A : Area of the country (km^2)/75

B : Area of the country (km^2)/50

C : Area of the country (km^2)/40

D : Area of the country (km^2)/25

Q : 2) The objective of Pradhan Mantri Gram Sadak yojana is to provide all weather roads to the eligible unconnected habitations in the rural areas with a population of

A: 250 persons and above in plain areas and 100 persons and above in hilly and desert areas

B : 500 persons and above in plain areas and 250 persons and above in hilly and desert areas

C : 1000 persons and above in plain areas and 500 persons and above the hilly and desert areas

D : 2000 persons and above in plain areas and 500 persons and above in hilly and desert areas

Q : 3) According to Nagpur plan, Indian roads have been classified into how many categories?

A : 4

B : 5

C : 6

D : 7

Q : 4) The road foundation for modern highways construction, was developed by:

A : Tresaguat

B : Telford

C : Telford and macadam simultaneously

D : Macadam

Q : 5) On the recommendations of Nagpur conference, the minimum width of a village road may be:

A : 2.25 m

B : 2.45 m

C : 2.75 m

D : 3.65 m

Q : 6) For the administration of road transport, a motor vehicle act was enacted in:

A : 1927

B : 1934

C : 1939

D : 1947

Q : 7) The zero mile stone in Indian is located at:

A : Patna

B : Chhindwara

C : Seoni

D : Nagpur

Q : 8) Fr night travel, the length of a valley curve should be such that, the head-light beam distance is the same as

A : Stopping sight distance

B : Overtaking sight distance

C : Sum of (a) and (b)

D : Difference of (a) and (b)

Q : 9) On a circular curve, the rate of super elevation is ‘e’ while negotiating the curve, vehicle comes to a stop. It was observed that the stopped vehicle is sliding inwards in radial direction. If the coefficient of friction is ‘f’ which of the following is true?

A : $e > f$

B : $e < f$

C : $e < 2f$

D : None of these is correct

Q : 10) If the cross slope of a terrain is 20%, according to IRC classification, it is a :

A : Plain terrain

B : Rolling terrain

C : Mountainous terrain

D : Steep terrain

Q : 11) According to Indian road congress, the width of carriageway is

1. 3.75 m for single lane
2. 7.0 m for two lanes without raised kerbs
3. 7.5 m for two lanes with raised kerbs

Which of these statement(s) is/are true?

A : 1 and 2

B : 2 and 3

C : 1 and 3

D : 1, 2 and 3

Q : 12) As per I.R.C. it is considered appropriate that roads in rural areas should be designed for

A : 15-20 years

B : 10-15 years

C : 5-10 years

D : 20-25 years

Q : 13) A line, on either side of the road between which and the road, no building activity is permitted at all, is called as

A : Carriage way

B : Control line

C : Building line

D : Road way

Q : 14) What is the bending material in water bound macadam roads?

OR

In semi-grouted macadam pavement the binding material is

A : Brick powder

B : Stone dust

C : Construction waste

D : Line powder

Q : 15) What is the value of camber that should be provided in case of WBM pavement surface in an area of heavy rainfall?

A : 1 in 30

B : 1 in 48

C : 1 in 60

D : 1 in 72

Q : 16) Geometric design of highway includes (i) horizontal alignment, (ii) vertical alignment, (iii) Arbouri-culture, (iv) Cross section.

Choose the right combination.

A : (i), (ii) and (iii)

B : (i), (ii) and (iv)

C : (ii), (iii) and (iv)

D : (i), (ii), (iii) and (iv)

Q : 17) At highway stretches where the required overtaking sight distance cannot be provided, in such sections it is necessary to incorporate at least

A : Three times the stopping sight distance

B : One-third of the required intermediate sight distance

C : Half of the required intermediate sight distance

D : Twice the stopping sight distance

Q : 18) The instrument used to measure roughness index is

A : Profilometer

B : Delfectometer

C : Brinellnometer

D : Bump integrator

Q : 19) The minimum value of camber provided for thin bituminous surface hill roads, is :

A : 0.022

B : 0.025

C : 0.03

D : 0.035

Q : 20) A district road with a bituminous pavement has a horizontal curve of 1000 m for a design speed of 75 kmph. The super-elevation is

A : 1 in 40

B : 1 in 50

C : 1 in 60

D : 1 in 70

Q : 21) What is the recommended shape of chamber?

A : Straight

B : Parabolic

C : Straight at edge and parabolic in middle

D : Parabolic at edges and straight at middle

Q : 22) What is the limiting gradient recommended by Indian roads congress for roads in plain terrain?

A : 5.0%

B : 4.0%

C : 6.0%

D : 4.5%

Q : 23) The ‘Lag distance’ is the distance traveled by the road vehicle is called

A : Perception time

B : Volition time

C : Emotion time

D : Total reaction time

Q : 24) The shape of camber best suited for cement concrete pavement is

A : Straight line

B : Parabolic

C : Elliptical

D : Combination of straight and parabolic

Q : 25) The side drains are provided on both the sides of the roadway, when the road is

A : Along salient curve

B : In cutting

C : Along re-entrant curve

D : All of these

Q : 26) The desirable length of overtaking zone as per IRC recommendation is equal to:

A : Two times the overtaking sight distance

B : Three times the overtaking sight distance

C : Five times the overtaking sight distance

D : Overtaking sight distance

Q : 27) The expression for the length of a transition curve (L_s) in meters is

A : $L_s = \frac{V^3}{CR}$ B : $L_s = \frac{V^3}{16CR}$

C : $L_s = \frac{V^3}{24CR}$ D : $L_s = \frac{V^3}{46.5CR}$

Where C = rate of change of radial acceleration in m/s^3

R = Radius of the circular curve in meters and

V = Speed of vehicles in kmph

Q : 28) Excessive camber on pavements may cause

A : Deterioration of central portion

B : Erosion of the berms

C : Slip of the speedy vehicles towards the middle

D : All of these

Q : 29) Full amount of extra width of pavement, one curve, is provided at

A : Beginning of the transition curve

B : Centre of the transition curve

C : Beginning of the circular curve

D : Centre of the circular curve

Q : 30) If the difference in elevation of an edge of the pavement, 9 m wide and its crown is 15 cm, the camber of the pavement is

A : 1 IN 60

B : 1 in 45

C : 1 IN 30

D : 1 IN 15

Q : 31) Equivalent factor of PCU for a passenger can as per IRC is

A : 1.0

B : 2.0

C : 0.5

D : 10

Q : 32) The shoulder provided along the road edge should be

A : Rougher than the traffic lanes

B : Smoother than the traffic lanes

C : Of same colours that of the pavement

D : Of very low load bearing capacity

Q : 33) Stopping sight distance is always:

A : Less than overtaking sight distance

B : Equal to overtaking sight distance

C : More than overtaking sight distance

D : Equal to lag distance

Q : 34) In the absence of super-elevation, the formation of pot holes is generally found:

OR

If super elevation is not provided on a horizontal curve of a highway, then on which portion of the road are the pot holes likely to develop:

A : On the outer edge of road

B : In the inner edge of road

C : In the middle of the road

D : Anywhere along the width of the road

Q : 35) The maximum rate of change of radial acceleration allowed on transition curves is:

A : 100 mm/sec^3

B : 300 mm/sec^3

C : 400 mm/sec^3

D : 500 mm/sec^3

Q : 36) For the design of super elevation for mixed traffic conditions, the speed is reduced by

A : 12%

B : 18%

C : 25%

D : 30%

Q : 37) If super-elevation is not provided on a horizontal curve, then the pressure on the outer wheel will be

A : Less than the pressure on inner wheel

B : More than the pressure on the inner wheel

C : Equal to the pressure on inner wheel

D : None of these

Q : 38) The extra widening required for pavement of width 10.5m. On a horizontal curve of radius R meters is given by

A : $\frac{\ell^3}{2R}$

B : $\frac{2\ell^2}{3R}$

C : $\frac{\ell^2}{R}$

D : $\frac{3\ell^2}{2R}$

Where, l = length of wheel base of vehicle in.m.

Q : 39) Which of the following is taken into consideration while determining overtaking sight distance in four lane highway?

A : Distance covered during time

B : Distance covered during overtaking operation

C : Reaction distance plus overtaking distance

D : Distance covered during reaction time plus distance covered during overtaking operation plus distance covered by the opposing traffic

Q : 40) In a sag curve, a minimum of stoppage distance is determined with assumptions of headlight _____ and beam tilted at an upward angle of _____.

A : 1.0 m and 2°

B : 0.75 m and 2°

C : 1.0m and 1°

D : 0.75 and 1°

Q : 41) Widening at curves provided to compensate the extra width occupied by a vehicle on the curve due to tracking of the rear wheels is called

A : Mechanical widening

B : Psychological widening

C : Super widening

D : Extra widening

Q : 42) Roughness index of roads is expressed as :

A : Size of the stone on the pavement

B : Number of patches on the pavement

C : Cumulative deformation of surface per horizontal distance

D : Type of the road surface

Q : 43) The rate of equilibrium super-elevation on a road is

1. Directly proportional to the square of vehicle velocity
2. Inversely proportional to the radius of the horizontal curve
3. Directly proportional to the square of the radius of the horizontal curve

Which of the above statements are correct?

A : 1 and 2 only
B : 1 and 3 only
C : 2 and 3 only
D : 1, 2 and 3

Q : 44) A barrel camber consists of

A : Two straight slopes joining at the center

B : Two straight slopes with a parabolic crown in the center

C : A continuous curve either parabolic or elliptical

D : None of the above

Q : 45) The sight distance available in a road to a driver at any instance depends on

1. Features of the road ahead
2. Height of the driver's eye above the road surface
3. Height of the object above the road surface

A : 1 and 2 only

B : 1 and 3 only

C : 2 and 3 only

D : 1, 2 and 3

Q : 46) In pavement design considerations, the maximum width if the vehicle is usually fixed and followed. The vehicle width affects all of the following except:

A : Width of the traffic lanes

B : Shoulders

C : Parking facilities

D : Drainage layer

Q : 47) Equivalent axle load factor (EALF) defines

A : number of passes of the axle in question to the number of passes of standard axle

B : number of passes of a single axle to the passes of axle in question

C : damager per pass to a pavement by the axle in question relative to the damage per pass of a standard axle

D : None of the above

Q : 48) Rumble strips are preferred on main roads as they

A : Incorporate changes in pavement texture by artificial corrugations

B : Produce noise and physical sensation on the steering

C : Reduce the speed on the roads

D : Provide a number of humps on the roads

Q : 49) In total reaction of the driver, the time required for the sensations received by the eyes/ears to be transmitted to the brain through the nervous system and spinal chord is called _____.

A : Intellection time

B : Emotion time

C : Volition time

D : Perception time

Q : 50) In urban areas, when the volume of cycle traffic is high, minimum width provided for the cycle track is:

A : 3.65 m

B : 3.0 m

C : 2.0 m

D : 1.5 m

Q : 51) Sliding considerations for stopped vehicles on super elevated horizontal curves provide the following bound on the amount of super elevation, e,

A : e $\geq$ coefficient of rolling friction

B : e $\geq$ coefficient of side friction

C : e $\leq$ coefficient of rolling friction

D : e $\leq$ coefficient of side friction

Q : 52) Superior the road

A : Steeper is the cross slope (or) camber

B : Gentler is the camber

C : Steeper is the super elevation

D : Lesser is the cost

Q : 53) On a circular curve, the rate of super elevation is e, while negotiating the curve a vehicle comes to a stop. It is seen that the stopped vehicle does not slide inwards (in the radial direction). The coefficient of side friction is *f*. which of the following is true :

A : $e \leq f$

B : $f < e < 2f$

C : $e \geq 2f$

D : none of the above

Q : 54) Maximum allowable grade are lower for railways than for highways because

A : Construction costs become prohibitive for railways at high grades

B : Trains are longer than vehicles which use the highways

C : High grades cause discomfort to passengers

D : Steel wheels on steel rails have lower frictional coefficient that rubber tyres on pavements.

Q : 55) The important factor considered in the design of summit curves on highway is

A : Comfort to passengers

B : Sight distance

C : Super elevation

D : Impact factor

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