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Q:) Consider the following situations:

1. Traffic volume entering from all roads is less than 3000 vehicles per hour.
2. Pedestrian volume is high.
3. Total right turning traffic is high.
4. A road in a hilly region.

A rotary will be more suitable than control by signals, in situations listed against

A : 1 and 3

B : 1 and 4

C : 2 and 4

D : 2 and 3

Q:) It was noted that on a section of road, the free speed was 80 kmph and the jam density was 70 vpkm. The maximum flow in vph that could be expected on this roads is

A : 800

B : 1400

C : 2800

D : 5600

Q:) It is a common practice to design a highway to accommodate the traffic volume corresponding to

A : 30th hour

B : Peak hour

C : ADT

D : 15-min peak period

Q:) When two roads with two-kane, two-way traffic, cross at an uncontrolled intersection, the total number of potential major conflict points would be

A : 32

B : 24

C : 16

D : 4

Q:) If the normal flows on two approach roads at an intersection are respectively 500 pcu per hr and 300 pcu hr, saturation flows are 1600 pcu per hr on each road and the total lost time per signal cycle is 16 s, the optimum cycle time by Webster's method is

A : 72.5 s

B : 58 s

C : 48 s

D : 19.3 s

Q:) Which one of the following is the purpose of divisional island?

A : To divert the traffic into definite travel path at the intersection

B : To reduce the speed of traffic entering the intersection

C : To divert traffic from obstacles and expedite the flow of traffic

D : To segregate opposing flow of traffic in a multi-lane highway

Q:) The lost time due to starting delay on a traffic signal approach is noted to be 3 seconds, the actual green time is 25 seconds and amber time is 3 seconds. How much is the effective green time?

A : 19 sec

B : 25 sec

C : 27 sec

D : 31 sec

Q:) Consider the following statements related to interchanges:

1. In diamond interchange there is the possibility of illegal wrong-way turns.
2. Diamond interchange is far superior to cloverleaf design.
Which of the statements given above is/are correct?

A : 1 only

B : 2 only

C : Both 1 and 2

D : Neither 1 nor 2

Q:) Which one of the following geometric features requires the magnitures of weaving angle and weaving distance for its design?

A : Rotary design

B : Right-angke intersection

C : Roundabout

D : Grade-separated junction

Q:) Which one of the following traffic survey schemes is most relevant when deciding on locating major 'routes' in a city?

A : Traffic volume survey

B : Origin and destination survey

C : Speed survey

D : Traffic capacity survey

Q:) Which one of the following equipments is useful in determining spot speed in traffic engineering?

A : Enoscope

B : Periscope

C : Radar

D : Techometer

Q:) Traffic capacity is the:

A : Ability of roadway to accommodate traffic volume in terms of vehicles/hr

B : Number of vehicles occupying a unit length of roadway at a given instant expressed as vehicles/km

C : Capacity of lane to accommodate the vehicles widthwise (across the road)

D : Maximum attainable speed of vehicles

Q:) The duration of green time in a traffic signal depends on

A : Traffic density

B : Traffic volume

C : Traffic speed

D : All of the above

Q:) What will be the theoretical maximum capacity (to nearest 10 units) for a single lane of highway given that the speed of the traffic stream is 40 kmph?

A : 3000 veh/h

B : 2860 veh/h

C : 2010 veh/h

D : 2510 veh/h

Q:) The type of signaling system in which it is possible to vary the length of cycle, cycle division and the time schedule at each signal point is called

A : Simultaneous system

B : Alternate system

C : Simple progressive system

D : Flexible progressive system

Q:) Which one of the following is not a part of 'speed and delay' studies?

A : Floating car method

B : Vehicle number method

C : Interview technique

D : License number method

Q:) In the loss Angeles abrasion test on aggregate, if the speed of the drum is increased to 50 rpm, then the abrasion value will

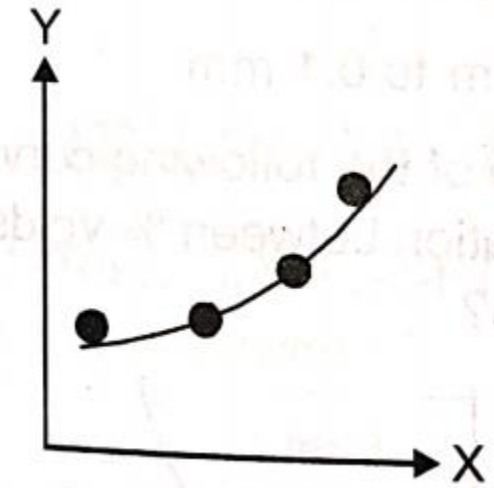
A : Increase

B : Decrease

C : Remain unchanged

D : Be unpredictable

Q:) A typical marshal test graph is shown in the given figure. The variable on the X-axis is % binder content by weight of total mix. The variable on the Y-axis for the given graph will be



% binder content by weight of total mix.

A : Stability value

B : Flow value

C : Percentage of voids

D : Unit weight

Q:) The plasticity index of the fraction passing 425 micron IS sieve in case of sub-base/base course should be

A : Less than 6

B : Greater than 6

C : Greater than 9

D : Between 15 & 30

Q:) What are the standards for testing of road macadam in Aggregate impact test?

A : 14 kg wt. 38 cm drop, 15 blows

B : 14 kg wt. 35 cm drop, 20 blows

C : 18 kg wt. 35 cm drop, 15 blows

D : 18 kg wt. 30 cm drop, 20 blows

Q:) Which one of the following tests is performed in the laboratory to determine the extent of weathering of aggregates for roadworks?

A : Soundness test

B : Crushing test

C : Impact test

D : Abrasion test

Q:) Which one of the following is not a desirable property of the subgrade soil as a highway material?

A : Stability

B : Ease of compaction

C : Good drainage

D : Bitumen adhesion

Q:) The consistency and flow resistance of a sample of bitumen can be determined through which of the following tests?

A : Viscosity test

B : Penetration test

C : Ductility test

D : Softening point test

Q:) Effect of impact on the design of rigid pavements is accounted for by

A : Increasing the thickness as would be calculated with static wheel load

B : Providing a base course

C : Adopting a reduced flexural strength of concrete through a factor of safety

D : Adopting an increased stress relative to that produced by static wheel load

Q:) The number of load cycles (N_f) to cause the failure of a pavement is proportional to (P is the respective applied load)

A : P^4

B : P^{-4}

C : P^2

D : 1/P

Q:) If the load, warping and frictional stresses in a cement concrete slab are 210 N/mm^2 , 290 N/mm^2 and 10 N/mm^2 repectively, the critical combination of stresses during summer midday is

A : 290 N/mm^2

B : 390 N/mm^2

C : 490 N/mm^2

D : 590 N/mm^2

Q:) In cement concrete pavements, tie bars are installed in

A : Expansion joints

B : Contraction joints

C : Warping joints

D : Longitudinal joints

Q:) Consider the following factors:

1. Period of construction, winter / summer
2. Degree of foundation roughness
3. Slab thickness
4. Reinforced / unreinforced

Which of these factors are considered as per IRC for obtaining the maximum expansion joint spacing in rigid pavements?

A : 1, 2 and 3

B : 2, 3 and 4

C : 2 and 3

D : 1 and 4

Q:) Which one of the following criteria is used for obtaining the value of modulus of sub grade reaction from plate bearing test data?

A : Slope of pressure settlement graph

B : Pressure corresponding to the settlement of 1.25 mm

C : Deflection corresponding to a pressure of 1.25 kg/cm^2

D : Pressure corresponding to the settlement of 1.50 mm

Q:) Which of the following factors are used for calculating temperature stress at the critical edge region in rigid pavement design?

1. Maximum temperature difference between summer and winter
2. Coefficient of thermal expansion of concrete
3. Slab length
4. Slab width

Select the correct answer using the code given below:

A : 1, 2 and 3

B : 2, 3 and 4

C : 1 and 2 only

D : 1 and 3 only

Q:) IRC code No. 37-1985 with which one of the following?

A : Design of rigid pavements, taking ESWL and CBR into account

B : Design of rigid pavements, taking axle and CBR into account

C : Design of flexible pavements, taking ESWL and CBR into account

D : Design of flexible pavements, taking cumulative axle loads and CBR into account

Q:) Which one of the following methods is used in the design of rigid pavements?

A : CBR method

B : Group index method

C : Westergaard's method

D : McLeod's method

Q:) For conditions obtaining in India, at which location in a cement concrete pavement will the combined stresses due to traffic wheel load and temperature have to be critically checked during design?

A : Corner

B : Corner and interior

C : Corner and edge

D : Corner, edge and interior

Q:) Which one of the following sets of factors is related to design of thickness of rigid pavement by westergaard method?

A : CBR value and stiffness index of soil

B : Deflection factor and traffic index

C : Swelling index and bulk modulus

D : Radius of stiffness and modulus of subgrade reaction

Q:)

Assertion (A): Dowel bars are provided at expansion joints and sometimes also at contraction joints in cement concrete slabs.

Reason (R): Longitudinal joints in cement concrete pavements are constructed with tie bars.

Q:) In a flexible pavement

A : Vertical compressive stresses decreases with depth of the layer

B : The vertical compressive stress is the maximum at the lowest layer

C : Tensile stress get developed

D : Traffic stress induced by a given traffic load is dependent on the location of the load on the pavement surface