Q :) In desire-line diagram

A: Width of desire-line is proportional to the number of trips in one direction

B: Length of the desire-line is proportional to the number of trips in both directions

C: Width of desire-line is proportional to the number of trips in both direction

D: Both length and width of desire-line are proportional to the number of trips in both directions

Q :) In which one of the following grades of a highway as an emergency ramp provided?

A: 1 in 200

B: Zero grade

C: Down grade

D: Up grade

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-lane, 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

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

A: 72.5 s

B: 58 s

C: 48 s

D: 19.3 s

Q :) Based on '30th' hourly volume, for how much percent time during the year can the designer willingly tolerate the unfavourable operating conditions?

A: 30

B: 29

C: 25

D: 0.33

Q :) A journey from work to home made by walking to the bus, travelling by bus to the station and completing end journey by train is regarded as

A: 4 trips

B: 3 trips

C: 2 trips

D: 1 trips

Q :) Match List-I (traffic survey) with List-II (Method) and select the correct answer using the code given below the lists:

List-I	List-II
A. Spot speed	1. By video tape
B. Traffic volume	2. By road side interview
C. O-D survey	3. By doppler radar
D. Parking survey	4. By pneumatic tube

Codes:

A: 3, 1, 2, 4

B: 2, 4, 3, 1

C: 3, 4, 2, 1

D: 2, 1, 3, 4

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

A: Rotary design

B: Right-angle intersection

C: Roundabout

D: Grade-separated junction

Q :) Which set of traffic studies is needed for functional design as well as for 'highway capacity' design?

A: Origin and destination studies

B: Parking and accident studies

C: Speed and volume studies

D: Axle load studies

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 width (across the road)
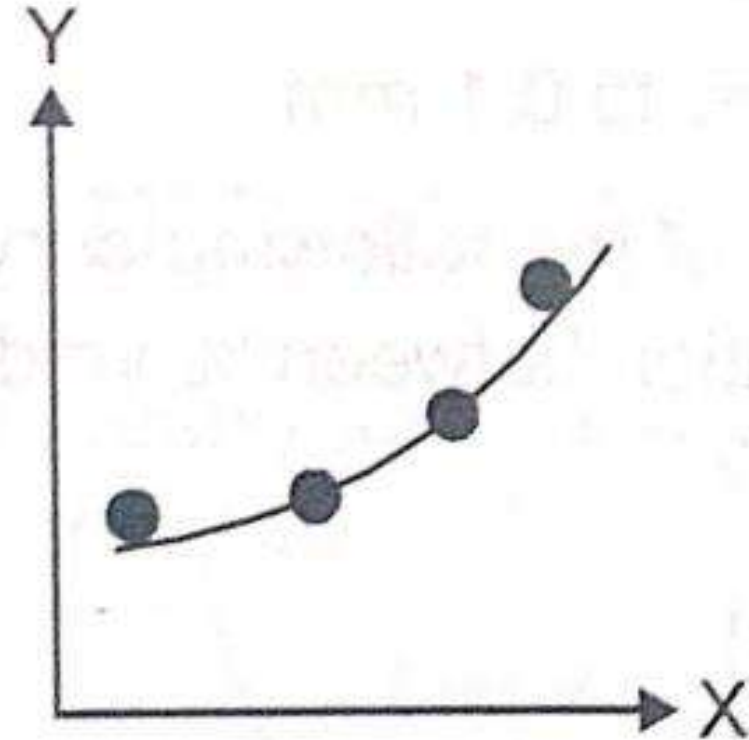
D: Maximum attainable speed of vehicles

Q :) A typical marshall 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.
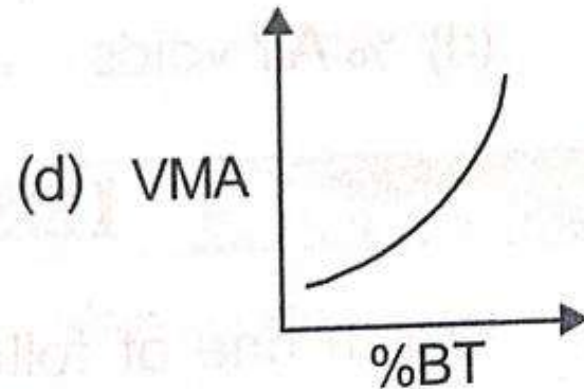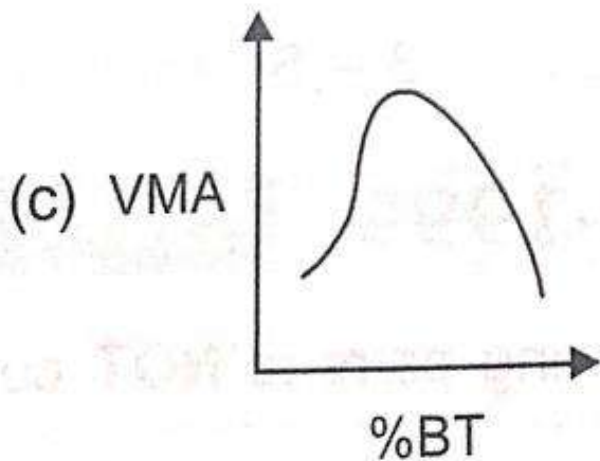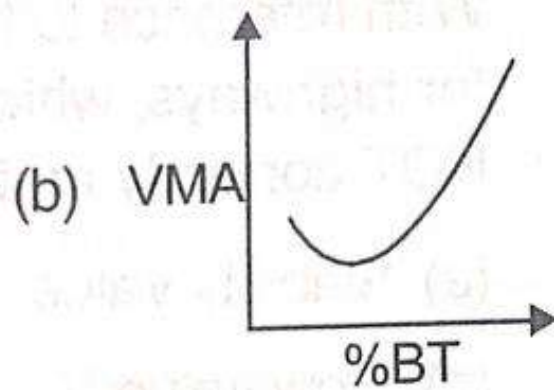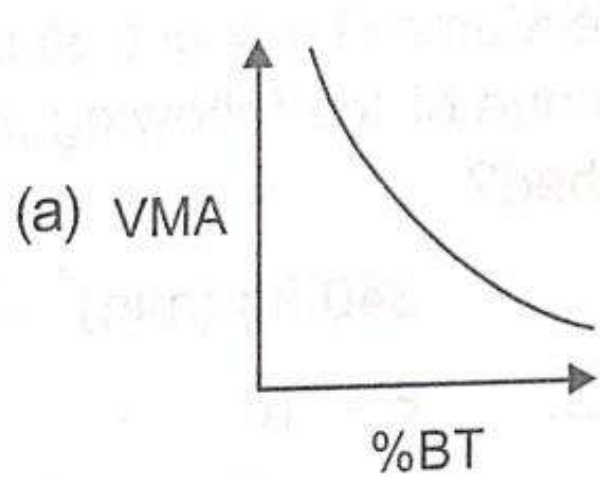
A: Stability value

B: Flow value

C: Percentage of voids

D: Unit weight

Q :) Which one of the following diagrams illustrates the relationship between VMA and % bitumen content (BT) in Marshall test?

(a) VMA

%BT

(b) VMA

%BT

(c) VMA

%BT

(d) VMA

%BT

Q :) If the CBR value obtained at 5 mm penetration is higher than that at 2,5 mm, then the test is repeated for checking; and it the check test reveals a similar trend, then the CBR value is to be reported as the

A: Mean of the values of 5 mm and 2,5 mm penetrations

B: Higher value minus the lower value

C: Lower value corresponding to 2.5 mm penetrations

D: Higher value obtained at 5 mm penetration

Q :) For carrying out bituminous patch during the rainy season, the most suitable binder is

A: Road tar

B: Hot bitumen

C: Cutback bitumen

D: Bituminous emulsion

Q :) California bearing ratio (CBR) is a:

A: Measure of soil strength

B: Method of soil identification

C: Measure to indicate the relative strengths of paving materials

D: Measure of shear strength under lateral confinement

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 drops, 15 blows

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

Q :) What are the maximum value of CBR and minimum value of G.I. of any material respectively?

A: 100, 0

B: 100, 20

C: 50, 5

D: 10, 0

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 :) Given that:

R = radius of load distribution

E = modulus of elastic of concrete

K = modulus of subgrade reaction

μ = poisson's ratio of concrete

H = thickness of slab

P = wheel load

The combination of parameters required for obtaining the radius of relative stiffness of cement concrete slab is

A: E, K, μ, r

B: h, K, μ, r

C: E, h, K, μ

D: P, h, K, μ

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

A: Expansion joints

B: Contraction joints

C: Warping joints

D: Longitudinal joints

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

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

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

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

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

Q :) A layer of sand 6.0 m thick lies above a layer of lay soil. The water table is at a depth of 2.0 m below the ground surface. The void ratio sand layer is 0.6 and the degree of saturation of the sand layer above the water table is 40%. The void ratio of the clay layer is 0.7. Determine the total stress, neutral stress and effective stress at a point 10 m below the ground surface. Assume specific gravity of the sand and clay soil respectively as 2.65 and 2.7.