1. Match the temples in Group I with their distinguishing features in Group II.

<table>
<thead>
<tr>
<th>Group I</th>
<th>Group II</th>
</tr>
</thead>
<tbody>
<tr>
<td>P. Sun Temple, Konarak</td>
<td>1. Kalinga architecture style</td>
</tr>
<tr>
<td>Q. Madurai Meenakshi Amman Temple</td>
<td>2. Hoysala architecture</td>
</tr>
<tr>
<td>R. Chennakesava Temple, Somnathpura</td>
<td>3. Thousand pillared hall</td>
</tr>
<tr>
<td>S. Lingaraj Temple, Bhubanesvar</td>
<td>4. Ornamented chariot</td>
</tr>
<tr>
<td>(a) P-4, Q-3, R-2, S-1</td>
<td>(b) P-5, Q-3, R-4, S-2</td>
</tr>
<tr>
<td>(c) P-4, Q-2, R-5, S-1</td>
<td>(d) P-1, Q-2, R-4, S-3</td>
</tr>
</tbody>
</table>

2. Mark the wrong statement
   (a) CPM uses activity oriented network
   (b) In PERT deterministic concept is used
   (c) CPM is extensively used in construction projects
   (d) In PERT, estimate of time for activities are not so accurate and definite

3. Dummy activity in PERT / CPM network is necessary when
   (a) Two activities have same ending node
   (b) Two activities have same starting node
   (c) When two activities share the same starting and ending node
   (d) None of the above

4. While estimating, centre line method is specially adopted for
   (a) Hexagonal buildings            (b) Rectangular buildings
   (c) Circular buildings             (d) All the above

5. Plinth area of the building does not include
   (a) Lift well, staircase and corridor area (b) Area of walls at the floor level
   (c) Toilet and balcony area          (d) Area of cantilevered porch

6. In AUTOCAD, to draw perspective, which grid is used?
   (a) Rectangular                      (b) Pro-optic
   (c) Isometric                        (d) Parametric
7. As per NBC 2005, match the statements about open space requirements in group I, with true or false in group II:

<table>
<thead>
<tr>
<th>Group I</th>
<th>Group II</th>
</tr>
</thead>
<tbody>
<tr>
<td>P. The open space around the institutional building shall not be less than 12 m</td>
<td>1. True</td>
</tr>
<tr>
<td>Q. The open space around the industrial building shall not be less than 4.5 m for heights up to 16 m</td>
<td>2. False</td>
</tr>
<tr>
<td>R. The minimum width of the inner courtyard shall be 3.0 m</td>
<td></td>
</tr>
<tr>
<td>S. For buildings of more than 30 m height, the size of the ventilation shaft shall not be less than 5.4 m² area</td>
<td></td>
</tr>
</tbody>
</table>

(a) P-1, Q-2, R-1, S-1  
(b) P-2, Q-1, R-1, S-2  
(c) P-2, Q-2, R-1, S-2  
(d) P-1, Q-2, R-2, S-1

8. Match the statements about colour wheel in group I with True or False in group II:

<table>
<thead>
<tr>
<th>Group I</th>
<th>Group II</th>
</tr>
</thead>
<tbody>
<tr>
<td>P. Red, Blue and Yellow are primary colours</td>
<td>1. True</td>
</tr>
<tr>
<td>Q. Orange, Green and Violet are secondary colours</td>
<td>2. False</td>
</tr>
<tr>
<td>R. Warm colours convey calmness and peace while cool colours exhibit energy and joy</td>
<td></td>
</tr>
<tr>
<td>S. Blue and Orange or Red and Green are complementary colours</td>
<td></td>
</tr>
</tbody>
</table>

(a) P-2, Q-1, R-1, S-2  
(b) P-1, Q-2, R-1, S-1  
(c) P-2, Q-2, R-1, S-2  
(d) P-1, Q-1, R-2, S-1

9. In Flemish bond brick work

(a) Each course consists of alternating stretchers and headers  
(b) Every second course consists of alternating stretchers and headers  
(c) Alternate course of headers and stretchers  
(d) All the bricks are laid as headers on the faces
10. Tool for measuring and rating environmental performance of building in Indian context is
(a) LEED (b) TERI
(c) GRIHA (d) ECBC

11. In Munsell colour system the purity of colour is described by
(a) Chroma (b) Tone
(c) Hue (d) Value

12. Glazing supported by steel frame work independent of building columns are called
(a) Curtain wall glazing (b) Screen wall glazing
(c) Structural glazing (d) Obscured glass glazing

13. Buildings which can respond to nature/outdoor environment by computer management systems to optimize the energy are called
(a) Hi-tech buildings (b) Intelligent buildings
(c) Green buildings (d) Zero energy buildings

14. The shape of the bending moment diagram having no external load is always
(a) Parabolic (b) Circular
(c) Cubical (d) Linear

15. A simply supported beam of span L carries a concentrated load W at its mid span, the maximum bending moment M is
(a) WL/4 (b) WL/8
(c) WL/16 (d) WL/2
16. The author of “Design with Nature” book is
   (a) Philip Jodidio  (b) Christopher Alexander
   (c) Robert Venturi  (d) Ian L. McHarg

17. The term Cohort in urban planning refers to
   (a) Land use classification of residential and institutional areas
   (b) Terrain mapping
   (c) Age and sex classification of population
   (d) Set of planning regulations

18. Which one of the following is the best example for Skyway system (inter linked collection of enclosed pedestrian foot bridges)?
   (a) Minneapolis, USA
   (b) Board walk, Atlantic city
   (c) Curitiba, Brazil
   (d) Broadway Theatre District, New York

19. In which type of climate, walls with high thermal inertia are found to be more suitable?
   (a) Cold climate
   (b) Temperate climate
   (c) Hot humid climate
   (d) Hot-dry climate

20. Which one of the following would be most suitable for a high rise building in a high risk Seismic zone?
   (a) A building with L-shaped configuration
   (b) A building with a symmetrical square shaped configuration
   (c) A building with a T-shaped configuration
   (d) A building on stilts
21. First town planner and inventor of orthogonal urban layout is
   (a) Hippodamus   (b) Dinocrates
   (c) Aristotle     (d) Daniel Burnham

22. Match the ancient town classification in Group I with their layout plan details in Group II:

   Group I
   P. Dandaka
   Q. Karmuka
   R. Padmaka
   S. Swastika

   Group II
   1. The pattern of the plan resembles the petals of the lotus radiating outwards from the centre. City used to be practically an island surrounded by water.
   2. Contemplates diagonal streets dividing the site into rectangular plots. A rampart wall surrounds the town with moat at its foot filled with water.
   3. Suitable for the place where the site of the town is in the form of a bow or semi circular or parabolic, mostly applied for towns located on sea shore or river banks.
   4. Streets are straight and cross each other at right angles at the centre. Village has 4 gates on 4 sides, and is rectangular or square.

   (a) P-3, Q-1, R-4, S-2
   (b) P-4, Q-3, R-1, S-2
   (c) P-2, Q-1, R-3, S-4
   (d) P-1, Q-2, R-4, S-3

23. In master plan, topography is considered to be the most important criteria while routing which one of the following service lines?
   (a) Natural gas
   (b) Telephone and electrical power cables
   (c) Water supply line
   (d) Storm water and sewer line
24. Match the botanical names of plants in Group I with their respective plant types in Group II:

<table>
<thead>
<tr>
<th>Group I</th>
<th>Group II</th>
</tr>
</thead>
<tbody>
<tr>
<td>P.  Hibiscus rosa sinensis</td>
<td>1.    Tree</td>
</tr>
<tr>
<td>Q.  Solanum jasminoides album</td>
<td>2.  Ground cover</td>
</tr>
<tr>
<td>R.  Ficus religiosa</td>
<td>3.   Shrub</td>
</tr>
<tr>
<td>S.  Geranium sanguineum</td>
<td>4.   Climber</td>
</tr>
<tr>
<td></td>
<td>5.   Hedge</td>
</tr>
</tbody>
</table>

(a) P-1, Q-3, R-2, S-5  
(c) P-5, Q-2, R-3, S-4  
(b) P-3, Q-4, R-1, S-2  
(d) P-3, Q-5, R-1, S-4

25. Match the historical garden styles in Group I with their corresponding characteristic features in Group II.

<table>
<thead>
<tr>
<th>Group I</th>
<th>Group II</th>
</tr>
</thead>
<tbody>
<tr>
<td>P.  Japanese gardens</td>
<td>1. Gardens for secular, attached to temple gardens, mainly utilitarian</td>
</tr>
<tr>
<td>Q.  Persian gardens</td>
<td>2. Traditional gardens, create miniature idealised landscapes, highly abstract and stylised way</td>
</tr>
<tr>
<td>R.  Egyptian gardens</td>
<td>3. To create an idyllic pastoral landscape, view of nature, included lakes, sweeps of gently rolling lawns, gothic ruins, bridges etc.,</td>
</tr>
<tr>
<td>S.  English landscape gardens</td>
<td>4. Gardens were typically divided into quadrants by channels of water, punctuated by geometrically shaped basins</td>
</tr>
</tbody>
</table>

(a) P-2, Q-4, R-1, S-3  
(c) P-1, Q-3, R-2, S-4  
(b) P-2, Q-4, R-3, S-1  
(d) P-1, Q-4, R-2, S-3

26. Time required for the sound to decay to 60 dB is called

(a) Delay time  
(c) Reverberation time  
(b) Transient time  
(d) Echo time
27. Architectural light shelf is
   (a) A shelf where in electrical light fixtures are arranged in a way to uniformly illuminate the room
   (b) A horizontal surface that reflects day light deep into a building
   (c) A horizontal surface that prevents solar radiation into a building
   (d) A horizontal surface that prevents entry of bright natural day light into a building

28. Which of the following lamp gives nearly monochromatic light?
   (a) Sodium vapour lamp
   (b) GLS lamp
   (c) Tube light
   (d) Mercury vapour lamp

29. Under the influence of fluorescent lamps sometimes the wheels of rotating machinery appear to be stationery. This is due to
   (a) Luminescence effect
   (b) Low power factor
   (c) Fluctuation effect
   (d) Stroboscopic effect

30. Excessive misdirected, obtrusive artificial lighting is called
   (a) Light pollution
   (b) Photo pollution
   (c) Luminous pollution
   (d) All the above

31. Ground water is usually free from
   (a) Dissolved impurities
   (b) Both suspended and dissolved impurities
   (c) Suspended impurities
   (d) None of the above
32. The type of grade separator generally preferred for the movement of vehicles at an intersection of two roads, without any interference is
(a) Trumpet  (b) Diamond interchange
(c) Clover leaf  (d) Delta

33. Choose the word closest in meaning to replace the word OSTENSIBLE
(a) Blatant  (b) Insidious
(c) Apparent  (d) Ostentatious

34. Fill in the blank with the most appropriate word:
He was ________ success and eager to create a name for himself.
(a) Sated by  (b) Impassive to
(c) Conceited to  (d) Impatient for

35. From the following options choose the correct alternative that best explains the idiom, “Writing on the wall”
(a) Obvious truth  (b) Foreboding
(c) Prediction  (d) Graffiti

36. X can finish a work in 30 days, Y can finish a work in 12 days and Z can finish a work in 15 days. Y and Z start the work, but are forced to leave after 3 days. The remaining work was done by X in how many days?
(a) 9 days  (b) 16 1/2 days
(c) 8 1/2 days  (d) 18 1/2 days

37. In a textile show room, the profit margin is 250% of the cost. If the cost increases by 30%, but the selling price remains constant, then what percentage of the selling price is the profit?
(a) 55%  (b) 62.85%
(c) 69.25%  (d) 72.35%
38. Which one of the following is the characteristic feature of the Dravidian style of Temple architecture?
   (a) Mandapa           (b) Cupola
   (c) Curvilinear Shikara (d) Vimana

39. Which one of the following is the oldest Stupa?
   (a) Stupa of Piprawah       (b) Stupa of Bharahut
   (c) Stupa of Sanchi         (d) Stupa of Amaravati

40. In classical Greek architecture, name the top step of the stepped platform upon which colonnades of temple columns are placed?
   (a) Crepidoma          (b) Base
   (c) Stylobate          (d) Stereobate

41. Name the architect who envisioned the “Broad Acre City” concept for the future and advocated “Organic Architecture” principles.
   (a) Frank Lloyd Wright       (b) Alvar Alto
   (c) Eero Saarinen           (d) Le-Corbusier

42. Match the architects in Group I with their works in Group II:

   Group I
   P. Eero Saarinen
   Q. Balakrishna V Doshi
   R. Charles Correa
   S. Le-Corbusier

   Group II
   1. United Nations Head Quarters
      New York city
   2. IUCAA Campus, Pune.
   3. TWA Terminal, New York.
   4. IIM Campus, Bengaluru.

   (a) P-2, Q-3, R-1, S-4
   (b) P-3, Q-4, R-2, S-1
   (c) P-3, Q-2, R-4, S-1
   (d) P-1, Q-4, R-2, S-3
43. Which one of the following commands is used in AUTOCAD, to create one solid model from two or more separate solid shapes?
   (a) Add parts tool  (b) Join
   (c) Subtract  (d) Union

44. As per NBC 2005, what will be the minimum area and the minimum width of the kitchen where separate dining area is provided?
   (a) Area shall not be less than 4.00 m², with a minimum width of 1500 mm.
   (b) Area shall not be less than 7.50 m², with a minimum width of 2100 mm.
   (c) Area shall not be less than 5.00 m², with a minimum width of 1800 mm.
   (d) Area shall not be less than 6.00 m², with a minimum width of 2000 mm.

45. As per NBC 2005, for institutional buildings like hospitals, what will be the minimum width of the stair case, minimum width of the tread and maximum height of riser?
   (a) Minimum width of staircase – 1500 mm, minimum width of tread – 250 mm and maximum height of riser – 190 mm.
   (b) Minimum width of staircase – 2000 mm, minimum width of tread – 300 mm and maximum height of riser – 150 mm.
   (c) Minimum width of staircase – 2000 mm, minimum width of tread – 250 mm and maximum height of riser – 170 mm.
   (d) Minimum width of staircase – 2500 mm, minimum width of tread – 300 mm and maximum height of riser – 150 mm.

46. As per NBC 2005, match the statements about fire and life safety in group I, with true or false in group II.

<table>
<thead>
<tr>
<th>Group I</th>
<th>Group II</th>
</tr>
</thead>
<tbody>
<tr>
<td>P. For buildings more than 24 m high, refuge area shall be provided</td>
<td>1. True</td>
</tr>
<tr>
<td>Q. Walls of lift enclosures shall have a fire rating of one hour</td>
<td>2. False</td>
</tr>
<tr>
<td>R. For high rise buildings, above 30 m in height, provision for helipad</td>
<td></td>
</tr>
<tr>
<td>S. Automatic sprinklers shall be installed in basements used as car parks if area exceeds 200 m²</td>
<td></td>
</tr>
</tbody>
</table>

(a) P-1, Q-1, R-1, S-2  (b) P-2, Q-1, R-2, S-2
(c) P-1, Q-2, R-2, S-1  (d) P-1, Q-2, R-1, S-1

ARCHITECTURE 12 November 2015
47. Which of the following statements are true?
   1. Terrazo flooring may only be cast in place
   2. Bitumen felt is used as damp proofing material
   3. Sandstone is a sedimentary rock
   4. Due to attack of dry rot, the timber cracks

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

48. Match the items / statements in group I with those in group II:

Group I                                      Group II
P. A badly mixed cement concrete results in  1. To impart plasticity
Q. The strength of timber is maximum        2. Slow in setting and rapid in slacking
R. The main function of alumina in brick    3. Honey combing
   earth is
S. Quick lime is                            4. Parallel to grains
                                          5. Calcium Hydroxide

(a) P-3, Q-4, R-1, S-5  (b) P-5, Q-4, R-2, S-1
(c) P-2, Q-4, R-3, S-1  (d) P-3, Q-4, R-1, S-2

49. The principal objective of implementing modular coordination is to

(a) Improve productivity through reduction of wastages
(b) Improve quality in the construction industry
(c) Achieving repeatability and able to construct building at a lower cost
(d) All the above

50. Scientific discipline concerned with understanding of interactions among humans and other elements of a system aiming at effective utility and safety is called

(a) Universal design  (b) Anthropometrics
(c) Ergonomics       (d) Kinanthropometry
51. An arch may be subjected to
   (a) Shear force and thrust
   (b) Shear force and axial force
   (c) Bending moment and axial force
   (d) Thrust, bending moment and shear force

52. A three hinged arch is said to be
   (a) Statically determinate structure
   (b) Statically indeterminate structure
   (c) A bent beam
   (d) None of the above

53. Structural steel contains following principal alloying elements
   (a) Lead, Tin, Aluminium
   (b) Zinc, Aluminium, Sulphur
   (c) Nickel, Chromium, Manganese
   (d) Tungsten, Molybdenum and Phosphorus

54. In pre stressed concrete structures, the pre stressing of the concrete is done to compensate the stresses caused by
   (a) Working loads
   (b) Dynamic loads
   (c) Dead loads
   (d) Live loads

55. The Urban open space known for its human scale is
   (a) Place de la concorde, Paris
   (b) St. Peter’s square, Rome
   (c) Piazza del campo, Sienna
   (d) Piazza del popolo, Rome

56. Garden city concept is advocated by
   (a) Le-Corbusier
   (b) Ebenezer Howard
   (c) Paolosoleri
   (d) Louis Khan
57. During hurricanes, a primary cause of failure of concrete masonry wall is due to
   (a) Improper base and still flashing
   (b) A lack of vertical reinforcement
   (c) Poorly filled mortar joints
   (d) In adequate number of wall anchors

58. Under LEED rating system, to obtain Platinum rating the number of points to be scored are
   (a) 40-49 Points
   (b) 50-59 Points
   (c) 60-79 Points
   (d) 80 Points and above

59. The presence of acute non-specific symptoms in the majority of people caused by working in
    buildings with an adverse indoor environment is called
    (a) Zero carbon building syndrome
    (b) Sustainable building syndrome
    (c) Sick building syndrome
    (d) Green building syndrome

60. Bio-climatic architecture practises
    (a) Use of minimum energy, efficient equipment to meet lighting and air conditioning
    (b) Efficient waste and water management
    (c) Provide comfortable and hygienic indoor working condition
    (d) All the above

61. Architect who pioneered vernacular sustainable eco-friendly architecture in India, with
    brick and other locally available materials is
    (a) Charles Correa
    (b) Laurie Baker
    (c) B.V. Doshi
    (d) A.P. Kanvinde
62. While carrying out which one of the following activity the usual practise of balancing earth cutting and filling is used?
   (a) Land reclamation          (b) Footing excavation
   (c) Site grading               (d) Sediment control

63. While planning for a new settlement in a desert climate region, which one of the following design criteria with climate strategy will be best suitable?
   (a) Buildings should be placed in such a way with more open space all around to allow for free air movement, layout structure loose and scattered.
   (b) Buildings should be continuous, densely grouped, with narrow openings and provide sheltering effect against winds.
   (c) Buildings to allow for more cross ventilation, free layout, tend to merge with nature.
   (d) Buildings shall be planned around bigger open spaces, courtyard type planning with bigger openings for more air circulation / movement.

64. Which one of the following Indian Government Programme, addresses Housing for Slum Dwellers?
   (a) Indira Awas Yojana
   (b) Valmiki Ambedkar Malin Basti Awas Yojana
   (c) National Urban Livelihoods Mission Yojana
   (d) Rajiv Awas Yojana

65. Match the common names of trees in Group I, with their botanical names in Group II:

<table>
<thead>
<tr>
<th>Group I</th>
<th>Group II</th>
</tr>
</thead>
<tbody>
<tr>
<td>P. Silver oak tree</td>
<td>1. Polyalthia longifolia</td>
</tr>
<tr>
<td>Q. Gulmohur tree</td>
<td>2. Pongamia glabra</td>
</tr>
<tr>
<td>R. Ashoka tree</td>
<td>3. Grevalia robusta</td>
</tr>
<tr>
<td>S. Indian beech tree</td>
<td>4. Delonix regia</td>
</tr>
</tbody>
</table>

(a) P-3, Q-4, R-1, S-2       (b) P-4, Q-3, R-2, S-1
(c) P-1, Q-2, R-3, S-4       (d) P-3, Q-4, R-2, S-1
66. As per National Building Code, match the type of buildings in Group I, with acceptable indoor noise levels in Group II:

<table>
<thead>
<tr>
<th>Group I</th>
<th>Group II</th>
</tr>
</thead>
<tbody>
<tr>
<td>P. Apartments, Hotels and Homes</td>
<td>1. 15-20 dB</td>
</tr>
<tr>
<td>Q. Restaurants</td>
<td>2. 20-25 dB</td>
</tr>
<tr>
<td>R. Conference Rooms, Libraries</td>
<td>3. 35-40 dB</td>
</tr>
<tr>
<td>S. Auditoria and Concert Halls</td>
<td>4. 50-55 dB</td>
</tr>
</tbody>
</table>

(a) P-3, Q-4, R-2, S-1  
(b) P-3, Q-4, R-3, S-2  
(c) P-4, Q-3, R-2, S-1  
(d) P-2, Q-4, R-1, S-3

67. Match the statements about Elevators & Escalators in Group I with True or False in Group II:

<table>
<thead>
<tr>
<th>Group I</th>
<th>Group II</th>
</tr>
</thead>
<tbody>
<tr>
<td>P. The recommended angle with the horizontal for escalators is 45 degree</td>
<td>1. True</td>
</tr>
<tr>
<td>Q. As per Indian standards the width of escalator step tread shall be not more than 1020 mm</td>
<td>2. False</td>
</tr>
<tr>
<td>R. The handling capacity of elevators for Office buildings with single tenant as per Indian standard is 15–25%</td>
<td></td>
</tr>
<tr>
<td>S. As per NBC for building having height of 12.0 m or more at least one fire man's lift shall be given</td>
<td></td>
</tr>
</tbody>
</table>

(a) P-2, Q-1, R-2, S-2  
(b) P-2, Q-2, R-1, S-2  
(c) P-2, Q-1, R-1, S-2  
(d) P-1, Q-2, R-2, S-1

68. As per National Building Code, match the different types of buildings in Group I with the recommended rate of air circulation in Group II:

<table>
<thead>
<tr>
<th>Group I</th>
<th>Group II</th>
</tr>
</thead>
<tbody>
<tr>
<td>P. Conference room</td>
<td>1. 10-15 air changes per hour</td>
</tr>
<tr>
<td>Q. Cinemas and theatres</td>
<td>2. 15-30 air changes per hour</td>
</tr>
<tr>
<td>R. Foundries</td>
<td>3. 8-12 air changes per hour</td>
</tr>
<tr>
<td>S. Hospital wards</td>
<td>4. 6-8 air changes per hour</td>
</tr>
</tbody>
</table>

(a) P-1, Q-3, R-2, S-4  
(b) P-3, Q-1, R-2, S-4  
(c) P-2, Q-4, R-1, S-3  
(d) P-4, Q-2, R-3, S-1
69. A train travelling at 50 kmph completely crosses another train having half its length and travelling in opposite direction at 40 kmph, in 12 seconds. It also passes a railway platform in 40 seconds. What is the length of the platform?
   (a) 350 m  (b) 355.55 m
   (c) 395.25 m  (d) 415.65 m

70. The ratio between the length and the breadth of a rectangular park is 2:1. If a man cycling along the boundary of the park at a speed of 18 kmph, completes one round in 10 minutes, then the area of the park in m² is
   (a) 100,000 m²  (b) 400,000 m²
   (c) 500,000 m²  (d) 600,000 m²

71. A tank is filled in 7 hours by three pipes X, Y, and Z. The pipe Z is twice as fast as Y and Y is twice as fast as X. How much time will pipe X alone take to fill the tank?
   (a) 35 hours  (b) 42 hours
   (c) 49 hours  (d) 56 hours

72. The angle of elevation of a ladder leaning against a wall is 60 degree, and the foot of the ladder is 3.60 m away from the wall. Then the length of the ladder is
   (a) 7.2 m  (b) 7.0 m
   (c) 6.6 m  (d) 6.4 m

73. Find the odd man out:
   792, 363, 176, 427, 473, 561
   (a) 473  (b) 561
   (c) 792  (d) 427

74. Which one of the following cannot be the square of natural number?
   (a) 82369  (b) 19881
   (c) 53947  (d) 30276
75. As per Indian standards, average rate of water consumption per head per day is
(a) 100 litres  
(b) 135 litres  
(c) 165 litres  
(d) 200 litres

76. In pressure supply mains, water hammer pressure is reduced by providing
(a) Air valves  
(b) Sluice valves  
(c) Pressure relief valves  
(d) None of the above

77. A pipe, which is installed in the house drainage system to preserve the water seal of traps is called
(a) Waste pipe  
(b) Soil pipe  
(c) Vent pipe  
(d) Antisiphonage pipe

78. For treating the sewerage of a large city, which one of the following option is recommended?
(a) A plant consisting of Imhoff tanks with low rate trickling filters  
(b) A sedimentation tank and an activated sludge treatment plant  
(c) Sedimentation tank with high rate trickling filters  
(d) None of the above

79. According to Indian road congress the width of the carriage way is
(a) 3.75 M for single lane  
(b) 7.0 M for two lanes without raised kerbs  
(c) 7.50 M for two lanes with raised kerbs  
(d) All the above

80. On hill roads maximum super elevation should not exceed
(a) 8%  
(b) 10%  
(c) 12.5%  
(d) 15%