

5TH YEAR CIVIL ENGINEERING EXIT EXAM MODEL

(HIGHWAY ENGINEERING I & II)

1. In a compaction test, as the compaction effort is increased, the optimum moisture content
A. Decrease B. Increases C. Remains same D. Increases first there after decreases
2. Sub base is used in rigid pavements for
A. Prevention of sub-grade settlement
B. Prevention of slab cracking
C. Prevention of pumping
D. Prevention of thermal expansion
3. Which of the following is not included in a bidding document
A. The bid and appendix to bid
B. General Condition of the contract
C. Bill of Quantities
D. Anti-bribery and Pledge Form
E. Drawings
F. Methodology and Schedule
4. Camber on highway pavement is provided to take care of
A. Centrifugal Force
B. Sight distance
C. Super elevation effect
D. Drainage
E. Off-Tracking
5. Pick up the incorrect statement from the following. The super-elevation on roads is:
A. directly proportional to width of pavement
B. directly proportional to velocity of vehicles
C. inversely proportional to acceleration due to gravity
D. inversely proportional to the radius of curvature
6. Which of the following type of test is used to determine the quality of aggregate for Asphalt and Concrete at the construction site?
A. CBR B. ACV C. Plasticity Index D. none of the above
7. Rapid curing cutback bitumen is produced by blending bitumen with
A. Kerosene C. Diesel
B. Benzene D. Petrol
8. Which one of the following test is conducted commonly for Asphalt Cement (AC) and Cutback Bitumen
A. Ductility test C. Softening point test
B. Penetration Test D. Viscosity test
9. Compaction by vibratory roller is the best method of compaction in case of
A. Moist silty sand
B. Clay of medium compressibility
C. Well graded dry sand
D. Silt of high Compressibility
10. Which one of the following is not a remedy action in pavement distress
A. Asphalt patching
B. Pothole reinstallation

- C. Crack sealing
 - D. Erosion damage Repair
11. In the Marshall Methods of mix design, the coarse aggregate, Fine aggregates, filler and Bitumen having respective specific gravities of 2.62, 2.72, 2.70 and 1.02, are mixed in the ration of 55, 34.6, 4.8 and 5.6 respectively. The theoretical specific gravity of the mix would be:
A. 2.36 B. 2.44 C. 2.40 D. 2.50 E. 1
 12. For design, that length of transition curve should be taken which is
A. based on allowable rate of change of centrifugal acceleration
B. based on rate of change of super elevation
C. higher of (a) and (b)
D. smaller of (a) and (b)
 13. The maximum design gradient for vertical profile of a road is
A. ruling gradient B. limiting gradient C. exceptional gradient D. minimum gradient
 14. The percentage compensation in gradient for ruling gradient of 4% and horizontal curve of radius 760m is
A. 0.1 % B. 1 % C. 10% D. no compensation
 15. If ruling gradient is 1 in 20 and there is also a horizontal curve of radius 76 m, then the compensated grade should be
A. 3 % B. 4% C. 5 % D. 6%
 16. The camber of road should be approximately equal to
A. Longitudinal gradient
B. Two times the longitudinal gradient
C. Three times the longitudinal gradient
D. Half the longitudinal gradient
 17. Which of the following shapes is preferred in a valley curve?
A. simple parabola B. cubic parabola C. spiral D. lemniscate
 18. The value of ruling gradient in flat terrain as per ERA recommendation is
A. 1 in 12 B. 1 in 15 C. 1 in 20 D. 1 in 30
 19. In case of summit curves, the deviation angle will be maximum when
A. an ascending gradient meets with another ascending gradient
B. an ascending gradient meets with a descending gradient
C. a descending gradient meets with another descending gradient
D. an ascending gradient meets with a level surface
 20. If the design speed is V kmph and deviation angle is N radians, then the total length of a valley curve in meters is given by the expression
A. $0.38 N V^3/2$ B. $0.38 (NV^3)^2$ C. $3.8 NV^2$ D. $3.8 (NV^3)^2$
 21. If an ascending gradient of 1 in 50 meets a descending gradient of 1 in 50, the length of summit curve for a stopping sight distance of 80 m will be
A. zero B. 64m C. 80m D. 60m
 22. Ethiopian Road Administration, ERA came into existence in
A. 2002 B. 2021 C. 2022 D. 2013
 23. Highway facilities are designed for
A. annual average hourly volume
B. annual average daily traffic

- C. Thirtieth highest hourly volume
 - D. peak hourly volume of the year
24. The rate of rise or fall of a road along its alignment is known as
A. Gradient B. Camber C. Side slope D. Super elevation
 25. Which of the following soil classification is best suited for roadway?
A. AASHTO B. USC C. Atterberg Limit D. PI
 26. The maximum allowable super elevation is
A. 1 in 12 B. 1 in 18 C. 1 in 15 D. 1 in 30
 27. For highway geometric design purposes the speed used is
A. 15th percentile B. 50th percentile C. 85th percentile D. 98th percentile
 28. The reduction in load carrying capacity at a gradient of 1 in 20 is
A. 0.05 B. 0.1 C. 0.15 D. 0.2
 29. Select the correct statement.
A. Traffic volume should always be more than traffic capacity.
B. Traffic capacity should always be more than traffic volume.
C. Spot speed is the average speed of a vehicle at a specified section.
D. 85th percentile speed is more than 98th percentile speed.
 30. Mandatory signs are displayed on a disc having a diameter of
A. 30 cm B. 60 cm C. 50 cm D. 100 cm
 31. Length of a vehicle affects
A. width of traffic lanes
B. extra width of pavement and minimum turning radius
C. width of shoulders and parking facilities
D. Clearance to be provided under structures such as overbridges, under-bridges etc.
 32. In a gravel road, the building material used is
A. Cement B. Lime C. Clay D. Soda ash
 33. The maximum width of a vehicle as recommended by ERA is
A. 1.85m B. 2.44 m C. 3.81 m D. 4.72 m
 34. The life of a bitumen road having average traffic of 1200 tonnes per day, may be expected to be
A. 1 year B. 2-5 years C. 5-7 years D. 10-15 years
 35. Desire lines are plotted in
A. traffic volume studies B. speed studies C. accident studies D. origin and destination studies
 36. Which of the following soil stabilization technics is best for black cotton soil?
A. Bitumen B. Lime C. Cement D. all
 37. Which of the following methods is preferred for collecting origin and destination data for a small area like a mass business centre or a large intersection?
A. road side interview method B. license plate method C. return postcard method
 38. The width of roads which can be lighted by mounting, street lights on one side of the road is
A. 10 m B. 20 m C. 25 m D. 30 m
 39. The diagram which shows the approximate path of vehicles and pedestrians involved in accidents is known as
A. spot maps B. pie charts C. condition diagram D. collision diagram

40. Ratio of width of the car parking area required at kerb for 30° parking relative to 60° parking is approximately
A. 0.3 B. 0.7 C. 0.8 D. 1.0
41. With increase in speed of the traffic stream, the minimum spacing of vehicles
A. increases
B. decreases
C. First decreases and then increases after reaching a minimum value at optimum speed
D. First increases and then decreases after reaching a maximum value at optimum speed.
42. According to Ethiopian Road Administration recommendations all markings on runway are painted
A. White B. Yellow C. Black D. Red
43. Which of the following is known as design capacity?
A. basic capacity B. theoretical capacity C. possible capacity D. practical capacity
44. Which of the following soil stabilization techniques is best for desert soil?
A. Bitumen B. Cement C. Lime D. Ash
45. With increase in speed of the traffic stream, the maximum capacity of the lane
A. increases
B. decrease
C. First increases and then decreases after reaching a maximum value at optimum speed
D. First decreases and then increases after reaching a minimum value at optimum speed
46. The lock gates are always in
A. Single number B. Pair C. Quadruple D. Dozen
47. Equivalent factor of passenger car unit (PCU) for a passenger car as per ERA is
A. 1.0 B. 2.0 C. 0.5 D. 10
48. If the stopping distance and average length of a vehicle are 18 m and 6 m respectively, then the theoretical maximum capacity of a traffic lane at a speed of 10 m/sec is
A. 1500 vehicles per hour
B. 2000 vehicles per hour
C. 2500 vehicles per hour
D. 3000 vehicles per hour
49. Scientific planning of transportation system and mass transit facilities in cities should be based on
A. spot speed data
B. origin and destination data
C. traffic volume data
D. accident data
50. The diagram which shows all important physical conditions of an accident location like roadway limits, bridges, trees and all details of roadway conditions is known as
A. pie chart B. spot maps C. condition diagram D. collision diagram
51. When the speed of traffic flow becomes zero, then
A. traffic density attains maximum value whereas traffic volume becomes zero
B. traffic density and traffic volume both attain maximum value
C. traffic density and traffic volume both become zero
D. traffic density becomes zero whereas traffic volume attains maximum value
52. On a right angled road intersection with two way traffic, the total number of conflict points is

- A. 6 B. 11 C. 18 D. 24
53. The background colour of the informatory sign board is
A. red B. yellow C. green D. white
54. Which of the following is indicated by a warning sign?
A. level crossing B. no parking C. end of speed limit D. overtaking prohibited
55. "Dead Slow" is a
A. regulatory sign B. warning sign C. informatory sign D. none of the above
56. The most efficient traffic signal system is
A. simultaneous system
B. alternate system
C. flexible progressive system
D. simple progressive system
57. The provision of traffic signals at intersections
A. reduces right angled and rear end collisions
B. increases right angled and rear end collisions
C. reduces right angled collisions but may increase rear end collisions
D. reduces rear end collisions but may increase right angled collisions
58. Select the incorrect statement.
A. Stop or red time of a signal is the sum of go and clearance intervals for the cross flow.
B. Go or green time of a signal is the sum of stop and clearance intervals for the cross flow.
C. Clearance time is generally 3 to 5 seconds.
D. The cycle length is normally 40 to 60 seconds for two phase signals.
59. Centre line markings are used
A. to designate traffic lanes
B. in roadways meant for two way traffic
C. to indicate that overtaking is not permitted
D. to designate proper lateral placement of vehicles before turning to different directions
60. The entrance and exit curves of a rotary have
A. equal radii and equal widths of pavement
B. equal radii but pavement width is more at entrance than at exit curve
C. equal pavement widths but radius is more at entrance curve than at exit curve
D. different radii and different widths of pavement
61. When two equally important roads cross roughly at right angles, the suitable shape of Central Island is
A. circular B. elliptical C. tangent D. turbine
62. The maximum number of vehicles beyond which the rotary may not function efficiently is
A. 500 vehicles per hour
B. 500 vehicles per day
C. 5000 vehicles per hour D. 5000 vehicles per day
63. A traffic rotary is justified where
A. number of intersecting roads is between 4 and 7
B. space is limited and costly
C. when traffic volume is less than 500 vehicles per hour
D. when traffic volume is more than 5000 vehicles per hour
64. Maximum number of vehicles can be parked with

- A. parallel parking C. 30° angle parking
 - B. 45° angle parking D. 90° angle parking
65. When the width of kerb parking space and width of street are limited, generally preferred parking system is
- A. parallel parking C. 45° angle parking
 - B. 65° angle parking D. 90° angle parking
66. As per ERA recommendations, the average level of illumination on important roads carrying fast traffic is
- A. 10 lux B. 15 lux C. 20 lux D. 30 lux
67. The most economical lighting layout which is suitable for narrow roads is
- A. single side lighting C. staggered system
 - B. central lighting system D. none of the above
68. The direct interchange ramp involves
- A. diverging to the right side and merging from left
 - B. diverging to the left side and merging from right
 - C. diverging to the right side and merging from right
 - D. diverging to the left side and merging from left
69. In soils having same values of plasticity index, if liquid limit is increased, then
- A. compressibility and permeability decrease and dry strength increases
 - B. compressibility, permeability and dry strength decrease
 - C. compressibility, permeability and dry strength increase
 - D. compressibility and permeability increase and dry strength decreases
70. Which of the following tests measures the toughness of road aggregates?
- A. crushing strength test C. abrasion test
 - B. impact test D. shape test
71. Los Angeles testing machine is used to conduct
- A. abrasion test C. impact test
 - B. attrition test D. crushing strength test
72. In CBR test the value of CBR is calculated at
- A. 2.5 mm penetration only C. 5.0 mm penetration only
 - B. 7.5 mm penetration only D. both 2.5mm and 5.0 mm penetrations
73. If aggregate impact value is 20 to 30 percent, then it is classified as
- A. exceptionally strong C. strong
 - B. satisfactory for road surfacing D. unsuitable for road surfacing
74. The maximum allowable Los Angeles abrasion value for high quality surface course is
- A. 10% B. 20 % C. 30% D. 45 %
75. Percentage of free carbon in bitumen is
- A. more than that in tar C. less than that in tar
 - B. equal to that in tar D. none of the above
76. The ductility value of bitumen for suitability in road construction should not be less than
- A. 30 cm B. 40 cm C. 50 cm D. 60 cm
77. The maximum limit of water absorption for aggregate suitable for road construction is
- A. 0.4 % B. 0.6% C. 0.8 % D. 1.0 %
78. Which of the following represents hardest grade of bitumen?
- A. 30/40 B. 60/70 C. 80/100 D. 100/120
79. A portion of the traffic way that is used by the pedestrians only is called

- A. Foot path B. Side walk C. Foot way D. Any of the above
80. Penetration test on bitumen is used for determining its
A. grade B. viscosity C. ductility D. temperature susceptibility
81. As per Ethiopian Road Administration ERA, the slope of earth in cutting should be
A. 1: 1 B. 1: 2 C. 1: 4 D. 2: 3
82. Bitumen of grade 80/100 means
A. its penetration value is 8 mm
B. its penetration value is 10 mm
C. its penetration value is 8 to 10 mm
D. its penetration value is 8 to 10 cm
83. The road surfacing should be
A. Impervious B. Durable C. Stable D. All of the above
84. RC-2, MC-2 and SC-2 correspond to
A. same viscosity
B. viscosity in increasing order from RC-2 to SC-2
C. viscosity in decreasing order from RC-2 to SC-2
D. none of the above
85. In earthen roads the common stabilizers used are
A. Cement B. Bitumen C. Lime D. All the above are correct
86. The recommended grade of tar for grouting purpose is
A. RT-1 B. RT-2 C. RT.3 D. RT-5
87. Generally the life of an earthen road varies in between
A. 12 to 30 years B. 5 to 10 years C. 2 to 4 years D. Less than 1 year
88. Softening point of bitumen to be used for road construction at a place where maximum temperature is 40° C should be
A. less-than 40°C B. greater than 40°C C. equal to 40°C D. none of the above
89. Generally, the premix carpet laid in India is of thickness
A. 15 cm B. 10 cm C. 5 to 7.5 cm D. 2 cm
90. For rapid curing cutbacks, the oil used is
A. gasoline B. kerosene oil C. light diesel D. heavy diesel
91. The snow bound sections, the super elevation on roads should not be more than
A. 0.07 B. 0.08 C. 0.09 D. 0.1
92. The method of design of flexible pavement as recommended by ERA is
A. group index method B. CBR method C. Westergaard method D. Benkelman beam method
93. In cement concrete roads, the repair work of cracks should be done just at the end of
A. Rainy season B. Summer season C. Spring D. Winter season
94. The group index for a soil, whose liquid limit is 40 percent, plasticity index is 10 percent and percentage passing 75 micron IS sieve is 35, is
A. 0 B. 3 C. 5 D. 7
95. Gravity model is used in transportation planning process for
A. Modal split B. Trip distribution C. Trip generation D. Trip assignment
96. Bottom most layer of pavement is known as
A. wearing course B. base course C. sub-base course D. subgrade
97. For the taxiway the permissible rate of change of grade is
A. 0.01 B. 0.03 C. 0.05 D. 0.07

98. Flexible pavement distribute the wheel load
 A. directly to subgrade C. through structural action
 B. through a set of layers to the subgrade D. none of the above
99. Holding aprons are also known as
 A. Warm-up pads B. Run-up pads C. Both (A) and (B) D. None of these
100. Group index method of design of flexible pavement is
 A. a theoretical method
 B. an empirical method based on physical properties of subgrade soil
 C. an empirical method based on strength characteristics of subgrade soil
 D. a semi empirical method
101. The tidal range is maximum in Ethiopia at
 A. Afar B. Adama C. Hawasa D. None
102. Select the correct statement.
 A. More the value of group index, less thickness of pavement will be required.
 B. More the value of CBR, greater thickness of pavement will be required.
 C. Minimum and maximum values of group index can be 0 and 20 respectively.
 D. all of the above
103. If the group index value of subgrade is between 5 and 9, then the subgrade is treated as
 A. good B. fair C. poor D. very poor
104. Tyre pressure influences the
 A. total depth of pavement C. quality of surface course
 B. both the above D. none of the above
105. Rigidity factor for a tyre pressure greater than 7 kg/cm² is
 A. equal to 1 B. less than 1 C. greater than 1 D. zero
106. The critical combination of stresses for corner region in cement concrete roads is
 A. load stress + warping stress frictional stress
 B. load stress + warping stress + frictional stress
 C. load stress + warping stress
 D. load stress + frictional stress
107. Tie bars in cement concrete pavements are at
 A. expansion joints B. contraction joints C. warping joints D. longitudinal joints
108. A road connecting one town with another is called
 A. Highway B. Main access road C. Trunk road D. Link road
109. The maximum spacing of contraction joints in rigid pavements is
 A. 2.5 m B. 3.5 m C. 4.5 m D. 5.5m
110. The road length per hundred square kilometres in Ethiopia is
 A. 10-15 km B. 35-50 km C. 100-150 km D. 200-250 km
111. The maximum thickness of expansion joint in rigid pavements is
 A. 0 B. 25 mm C. 50 mm D. 100 mm
112. The steepest gradient in ordinary condition should not exceed
 A. Ruling gradient B. Maximum gradient C. Exceptional gradient D. Floating gradient
113. The function of an expansion joint in rigid pavements is to
 A. relieve warping stresses C. relieve shrinkage stresses
 B. resist stresses due to expansion D. allow free expansion
114. In a proposed alignment the type of soil which will not be preferred is
 A. Soft rock B. Ordinary soil C. Hard rock D. All are correct

115. The fundamental factor in the selection of pavement type is
A. climatic condition C. type and intensity of traffic
B. subgrade soil and drainage conditions D. availability of funds for the construction project
116. The camber and gradient on earthen roads should not be more than
A. 1 in 10 B. 1 in 20 C. 1 in 50 D. 1 in 80
117. Most suitable material for highway embankments is
A. granular soil B. organic soil C. silts D. clays
118. Bituminous grouted macadam roads may be expected to have a useful life of about
A. 2 to 3 years B. 3 to 5 years C. 7 to 10 years D. 15 to 20 years
119. Maximum daily traffic capacity of bituminous pavements is
A. 500 tonnes per day C. 1000 tonnes per day
B. 1500 tonnes per day D. 2000 tonnes per day
120. Which of the soil type is best for road construction?
A. Loamy soil B. Silt soil C. Clayey soil D. Sandy soil
121. The road connecting one town with another town is designated as
A. Trunk highway B. Link highway C. Main access road D. Collector road
122. The most suitable equipment for compacting clayey soils is a
A. smooth wheeled roller C. pneumatic tyred roller
B. sheep foot roller D. vibrator
123. The result of ring and ball softening point test on asphalts is given in terms of
A. Viscosity B. Time C. Flow D. Temperature
124. The highest point on a carriage way is known as
A. Crown B. Camber C. Super elevation D. Gradient
125. The aggregates required for one kilometre length of water bound macadam road per meter width and for 10 mm thickness is
A. 8 cubic meter B. 10 cubic meter C. 12 cubic meter D. 15 cubic meter
126. The length of run way is increased per 300 m rise above M.S.L.
A. 0.03 B. 0.04 C. 0.07 D. 0.06
127. Minimum recommended road width in case of expressway is
A. 15 m B. 25 m C. 40 m D. 50 m
128. The camber of shoulders in water bound macadam roads is
A. equal to the cross slope of pavement
B. less than the cross slope of pavement
C. greater than the cross slope of pavement
D. zero
129. The pilot normally takes decision about landing when he is about
A. 100m B. 60m C. 40m D. 20m
130. Weight of vehicles affects
A. Passing sight distance C. Extra widening
B. Pavement thickness D. Width of lanes
131. The binder normally used in flexible pavement construction is
A. cement B. lime C. bitumen D. none of the above
132. A road sign indicating 'Parking for four vehicles' is
A. Warning sign B. Prohibitory sign C. Mandatory sign D. Informatory sign
133. In highway construction, rolling starts from

- A. Sides and proceed to centre
 - B. Centre and proceed to sides
 - C. One side and proceed to other side
 - D. Any of the above
- 134.** The width of bay on a concrete road is generally taken as
 A. > 4.5 m B. < 4.5 m C. 3 to 4 m D. 2 to 3 m
- 135.** For the construction of water bound macadam roads, the correct sequence of operations after spreading coarse aggregates is
 A. dry rolling, wet rolling, application of screening and application of filler
 B. dry rolling, application of filler, wet rolling and application of screening
 C. dry rolling, application of screening, wet rolling and application of filler
 D. dry rolling, application of screening, application of filler and wet rolling
- 136.** The drains constructed on up slope of hill sides, are known as
 A. Cross drains B. Under drains C. Catch water drains D. Side drains
- 137.** In the penetration macadam construction, the bitumen is
 A. sprayed after the aggregates are spread and compacted
 B. premixed with aggregates and then spread
 C. sprayed before the aggregates are spread and compacted
 D. none of the above
- 138.** In using, the data from a plate bearing test for determining the modulus of subgrade reaction the value of settlement to be used is
 A. 1.25 mm B. 2.50 mm C. 3.75 mm D. 1.75 mm
- 139.** When the bituminous surfacing is done on already existing black top road or over existing cement concrete road, the type of treatment to be given is
 A. seal coat B. tack coat C. prime coat D. spray of emulsion
- 140.** The strength of winds is measured with the help of
 A. Benfort scale B. Wind indicator C. Barometer D. None of these
- 141.** Which of the following premix methods is used for base course?
 A. bituminous carpet B. mastic asphalt C. sheet asphalt D. bituminous bound macadam
- 142.** Runway lights are usually spaced at not more than
 A. 60 m B. 150 m C. 200 m D. 250 m
- 143.** Select the correct statement.
 A. Quantity of binder required for tack coat is less than that required for prime coat.
 B. Prime coat treatment is given for plugging the voids in water bound macadam during bituminous road construction.
 C. Seal coat is the final coat over certain previous bituminous pavements.
 D. A bitumen primer is a high viscosity cutback
- 144.** The suitable surfacing material for a bridge deck slab is
 A. sheet asphalt B. bituminous carpet C. mastic asphalt D. rolled asphalt
- 145.** Which of the following is considered to be the highest quality construction in the group of black top pavements?
 A. mastic asphalt B. sheet asphalt C. bituminous carpet D. bituminous concrete
- 146.** The thickness of bituminous carpet varies from
 A. 20 to 25 mm B. 50 to 75 mm C. 75 to 100 mm D. 100 to 120 mm
- 147.** Which of the following represents a carpet of sand-bitumen mix without coarse aggregates?

- A. mastic asphalt B. sheet asphalt C. bituminous carpet D. bituminous concrete
148. In highway construction on super elevated curves, the rolling shall proceed from
A. sides towards the centre C. centre towards the sides
B. lower edge towards the upper edge D. upper edge towards the lower edge
149. The camber for hill roads in case of bituminous surfacing is adopted as
A. 2% B. 2.5% C. 3% D. 4%
150. The minimum design speed for hairpin bends in hill roads is taken as
A. 20 kmph B. 30 kmph C. 40 kmph D. 50 kmph
151. The drain which is provided parallel to roadway to intercept and divert the water from hill slopes is known as
A. sloping drain B. catchwater drain C. side drain D. cross drain
152. The walls which are necessary on the hill side of roadway where earth has to be retained from slipping is known as
A. retaining wall B. breast wall C. parapet wall D. none of the above
153. In hill roads the side drains are provided
A. only on the hill side of road C. only on the opposite side of hill
B. on both sides of road D. none of the above
154. Motor vehicle Act was enacted in
A. 1934 B. 1939 C. 1947 D. 1951
155. Camber in the road is provided for
A. Effective drainage C. counteracting the centrifugal force
B. Having proper sight distance D. All of the above
156. As per ERA the carriage way width for two lane traffic should be
A. 7.5 m B. 10 m C. 12.5 m D. 15 m
157. The gradient at hair-pin bends or other sharp corners with inside curves of 10 to 15 m should never exceed
A. 1 in 100 B. 1 in 60 C. 1 in 20 D. 1 in 10
158. A road sign indicates 'No parking' is
A. Warning sign B. Prohibitory sign C. Mandatory sign D. Informatory sign
159. In concrete roads, the course which can be omitted is
A. Subgrade B. Base course C. Base coat D. Wearing course
160. The thickness of cement concrete slab generally adopted varies in between
A. 1 cm to 5 cm B. 5 cm to 10 cm C. 10 cm to 15 cm D. 15 cm to 20 cm
161. On a hill road, the radius of curve should not be less than
A. 100 m B. 60 m C. 30 m D. 15 m
162. The colour of lights used for visibility during fog is
A. White B. Red C. Yellow D. Green
163. Airport elevation is the reduced level about M.S.L. of
A. Control tower C. Highest point of the landing area
B. Lowest point of the landing area D. None of the above
164. According to AACTMA (Addis Ababa City Traffic Management Agency) recommendations all markings on taxiways are painted
A. White B. Blue C. Black D. Yellow
165. The returning current towards the sea is known as
A. Flood current B. Slack water C. Ebb current D. Mean current
166. The roads connecting village with towns or cities are classified as

- A. Main access road B. Link road C. Collector road D. Feeder road
167. As per ERA the maximum width of a vehicle should be
A. 2 m B. 2.44 m C. 3.8 m D. 1.58 m
168. The thickness of the base in no case should be more than
A. 10 cm B. 15 cm C. 20 cm D. 30 cm
169. The distance between pedestrian crossing and the stop line at a signalised intersection will be
A. 2 to 3 m B. 8 to 10 m C. 1 to 2 m D. 50 to 60 m
170. For proper drainage, the earthen road should have a minimum gradient of
A. 1 in 50 B. 1 in 80 C. 1 in 100 D. 1 in 120
171. Generally the thickness of asphaltic concrete adopted is
A. 2 cm B. 3 cm C. 4 cm D. 5 cm
172. The thickness of the parapet wall, on the valley side of the road way, is usually kept as
A. 20 cm B. 40 cm C. 60 cm D. 80 cm
173. As per I.S. recommendations the average illumination on important roads carrying fast moving traffic is
A. 5 lux B. 10 lux C. 20 lux D. 30 lux
174. The plasticity index of the fraction passing 425 micron sieve in case of sub base course should be
A. Less than 6 C. Greater than 6
B. Greater than 9 D. between 15 and 20
175. Two single runways on an airport can be arranged in the form of
A. T shape B. L shape C. X shape D. Any of these
176. Gates provided for dock entrances are known as
A. Locks B. Caissons C. Dock wall D. Open birth
177. The problem of water level difference in reaching the dock is over come by
A. Lock B. Weir C. Orifice D. Mouth piece
178. A road within a town is called
A. Trunk road B. Country road C. Carriage way D. Street
179. As Assistant Engineer directly controls
A. Junior Engineer B. Work Assistants C. Skilled D. Executive Engineer
180. The slope of the line joining the crown and edge of the road surface is known as
A. Cross fall B. Cross-slope C. Camber D. Any of the above
181. Which test is performed for quick determination of the quality of subgrade soil?
A. C.B.R. B. Stripping C. Thread D. None of these
182. The cross slopes on earthen roads should not be less than
A. 1 in 10 B. 1 in 20 C. 1 in 25 D. 1 in 50
183. The maximum super elevation on hill roads should not exceed
A. 0.07 B. 0.08 C. 0.09 D. 0.1
184. Normally trees are planted longitudinally at a distance of
A. 10 to 15 m B. 5 to 10 m C. 2 to 5 m D. 10 to 12 m
185. An access from a road to private property is known as
A. Fly over B. By pass road C. Loop road D. Drive way
186. An Enoscope is used for measuring
A. Running speed B. Time mean speed C. Spot speed D. Overall speed
187. As per ERA the camber on cement concrete road should be

- A. 1 in 60 to 72 B. 1 in 45 to 60 C. 1 in 20 to 24 D. 1 in 12 to 16
- 188.** For the taxiways the maximum longitudinal grades is
A. 0.015 B. 0.03 C. 0.05 D. 0.07
- 189.** The value of ruling gradient in plains as per ERA is
A. 1 in 10 B. 1 in 15 C. 1 in 20 D. 1 in 30
- 190.** The landing and take-off area of heliports are marked with
A. Letter H B. Letter P C. Number 3 D. None of these
- 191.** The alignment of a road should cross the series of hills through
A. Ridge B. Saddle C. Valley D. None of the above
- 192.** Earthen roads or low cost roads are generally constructed as
A. Trunk highways B. Link highways C. Collector roads D. Feeder roads
- 193.** Compaction of concrete slab is done with the help of
A. Light roller B. Heavy roller C. Vibrator D. Mixer
- 194.** Which of the following soil type is largely found in Afar Region?
A. Loamy soil B. Clayey soil C. Sandy soil D. Silt soil
- 195.** As per ERA the recommended land width for National Highway passing through plain area is normally
A. 25 metre B. 35 metre C. 45 metre D. 60 metre
- 196.** For class A Airport the difference of reduced levels of higher and lower edges of the control surface is
A. 25 m B. 50 m C. 75 m D. 100 m
- 197.** The road connecting capitals of states is known as
A. Trunk highway B. Link highway C. Main access highway D. Express highway
- 198.** The recommended safe co-efficient of friction is
A. 1.5 B. 0.15 C. 1/15 D. 15
- 199.** What is the minimum gradient according to ERA geometric design manual?
A. 0.5% B. 0.1% C. 1% D. 5%
- 200.** The convexity provided on the surface of a highway is known as
A. Camber B. Gradient C. Super elevation D. Curve
- 201.** Select the correct statement.
A. Nagpur road plan formula take into account the towns with very large population.
B. Nagpur road plan has a target road length of 32 km per 100 square km.
C. Second 20-year plan has provided 1600 km of expressways out of the proposed National highway.
D. Second 20-year plan allowed deduction of length of railway track in the area while calculating the length of roads.
- 202.** The thickness of the road surfacing depends upon the
A. Type of traffic B. intensity of traffic C. Type of material D. All of the above
- 203.** The sequence of four stages of survey in a highway alignment is
A. reconnaissance, map study, preliminary survey and detailed survey
B. map study, preliminary survey, reconnaissance and detailed survey
C. map study, reconnaissance, preliminary survey and detailed survey
D. preliminary survey, map study, reconnaissance and detailed survey
- 204.** A road sign indicates 'Keep Left' is
A. Warning sign B. Prohibitory sign C. Mandatory sign D. Informatory sign
- 205.** The shape of the camber, best suited for cement concrete pavements, is

- A. straight line B. parabolic C. elliptical D. combination of straight and parabolic
- 206.** In tack coat, bitumen is used at the rate of
A. 1 kg/m² B. 0.5 kg/m² C. 5 kg/m² D. 10 kg/m²
- 207.** For water bound macadam roads in localities of heavy rainfall, the recommended value of camber is
A. 1 in 30 B. 1 in 36 C. 1 in 48 D. 1 in 60
- 208.** If a cement concrete road is properly constructed and maintained, then its expected life will be
A. One year B. 10 years C. 20 years D. 30 to 40 years
- 209.** The stopping sight distance depends upon
A. total reaction time of driver B. speed of vehicle C. efficiency of brakes D. all of the above
- 210.** In hill road minimum sight distance required is
A. Stopping sight distance B. Passing, sight distance C. Braking distance D. None of these
- 211.** When the path travelled along the road surface is more than the circumferential movement of the wheels due to rotation, then it results in
A. slipping B. skidding C. turning D. revolving
- 212.** The ideal form the curve for the summit curve is
A. Spiral B. Parabola C. Circle D. Lemniscate
- 213.** Coefficient of friction is less when the pavement surface is
A. rough B. dry C. smooth and dry D. smooth and wet
- 214.** From the end of an instrument runway, the approach surface rises outward
A. 1 in 50 B. 1 in 30 C. 1 in 40 D. 1 in 80
- 215.** The shoulder provided along the road edge should be
A. rougher than the traffic lanes C. smoother than the traffic lanes
B. of same colour as that of the pavement D. of very low load bearing capacity
- 216.** The width of threshold markings is
A. 4m B. 10m C. 15m D. 20m
- 217.** Camber in the road is provided for
A. effective drainage C. counteracting the centrifugal force
B. having proper sight distance D. none of the above
- 218.** As per ERA the design period of Main access road is
A. 10years B. 20 years C. 15 years D. All the above
- 219.** Compared to a level surface, on a descending gradient the stopping sight distance is
A. less B. more C. same D. dependent on the speed
- 220.** On a single lane road with two way traffic, the minimum stopping sight distance is equal to
A. stopping distance C. two times the stopping distance
B. half the stopping distance D. three times the stopping distance
- 221.** The desirable length of overtaking zone as per ERA recommendation is equal to
A. overtaking sight distance C. two times the overtaking sight distance
B. three times the overtaking sight distance D. five times the overtaking sight distance
- 222.** Stopping sight distance is always
A. less than overtaking sight distance C. equal to overtaking sight distance
B. more than overtaking sight distance D. none of the above
- 223.** Reaction time of a driver

- A. increases with increase in speed C. decreases with increase in speed
 - B. is same for all speeds D. none of the above
224. If the stopping distance is 60 meters, then the minimum stopping sight distance for two lane, two way traffic is
- A. 30m B. 60m C. 120m D. 180m
225. The effect of grade on safe overtaking sight distance is
- A. to increase it on descending grades and to decrease it on ascending grades
 - B. to decrease it on descending grades and to increase it on ascending grades
 - C. to increase it on both descending and ascending grades
 - D. to decrease it on both descending and ascending grades
226. The ruling design speed on a Trunk Highway in plain terrain as per ERA recommendations is
- A. 60 kmph B. 80 kmph C. 100 kmph D. 120 kmph
227. The terrain may be classified as rolling terrain if the cross slope of land is
- A. up to 5% B. between 5% and 25% C. between 25% and 50% D. more than 50%
228. If b is the wheel track of a vehicle and h is the height of centre of gravity above road surface, then to avoid overturning and lateral skidding on a horizontal curve, the centrifugal ratio should always be
- A. less than $b/2h$ and greater than co-efficient of lateral friction
 - B. less than $b/2h$ and also less than co-efficient of lateral friction
 - C. greater than $b/2h$ and less than co-efficient of lateral friction
 - D. greater than $b/2h$ and also greater than coefficient of lateral friction
229. As per ERA recommendations, the maximum limit of super elevation for mixed traffic in plain terrain is
- A. 1 in 15 B. 1 in 12.5 C. 1 in 10 D. equal to camber
230. For the design of super elevation for mixed traffic conditions, the speed is reduced by
- A. 15% B. 20% C. 25% D. 75%
231. On a horizontal curve if the pavement is kept horizontal across the alignment, then the pressure on the outer wheels will be
- A. more than the pressure on inner wheels
 - B. less than the pressure on inner wheels
 - C. equal to the pressure on inner wheels
 - D. Zero
232. For a constant value of coefficient of lateral friction, the value of required super-elevation increases with
- A. increase in both speed and radius of curve
 - B. decrease in both speed and radius of curve
 - C. increase in speed and with decrease in radius of curve
 - D. decrease in speed and with increase in radius of the curve
233. To calculate the minimum value of ruling radius of horizontal curves in plains, the design speed is given by
- A. 8 kmph B. 12kmph C. 16kmph D. 20 kmph
234. The absolute minimum radius of curve for safe operation for a speed of 110 kmph is
- A. 110 m B. 220 m C. 440 m D. 577 m
235. The attainment of super elevation by rotation of pavement about the inner edge of the pavement

- A. is preferable in steep terrain
 - B. results in balancing the earthwork
 - C. avoids the drainage problem in flat terrain
 - D. does not change the vertical alignment of road
- 236.** Select the correct statement.
- A. Psychological extra widening depends on the number of traffic lanes.
 - B. Mechanical extra widening depends on the speed of vehicle.
 - C. Psychological extra widening depends on the length of wheel base.
 - D. Psychological extra widening depends on the speed of vehicle.
- 237.** In case of hill roads, the extra widening is generally provided
- A. equally on inner and outer sides of the curve
 - B. fully on the inner side of the curve
 - C. fully on the outer side of the curve
 - D. one-fourth on inner side and three-fourth on outer side of the curve
- 238.** The transition curve used in the horizontal alignment of highways as per ERA recommendations is
- A. spiral B. lemniscate C. cubic parabola D. any of the above
- 239.** Which of the following compacting equipment's is NOT used for road construction?
- A. Smooth wheel Roller
 - B. Pneumatic tired roller
 - C. Sheep foot roller
 - D. Lorries and Pneumatic tired
 - E. Track laying Vehicle
 - F. None
- 240.** The factors which affects Compaction during road construction?
- A. Water content
 - B. Amount and type of compaction
 - C. Type of soil
 - D. Addition of mixture
 - E. All