BE Semester-_IV___ (CIVIL) Question Bank

(HIGHWAY ENGINEERING)

All questions carry equal marks(10 marks)

<table>
<tr><td>Q.1</td><td>What are the characteristics of road transport? Explain IRC, Central road fund</td></tr>
<tr><td>Q.2</td><td>Give classification of highways according to Nagpur road plan. Give formula of Length of NH, SH and MDR as per Nagpur road plan</td></tr>
<tr><td>Q.3</td><td>What are the controlling factors for highway alignments, describe in detail</td></tr>
<tr><td>Q.4</td><td>Describe salient features of second 20 year plan</td></tr>
<tr><td>Q.5</td><td>The following data refers for backward area calculate the length of diff. categories of
Roads. As per IInd 20 year plan formula
I total area= 18400. km² . II Developed and agriculture area=7500 km²
III Undeveloped area= 4800 km² population range given below
<table>
<tr><td>Population range</td><td><500</td><td>501-1000</td><td>1001-2000</td><td>2001-5000</td><td>5001-10000</td><td>10001-20000</td></tr>
<tr><td>No. of villages& towns</td><td>210</td><td>350</td><td>750</td><td>360</td><td>150</td><td>80</td></tr>
</table></td></tr>
<tr><td>Q.6</td><td>What preliminary and detail surveys to be carried out for new highway project? Describe in detail.</td></tr>
<tr><td>Q.7</td><td>What are the highway cross-section elements. Explain skid and slip phenomena.</td></tr>
<tr><td>Q.8</td><td>Draw cross-section of national highway in embankments and cross-section of divided Highway in urban area</td></tr>
<tr><td>Q.9</td><td>Explain by drawing sketch cross slope or camber. Why it is required to be provided?</td></tr>
<tr><td>Q.10</td><td>what is sight distance? Explain lagging distance and braking distance.</td></tr>
<tr><td>Q.11</td><td>explain by drawing sketch overtaking sight distance.</td></tr>
<tr><td>Q.12</td><td>the radius of horizontal curve is 100.0m. The design speed is 65kmph. Calculate Super elevation to be provided.</td></tr>
<tr><td>Q.13</td><td>What is necessity of extra widening of pavement on horizontal curve? Explain by Drawing sketch.</td></tr>
<tr><td>Q.14</td><td>Describe in detail human and vehicular characteristics</td></tr>
<tr><td>Q.15</td><td>calculate the stopping sight distance for design speed of 90.0 kmph. Reaction time=2.5 sec.Coefficient of friction= 0.31</td></tr>
<tr><td>Q.16</td><td>explain necessity of providing vertical curves in highway alignment, also explain simple curves</td></tr>
<tr><td>Q.17</td><td>What is the necessity of traffic volume study? how it is carried out?</td></tr>
<tr><td>Q.18</td><td>Define the terms (i) traffic density (ii) traffic flow (iii) bacic capacity
(iv) practical capacity (v) speed and delay studies</td></tr>
<tr><td>Q.19</td><td>What is necessity of traffic signs ? explain by drawing sketch any three types of Traffic signs.</td></tr>
<tr><td>Q.20</td><td>draw neat sketch of traffic rotary also show movements.</td></tr>
<tr><td>Q.21</td><td>draw the sketch of sight distance at horizontal curve and sight distance at intersection.</td></tr>
<tr><td>Q.22</td><td>What are the basic materials used for construction of roads, enlist the various</td></tr>
</table>

	tests To be carried out
Q.23	write short note on highway marking with sketch.
Q.24	explain types of pavements with sketch.
Q.25	What are the factors to be considered in design of pavements
Q.26	enlist different methods of flexible pavements describe in detail any one.
Q.27	What are requirements of expansion and contraction joints in rigid pavements
Q.28	Explain tie bar and dowel bars in rigid pavements
Q.29	Explain how climatic variations affects in design of pavements.
Q.30	Describe Group Index Method of flexible pavement design.
Q.31	Calculate thickness of bituminous mat using triaxial method E- value of sub grade=90kg/cm² E value of paving material =900kg/cm² Wheel load =5100kg Tyre pressure= 7.0 kg/cm² Traffic coefficient= 1.25 Saturation coefficient=0.8
Q.32	What are the causes of pavement failure? Draw sketch of failure of wearing course.
Q.33	describe the construction procedure of WBM road
Q.34	Calculate the absolute minimum and ruling radius of horizontal curve for design speed of 80kmph.
Q.35	What are the objects of providing transition curve on horizontal alignment
Q.36	What are the tests to be carried out for good aggregates? Explain in detail impact test
Q.37	Draw the sketches of parking layout (a) parallel (b) Angular
Q.38	Give the formula for radius of relative stiffness in cm for rigid pavement, explain all parameters
Q.39	Describe the procedure of Benkelman beam for evaluation of pavement surface
Q.40	Draw the sketch of road side aboriculture and highway lighting