

No. of Printed Pages : 4  
Roll No. .... 180752/170752/120752  
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**5th Sem. / Civil., Constr. Mgmt., Civil Engg.  
(Spl Highway Engg.)  
Subject : Highway Engineering**

Time : 3 Hrs. M.M. : 100

**SECTION-A**

**Note: Multiple type Questions. All Questions are compulsory. (10x1=10)**

- Q.1 The organization which recommends specifications for roads in India  
a) MOST b) CRRI  
c) IRC d) NAHI
- Q.2 The permissible gradient which is convenient for all type of vehicle is :  
a) Minimum Gradient b) Limiting Gradient  
c) Ruling Gradient d) Exceptional Gradient
- Q.3 The final survey of road alignment is the :  
a) Reconnaissance Survey  
b) Location Survey  
c) Land Survey  
d) Traffic Survey
- Q.4 Bitumen of grade 60/70 indicate that its \_\_\_\_\_ lies between 60 and 70  
a) Crushing Value b) Impact Value  
c) Penetration Value d) Softening Point

- Q.5 Joint in the roads are necessarily constructed in :  
a) Gravel Road b) Cement Concrete Road  
c) WBM Road d) Bituminous Road
- Q.6 The drains which are provided below the road bed for water cross drainage are:  
a) Cross Drains b) Side Gutter Drains  
c) Under Drains d) Catch Water Drains
- Q.7 The process of disposing off the water across the road by intercepting it:  
a) Sub-Surface Drainage b) Cross Drainage  
c) Surface Drainage d) None of these
- Q.8 Ruts are formed in flexible pavements due to :  
a) Iron wheeled bullock carts  
b) Excessive use of bitumen  
c) Damage to wearing course due to fast moving vehicle  
d) Distressed Value
- Q.9 A machine which can perform digging much below its locating position:  
a) Scraper b) Dragline  
c) Grader d) Shovel
- Q.10 A closed structure at airport to park aircraft for maintenance is :  
a) Apron b) Airfield  
c) Aerodrome d) Hanger

**Section-B**

**Note: Objective type questions. All questions are compulsory. (10x1=10)**

- Q.11 Define all weather roads.  
Q.12 Define camber.

- Q.13 Define preliminary survey.
- Q.14 Write the materials used in highway construction.
- Q.15 What is soil stabilization?
- Q.16 What is bridle path?
- Q.17 Write the types of causeway.
- Q.18 Define cracking.
- Q.19 What is hot mix plant?
- Q.20 Define airfield.

### Section-C

**Note: Short answer type Question. Attempt any twelve questions out of fifteen Questions. (12x5=60)**

- Q.21 What does IRC stand for? Write its functions and list the IRC classification of roads.
- Q.22 Define gradient. Write the factors affecting the gradient for a road. List its types.
- Q.23 What is sight distance? Explain different types of sight distances.
- Q.24 Discuss the basic considerations governing the road alignment in plain area.
- Q.25 What is reconnaissance survey? Enlist its objectives and the information to be collected.
- Q.26 Enlist any five requirements of a good road aggregates.
- Q.27 Define the softening point for bitumen. Explain the procedure to determine it in the laboratory.
- Q.28 What is the rigid pavement. Write its merits and demerits.

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- Q.29 Write difference between a base course and a sub base course.
- Q.30 Define landslides. Write classification and causes of landslides.
- Q.31 Define road drainage. List the requirements of a good road drainage system.
- Q.32 What is the road maintenance? State the common causes of failure of flexible roads.
- Q.33 Define pot hole. State the causes of formation and the remedial measures to be taken.
- Q.34 State the difference between a dragline and a power shovel.
- Q.35 State the necessity of studying the airport engineering.

### Section-D

**Note: Long answer questions. Attempt any two question out of three Questions. (2x10=20)**

- Q.36 Define curve. Write necessity and advantages of providing curves. Explain different types of horizontal curves provided in highways giving sketches.
- Q.37 Define water bound macadam road. Explain the method of its construction. Write the advantages and disadvantages.
- Q.38 Write notes on the following:
  - a) Lowering the water table
  - b) Seepage control
  - c) Capillary control

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