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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 it's the 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.

- 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