17982

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3 Hours / 100 Marks Seat No. | | | | | | | | |

Instructions – (1) All Questions are *Compulsory.*

(2) Answer each next main Question on a new page.

(3) Illustrate your answers with neat sketches wherever necessary.

(4) Figures to the right indicate full marks.

(5) Assume suitable data, if necessary.

(6) Use of Non-programmable Electronic Pocket Calculator is permissible.

(7) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. Attempt any TEN of the following: **20**

a) Write any four advantages of road.

b) State the classification of roads according to Nagpur road plan.

c) Define road alignment.

d) Enlist various drawings required for road project.

e) Define Camber.

f) What is sight distance.

g) Write two functions of aggregate in road construction.

h) Enlist any two tests on bitumen.

i) Show the road signs for:

(i) Speed limit

(ii) No parking

P.T.O.

Marks

j) Write any two uses of traffic volume studies.

k) State various types of curves provided on hill roads.

l) What is land slide?

m) State the types of road drainage.

n) Draw a sketch of mud pumping in cement concrete road.

2. Attempt any TWO of the following: **16**

a) Explain the different survey operations carried out during the fixing of alignment of a road.

b) Draw a sketch of structure of road pavement. Write any four requirements of good road pavement.

c) Calculate the stopping sight distance for a road having design speed of 60 kmph. The brake efficiency is 50% and the reaction time of the driver is 3 seconds.

3. Attempt any TWO of the following: **16**

a) Draw a sketch of power shovel write operations of power shovel.

b) Explain the construction procedure of cement concrete road.

c) Calculate the design speed of vehicle on a horizontal curve having radius of 100 m with permissible super elevation of 7% consider coefficient of friction 0.18.

4. Attempt any TWO of the following: **16**

a) What is super-elevation. What is minimum and maximum value of super elevation. Write any four advantages of super elevation.

b) Write difference between flexible pavement and rigid pavement (any eight points)

c) State the uses of various types of rollers used in construction of roads.

Marks

5. Attempt any TWO of the following: **16**

a) State the various types of road intersection. Explain any one with sketch.

b) Draw a typical sketch of cross-section of hill road. Write its component parts.

c) (i) How is the maintenance of WBM road carried out?

(ii) Draw a sketch of formation of ruts.

6. Attempt any TWO of the following: **16**

a) State the uses of following:

(i) Bulldozers

(ii) Graders

(iii) JCB

(iv) Drag lines

b) Why joints are necessary in cement concrete roads. Draw sketches:

(i) Expansion joint

(ii) Contraction joint

c) (i) Draw a sketch of road in embankment.

(ii) Draw a sketch of different types of transition course.