17418

16172

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) 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) Define the term alignment in bridges.

b) Enlist modes of transportation system.

c) Enlist two advantages of railways.

d) Enlist two disadvantages of tunnels.

e) Define Gauge of railway track.

f) Enlist any four types of tunnel as per shapes.

g) Define HFL and freeboard.

h) State the necessity of track maintenance.

i) Enlist two requirements of Piers.

j) Define bearing and approaches.

k) Define tunnel and tunnel ventilation.

l) Define wing wall and abutment.

m) State component parts of bridges.

n) Define permanent way and sleeper density.

Marks

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

a) State the role of transportation in the development of nation.

b) Define gradient. Explain two types of gradient.

c) Define points and crossing. Draw neat sketch of neatly diamond crossing.

d) State the duties of permanent way inspector and gang mate.

e) State the requirements of ideal sleepers.

f) Define stock rail, wing rail, check rail and angle of crossing in turnout.

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

a) Classify bridge according to function, material, span and alignment.

b) Describe in brief maintenance of bridges.

c) Draw neat sketches of fixed plate bearing and rocker bearing.

d) State propose of temporary bridge and types of temporary bridges.

e) Describe in brief factors affecting bridge site selection.

f) Enlist types of culvert and explain any one type with a neat sketch.

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

a) State the precautions to be taken white construction of tunnels.

b) Define shaft. State the four purposes of providing shafts in tunnels.

c) Define tunnel lining and state purpose of lining of tunnel.

d) Explain in brief transferring of centre line is inside the tunnel with a neat sketch.

e) Draw tunnel cross-section for railway track.

f) Describe in brief types of explosives used in tunnelling.

Marks

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

a) (i) Draw a neat sketch of a bridge. Show and label all the component parts.

(ii) Define the following terms:

1) Afflux

2) Effective span

3) Economic span

4) Clear span

b) Enlist methods for tunnelling in hard rock. Explain any one with neat sketch.

c) Draw a c/s of a broad gauge double line railway track in Embarkment and name its components and state factors affecting while selection of gauge.

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

a) Explain with sketch coning of wheels.

b) Explain super elevation and negative cart.

c) Explain requirements of passenger Bogie yard.

d) Enlist types of bridge foundation. Explain any one type with neat sketch.

e) Explain needle bean method of tunnelling in soft rock with sketch.

f) Enlist methods of ventilation of tunnel and explain any one method with neat sketch.
