17640

21718

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) Use of Non-programmable Electronic Pocket Calculator is ***permissible****.*
(6) Mobile Phone, Pager and any other Electronic Communication devices are ***not*** *permissible in Examination Hall.*

Marks

1. A) Attempt **any three** of the following : **12**

i) Draw a neat labelled diagram of feeding post.

ii) State any four miscellaneous equipments at control post with their function.

iii) State any four advantages of automatic weight tensioning and temperature compensation.

iv) Compare DC and AC track circuits on :

i) Length of circuit

ii) Application

iii) Effect of stay currents

iv) Maintenance

B) Attempt **any one** of the following : **6**

i) Draw symbols of any six signalling boards of OHE. Write the meaning of each.

ii) Define mimic diagram and explain how it enables TPC to visualise the whole of the power supply system.

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

a) Give the purpose and location of uninsulated overlap and insulated overlap.

b) Explain with neat sketch, the three aspect colour light signalling.

c) Write any four important points related to the construction of feeding post.

d) State any four points by which traction transformer differs from ordinary transformer.

e) With neat sketch explain protection scheme used for traction transformer.

P.T.O.

Marks

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

a) List two major equipments at traction sub station with their functions.

b) Describe the criteria for designing height of contact wire for OHE.

c) List any eight equipments used in auxiliary circuit of electric locomotive.

d) Explain the need of maintenance of electric locomotive.

e) State four important features of LEM that differ it from normal electric motor.

4. A) Attempt **any three** of the following : **12**

a) List different types of OHE supporting structures and describe any one of them.

b) Compare pole collector with bow collector (any 4 points).

c) State the meaning of end on generation. State any three advantages of end on generation.

d) Draw and explain construction of faireley type of pantograph collector.

B) Attempt **any one** of the following : **6**

i) State one application each of technically feasible LEM propelled transport system based on suspension used (any six).

ii) For a traction transformer circuit breaker

State – 1) rated current and rupturing capacity

2) any two tests it should be capable of withstanding

3) overall tripping time and relay time.

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

a) i) Give any four important features of moving primary and fixed secondary single sided LIM.

ii) Draw the labelled diagram of power circuit of AC locomotive.

b) List any four constituents of supply system for traction.

c) With the help of neat labelled diagram, explain the working of double battery parallel block system used in train lighting.

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

a) i) What are the advantages of VF signalling over DC signalling for remote control operation ?

ii) Explain with necessary diagram the earth fault protection of auxiliary circuit of locomotive.

b) List any four types of electrical faults that may occur on electric locomotive with their causes.

c) Explain in brief the purpose of following equipments in AC locomotive :

i) Circuit breaker

ii) Tap changer

iii) Smoothing reactor

iv) Transformer.