

C-4676

Sub. Code

84111

**DIPLOMA EXAMINATION
RAIL SAFETY ENGINEERING
APRIL 2021 EXAMINATION**

&

APRIL 2020 ARREAR EXAMINATION

Non - Semester

HISTORY AND EVOLUTION OF INDIAN RAILWAYS

(2019 onwards)

Duration : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Expansion GIPR Railways.
2. Define Meter guage in Railway.
3. Explain Famine and Economic growth.
4. Define Electrification and Hard times.
5. Expansion of UNESCO.
6. Describe Manufacturing.
7. Describe ICF & its Expansion.
8. Expansion for (i) RCF, (ii) MCF.

9. Safety Systems in Railways.
10. Expand WHO.

Part B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain the history of Indian Railways.

Or

- (b) What are the safety steps to be followed while approaching a train?

12. (a) Explain the advantages of trains over buses.

Or

- (b) Explain different categories, types of coaches, different classes of Indian Railways.

13. (a) Explain in detail about first Bombay to Thane services.

Or

- (b) Explain in detail about electrified Rail services.

14. (a) Difference between integral coach factory and factory and Rail coach Factory.

Or

- (b) Types of coaches in Indian Railways explain detail.

15. (a) Explain about Bihar Train Disaster.

Or

- (b) Firozabad Rail Disaster.

Part C

(3 × 10 = 30)

Answer **all** questions, choosing either (a) or (b).

16. (a) What are the different classes of Travel in Indian Rails?

Or

- (b) How a book a Train in safer manner and its Fare rates?

17. (a) Infrastructure of Indian Railways Explain Briefly.

Or

- (b) Capacity of Indian Railways to Manufacturing.

18. (a) Explain the collision of Awadhi Assam Express.

Or

- (b) State Advantages of Dhanushkodi passenger Express.

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DIPLOMA EXAMINATION
RAIL SAFETY ENGINEERING
APRIL 2021 EXAMINATION
&
APRIL 2020 ARREAR EXAMINATION
Non - Semester
CONSTRUCTION SAFETY IN RAILWAYS
(2019 onwards)

Duration : 3 Hours

Maximum : 75 Marks

Part - A

(10 × 2 = 20)

Answer **all** questions.

1. Define Hazard.
2. What are the types of PPE?
3. Define BOCW act 1996.
4. Explain the causes of accidents.
5. Define hazard and its types.
6. What is precautions for firing?
7. How to disposal of explosives piling?
8. Define general safety measures on piling.

9. What is erection?
10. Define ladders safety.

Part - B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) What is PPE? Explain each and every parts in our body protection.

Or

- (b) What is welfare and explain about (i) Sanitary facilities (ii) Washing (iii) Food drink & meals facilities.

12. (a) Explain about confined space and its safety precautions.

Or

- (b) What are the types of accidents and its safety precautions.

13. (a) Define cranes and explain the types of cranes with briefly.

Or

- (b) Define excavation and its safety precautions.

14. (a) Define planning for erection and its equipments.

Or

- (b) What are the types of ladders and its usage for safe manners?

15. (a) Define electrical shock and its safety precautions.

Or

- (b) What are the safety precautions for: (i) Welding (ii) Grinding (iii) Cutting.

Part - C

(3 × 10 = 30)

Answer **all** questions, choosing either (a) or (b).

16. (a) Define respiratory and non respiratory protection. Explain briefly.

Or

- (b) Explain briefly about BOCW act,1996.

17. (a) Explain briefly about Indian explosives act, 1984. Give some points.

Or

- (b) Explain briefly: (i) Hazards and its safety precautions (ii) Drilling and blasting (iii) Handling and explosives.

18. (a) Define electric shock and treatment of electric shock.

Or

- (b) Portable electrical tools and equipment and explain about hot work and cold work with safety precautions.

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84113

**DIPLOMA EXAMINATION
RAIL SAFETY ENGINEERING
APRIL 2021 EXAMINATION**

&

APRIL 2020 ARREAR EXAMINATION

Non - Semester

ELECTRICAL SAFETY

(2019 onwards)

Duration: 3 Hours

Maximum : 75 Marks

Part - A

(10 × 2 = 20)

Answer **all** questions.

1. Define electricity.
2. Define power.
3. Explain fuse and its uses.
4. Define LOTO and its uses.
5. What is earthing?
6. What is resistance?
7. Define conductor.
8. Expand ELCB, MCB, RCD.

9. Mentions the hazards associated with electricity.
10. Define voltage.

Part - B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Define hazard and give example. Explain in detail about hazards associated with electricity.

Or

- (b) Give safety measures for electrical work.

12. (a) Define the following: (i) Earthing (ii) Arcing (iii) Insulation (iv) Static electricity.

Or

- (b) Explain earthing and fuse and its advantages.

13. (a) What is electrical guarding? Explain the uses of ELCB.

Or

- (b) What is FRLS insulation? Explain it in detail.

14. (a) Explain the inspection procedures on electrical equipment cables.

Or

- (b) Explain self diagnostic features and fail safe concepts.

15. (a) Explain corona effect in detail.

Or

- (b) Explain electrical safety code.

Part - C

(3 × 10 = 30)

Answer **all** questions, choosing either (a) or (b).

16. (a) Explain in detail about International standards in electrical safety.

Or

- (b) What are the hazards in electrical works? Explain in detail about CPR.

17. (a) What are the portable tools? Explain in detail about hazards and safety measures to handle power tools.

Or

- (b) What is static electricity? How to remove the formation of static electricity?

18. (a) Explain in detail about the safety devices in electrical equipments.

Or

- (b) Explain in detail about inspections and maintenance procedure for cables and power tools.

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84114

DIPLOMA EXAMINATION
RAIL SAFETY ENGINEERING
APRIL 2021 EXAMINATION
&
APRIL 2020 ARREAR EXAMINATION
Non - Semester
HEAVY MATERIAL HANDLING - METHODS AND
SYSTEMS
(2019 onwards)

Duration : 3 Hours

Maximum : 75 Marks

Part - A

(10 × 2 = 20)

Answer **all** questions.

1. Define accident.
2. Define injury and give examples.
3. What is manual handling?
4. Expand MSD and WRULD.
5. What are the uses of safe load indicator?
6. Define rigging.
7. What are all the safety devices in powered forklift?
8. Define hazard and risk.
9. Mention few hazards in conveyors.
10. Expand SWL and give its uses.

Part - B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Define injuries. Mention its types and explain in detail about the types of injuries.

Or

- (b) Explain in detail about MSD and WRULD.

12. (a) What is crane? Explain its types in detail.

Or

- (b) What are all the reasons for crane accidents? Give safety measures for safe operation of cranes.

13. (a) Define derricks. Explain the types of derrick in detailed manner.

Or

- (b) Define conveyors. Explain the hazards in conveyor and give its safety procedures.

14. (a) What are the maintenance and testing inspection procedure for wire ropes, slings?

Or

- (b) What are the lifting procedure for manual handling?

15. (a) What are the hazards in crane? Give the sock working procedure for EOT crane.

Or

- (b) Explain in detail about escalator safety.

Part - C

(3 × 10 = 30)

Answer **all** questions, choosing either (a) or (b).

16. (a) Define ergonomics and what are all Ergonomical hazards, injuries, diseases due to poor ergonomical design? Explain the proper working posture.

Or

- (b) Explain in detail about conveyor safety.

17. (a) Explain in detail about inspection, maintenance and testing procedures for crane.

Or

- (b) Explain in detail about road safety.

18. (a) Explain in detail about manual handling injuries and give its safety control measures.

Or

- (b) Explain in detail about JSA.

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84115

DIPLOMA EXAMINATION
RAIL SAFETY ENGINEERING
APRIL 2021 EXAMINATION
&
APRIL 2020 ARREAR EXAMINATION
Non - Semester
BEHAVIOUR BASED SAFETY
(2019 onwards)

Duration : 3 Hours

Maximum : 75 Marks

Part - A

(10 × 2 = 20)

Answer **all** questions.

1. Define Sustainable Safety and its Five Principles.
2. Define Safety Culture.
3. What are the four key processes on BBS?
4. Define Organizational performance Model.
5. Three Ways to increase safety Motivation and its Uses.
6. Define "TRAINING" and "FEEDBACK".
7. How to Implementation the BBS?
8. Define Incentives and Rewards.

9. Define Analyzing, Developing and Evaluating.
10. Safety Training Methods (STM).

Part - B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain Safety Culture and its Maturity Ladder.

Or

- (b) Why Safety Behavior Need to Implementation?

12. (a) The six pillars of Behavior based safety Explain Briefly.

Or

- (b) Evolution and Importance of BBS Management.

13. (a) How to Eliminate the Occupational Hazards?

Or

- (b) Briefly Explain about Organization's Safety Culture, Measurement and Accountability.

14. (a) How to Maintain the Behavior Safety process?

Or

- (b) Types of BBS Training in any Specific Work place.

15. (a) Briefly Explains Ladder.

Or

- (b) Why Safety Behavior Need to Implementation?

Part - C

(3 × 10 = 30)

Answer **all** questions, choosing either (a) or (b).

16. (a) Physical Environment and conditions of safety systems and training explain briefly?

Or

- (b) Explains about OSHA Lines, workman Compensation costs.

17. (a) Explain BBS in Phase I, II, III.

Or

- (b) How to Educate a safety and gives training to workers and its Benefits?

18. (a) Explain and detail about consequences of Bad Safety Culture and Effectiveness of Good Safety Culture.

Or

- (b) Explain the type of Training and Merits and Demerits of Training.

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84116

**DIPLOMA EXAMINATION
RAIL SAFETY ENGINEERING
APRIL 2021 EXAMINATION**

&

APRIL 2020 ARREAR EXAMINATION

Non - Semester

FIRE SAFETY

(2019 onwards)

Duration: 3 Hours

Maximum : 75 Marks

Part - A

(10 × 2 = 20)

Answer **all** questions.

1. Define fire.
2. Define mode of heat transfer.
3. Define hazards.
4. What are the classification of hazards?
5. What are the uses of detectors?
6. What is hydrants and sprinklers?
7. Explain fire monitors.
8. Define fire extinguishers.

9. Explain fire tetrahedron.
10. Explain classification of fires.

Part - B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain about the safe operating method of fire extinguishers.

Or

- (b) What are all the general causes of fire?

12. (a) Explain the types of fire extinguishers in detail.

Or

- (b) Explain all the types of hazards in a detailed manner with examples.

13. (a) Explain all the types of smoke, heat detectors and its working principle.

Or

- (b) Prepare a checklist for detector inspection.

14. (a) Define the following:
 - (i) Fire triangle
 - (ii) Fire Tetrahedron
 - (iii) Explosion pentagon
 - (v) Classes of fire

Or

- (b) Explain:
 - (i) Fire load
 - (ii) Frequency rate
 - (iii) Severity rate.

15. (a) Explain the pumps in fire hydrant system.

Or

(b) Explain the types of hoses and nozzles in fire hydrant system.

Part - C

(3 × 10 = 30)

Answer **all** questions, choosing either (a) or (b).

16. (a) Explain in detail about selection, installation and maintenance of fire extinguishers.

Or

(b) Explain about fire escape plan in detail.

17. (a) Explain in detail about fire hydrant system with diagram.

Or

(b) Explain in detail about selection, maintenance and installation of fire hydrant system.

18. (a) What are the fire safety measures in public places and temporary occupancies?

Or

(b) Explain in detail about selection, installation and maintenance of smoke detector system.

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84117

DIPLOMA EXAMINATION
RAIL SAFETY ENGINEERING
APRIL 2021 EXAMINATION
&
APRIL 2020 ARREAR EXAMINATION
Non - Semester
STANDARD ON RAIL SAFETY
(2019 onwards)

Duration : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Expand ISO and Define it.
2. Expand and Define IRIS.
3. What is ISO/ IS 22163?
4. Expand ICF.
5. What is the first railway rate in freedom India?
6. Who is the first women LOCO pilot in freedom India?
7. In Which city in India metro train services installed first?
8. Mention few responsibilities of safety officer.

9. Define ISO 45001?
10. What is Moto of ISO 14001?

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain about ISO 45001 audit in Industries and give its benefits of implementation.

Or

- (b) Identify the benefits Of IRIS.

12. (a) Explain about Assessment Methodology in IRIS Standard.

Or

- (b) What are all the Management Responsibility in implementation of Iris Standard.

13. (a) Explain about ISO/IS 22163 Standard And Mention its benefits.

Or

- (b) Explain the process, planning, support and operation of ISO/IS 22163 standard.

14. (a) Explain about ISO 9001.

Or

- (b) Explain in detail about housekeeping in industries.

15. (a) What are the requirements of ISO 45001?

Or

- (b) Mention All The Advantages And Disadvantages Of Safety.

Part C

(3 × 10 = 30)

Answer **all** questions, choosing either (a) or (b).

16. (a) Explain in detail about Iris standards and its benefits.

Or

- (b) Mention the responsibilities of Manager, Supervisor.

17. (a) Explain in detail about ISO 45001:2018.

Or

- (b) Explain in detail about ISO 9001:2015.

18. (a) Explain in details of issue of certifications Annual Supervisor, Recertification Audit.

Or

- (b) Explain in detail about Rail Quality System.

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84118

**DIPLOMA EXAMINATION
RAIL SAFETY ENGINEERING
APRIL 2021 EXAMINATION**

&

APRIL 2020 ARREAR EXAMINATION

Non - Semester

RAIL SAFETY

(2019 onwards)

Duration : 3 Hours

Maximum : 75 Marks

Part - A

(10 × 2 = 20)

Answer **all** questions.

1. Define Railways.
2. What are the causes of railway accidents?
3. Define overload in electrical.
4. What is meant by Hazard?
5. Explain Energy Leakage.
6. Define Static Electricity.
7. Explain Lighting Arrestor.
8. Write the expansion of MSDS.

9. Why we take an Air Sampling?
10. Expansion and definition of ZMS.

Part - B

(5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) What are the safety precautions while carrying hazardous goods.

Or

- (b) What are the type of accidents with block diagram and its explanations?

12. (a) Write in detailed about the electrical faults and explain briefly with examples.

Or

- (b) Define EMF and classes of insulations.

13. (a) Explain in detailed about the causes for fire, arc, blast and shock.

Or

- (b) Explain Overloads and Short Circuit with examples.

14. (a) What is MSDS and Explain its under 16 Sections.

Or

- (b) Write short notes on:

- (i) Dust sample collections.
(ii) Gas and vapor monitor.

15. (a) Explain briefly Machine Guarding Types and Its Advantages.

Or

- (b) Write short notes on:
- (i) Slip
 - (ii) Trip
 - (iii) Fall with suitable examples.

Part - C (3 × 10 = 30)

Answer **all** questions, choosing either (a) or (b).

16. (a) Define CPR And When Its Uses.

Or

- (b) Explain Briefly Lighting Hazards, Lighting Arrestor, Earthing & Earth Resistance?

17. (a) How to handling a Chemical Explosion?

Or

- (b) Write in detail about control measures of chemical explosion.

18. (a) Explain policy of ZMS and advantages of machine guarding.

Or

- (b) Write short notes on:
- (i) Drilling
 - (ii) Lathe
 - (iii) Boring
 - (iv) Milling
 - (v) Grinding.