

Name of Job Role with Level	Basics of Risk Analysis and Accident Prevention Methods (NSQF Level 4)	MC Code (Level)		SSD/M0102 (NSQF Level 4)	
Type of Question Paper (Theory/ Practical)	(Multiple Choice Questions)	Batch Name/ Batch Id			
Duration:	1 Hour	Max Mark	(50)	Obtained Marks	
Name of Candidate		Aadhaar Number			
Candidate's Father Name		Candidate Signature			
Assessor Name and Signature		Trainer Name and Signature			
TP Name		TC Name			
TP/TC Stamp with Signature		Date			

INSTRUCTIONS TO THE CANDIDATES

1. Candidate should present in the examination centre 15 minutes prior to the start of the examination.
2. No candidate will leave the examination Hall/Centre before the _____. If any candidate leaves centre before _____ will be counted absent.
3. Write your name, Aadhaar Number, father name, Signature clearly in the designated space.
4. Use of Calculators/ Mobile Phone is not permitted during assessment.
5. Use only Black or Blue ball point pen. Don't do any rough work in paper.
6. Do not mark multiple answers for one question, in case of multiple marking, you will not be given any marks for that question.
7. The overall passing percentage will be 90%. Pass the qualification pack, every.
8. Trainee should score a minimum of 80% individually in each NOS.



**Basics of Risk Analysis and Accident Prevention Methods
(NSQF Level 4)**

Theory- 50 marks

Duration- 60 minutes (1 hr.)

Marks Scored:

Name:	
Father's Name:	
Date:	
Centre:	
Batch Id:	
Candidate's Id:	

SECTION: A [Multiple Choice Questions

Tick the correct option and do not overwrite in the marked answers

**PC-1: Understand basic definitions- incident, accident, Injury, lost time injury, unsafe condition, unsafe Acts, dangerous occurrences, hazards, error, near miss.
 . (5*1=5 Marks)**

01	What is the primary difference between an incident and an accident			
	<input type="checkbox"/>	A. An incident always results in injury	<input type="checkbox"/>	B. An accident is a planned event
	<input type="checkbox"/>	C. An accident results in injury or damage, while an incident may not	<input type="checkbox"/>	D. An incident causes environmental damage only
02	What does "LTI" stand for in workplace safety?			
	<input type="checkbox"/>	A. Lost Time Injury	<input type="checkbox"/>	B. Lost Technical Inspection
	<input type="checkbox"/>	C. Low Time Incident	<input type="checkbox"/>	D. Listed Time Investigation
03	Which of the following is an example of an unsafe act?			
	<input type="checkbox"/>	A. Slippery floor	<input type="checkbox"/>	B. Poor lighting
	<input type="checkbox"/>	C. Worker not wearing PPE	<input type="checkbox"/>	D. Defective ladder
04	A near miss is			
	<input type="checkbox"/>	A. An event with fatal injury	<input type="checkbox"/>	B. A dangerous occurrence that causes damage
	<input type="checkbox"/>	C. An unplanned event that did not result in injury but had the potential to do so	<input type="checkbox"/>	D. A type of unsafe condition
05	What is a hazard?			
	<input type="checkbox"/>	A. A process error	<input type="checkbox"/>	B. A type of accident
	<input type="checkbox"/>	C. A potential source of harm	<input type="checkbox"/>	D. An unsafe act

PC-2: Understand “Hazard Identification and risk assessment.”
. (5*1=5 Marks)

06	Which step comes first in hazard identification and risk assessment?			
	<input type="checkbox"/>	A. Evaluate risks	<input type="checkbox"/>	B. Record findings
	<input type="checkbox"/>	C Identify hazards	<input type="checkbox"/>	D. Review assessment
07	Risk is defined as:			
	<input type="checkbox"/>	A. The absence of hazard	<input type="checkbox"/>	B. The certainty of injury
	<input type="checkbox"/>	C. Likelihood x Severity of harm	<input type="checkbox"/>	D. An error in safety protocol
08	Which of the following is NOT a method of hazard identification?			
	<input type="checkbox"/>	A. Safety audit	<input type="checkbox"/>	B. Accident investigation
	<input type="checkbox"/>	C. Job interview.	<input type="checkbox"/>	D. Workplace inspection
09	Which document is used to systematically assess workplace risks			
	<input type="checkbox"/>	A. MSDS.	<input type="checkbox"/>	B Risk assessment form
	<input type="checkbox"/>	C. Incident report	<input type="checkbox"/>	D. Work order
10	The purpose of risk evaluation is to:			
	<input type="checkbox"/>	A. Remove the hazard	<input type="checkbox"/>	B. Determine the level of risk
	<input type="checkbox"/>	C. Assign blame for unsafe acts	<input type="checkbox"/>	D. Eliminate near misses

PC-3: Understand and carry out “HAZOP- Hazard, operability analysis” and “Job safety analysis.”
(5*1=5 Marks)

11 What is the full form of HAZOP			
<input type="checkbox"/>	A. Hazard and Operability Study	<input type="checkbox"/>	B. Hazardous Operations Plan
<input type="checkbox"/>	C. Hazard Observation Protocol	<input type="checkbox"/>	D. High Accuracy Operations Process
12 HAZOP is most useful for:			
<input type="checkbox"/>	A. Structural inspections	<input type="checkbox"/>	B. Financial audits
<input type="checkbox"/>	C. Identifying process deviations in systems	<input type="checkbox"/>	D. Determining equipment cost
13 Which guide word is used in HAZOP?			
<input type="checkbox"/>	A. Budget	<input type="checkbox"/>	B. None
<input type="checkbox"/>	C. Performance	<input type="checkbox"/>	D. Cost
14 JSA stands for:			
<input type="checkbox"/>	A. Job Study Arrangement	<input type="checkbox"/>	B. Job Safety Analysis
<input type="checkbox"/>	C. Joint Safety Agreement	<input type="checkbox"/>	D. Job Scope Assessment
15 The purpose of JSA is to:			
<input type="checkbox"/>	A. Identify job roles	<input type="checkbox"/>	B. Assess equipment needs
<input type="checkbox"/>	C. Identify hazards and prevent accidents	<input type="checkbox"/>	D. Improve job satisfaction

**PC-4: Understand theories of accident causation- Heinrich’s Domino theory, “Heinrich 300-29-1 model, “Ferrell’s Human Factor Model”, “Petersen’s Accident/Incident Model” and Reason’s Swiss Cheese Model”.
(5*1=5 Marks)**

16	Heinrich's Domino Theory emphasizes			
<input type="checkbox"/>	A. Role of human behaviour in incidents	<input type="checkbox"/>	B. The cost of damage	
<input type="checkbox"/>	C. The effect of weather	<input type="checkbox"/>	D. Risk perception	
17	In Heinrich's 300-29-1 model, what does 1 represent?			
<input type="checkbox"/>	A. Fatal accident	<input type="checkbox"/>	B. Major injury	
<input type="checkbox"/>	C. Minor accident	<input type="checkbox"/>	D. Unsafe act	
18	Ferrell's Human Factor Model primarily addresses:			
<input type="checkbox"/>	A. Mechanical failure	<input type="checkbox"/>	B. Human error and behaviour	
<input type="checkbox"/>	C. Financial risk	<input type="checkbox"/>	D. Environmental hazard	
19	Petersen's model incorporates which factor?			
<input type="checkbox"/>	A. Behavioural approach	<input type="checkbox"/>	B. Domino effect	
<input type="checkbox"/>	C. Lagging indicators	<input type="checkbox"/>	D. Safety cost	
20	Reason's Swiss Cheese Model highlights:			
<input type="checkbox"/>	A. Cheese production safety	<input type="checkbox"/>	B. Layers of defence in a system with possible holes	
<input type="checkbox"/>	C. Risk triangle	<input type="checkbox"/>	D. Risk probability matrix	

PC-5: Calculate “Frequency rate & Incident rate.” Calculate “Lost time case rate.”
(5*1=5 Marks)

21	Frequency rate is calculated using:			
	<input type="checkbox"/>	A. Number of accidents / Total employees	<input type="checkbox"/>	B. Number of lost days / Total working hours
	<input type="checkbox"/>	C. Number of injuries x 1,000,000 / Total hours worked	<input type="checkbox"/>	D. Total hours worked / Number of injuries
22	Incident rate includes			
	<input type="checkbox"/>	A. Only fatal accidents	<input type="checkbox"/>	B. All reportable injuries
	<input type="checkbox"/>	C. Only near misses	<input type="checkbox"/>	D. Only LTIs
23	Which parameter is essential for calculating Lost Time Case Rate (LTCR)?			
	<input type="checkbox"/>	A. Number of property damages	<input type="checkbox"/>	B. Total man-days lost
	<input type="checkbox"/>	C. Total number of lost time cases	<input type="checkbox"/>	D. Total recordable cases
24	LTCR is calculated using			
	<input type="checkbox"/>	A (Number of lost time cases x 200,000) / Total hours worked	<input type="checkbox"/>	B. (Total injuries / employees) x 100
	<input type="checkbox"/>	C. Total accidents x 100 / total hours worked	<input type="checkbox"/>	D Total man-days lost / total employees
25	What is the purpose of tracking frequency rate and LTCR?			
	<input type="checkbox"/>	A. For payroll processing	<input type="checkbox"/>	B. For accident root cause analysis

	<input type="checkbox"/> C. For insurance calculation		<input type="checkbox"/> D. For benchmarking safety performance
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PC-6: Calculate "DART rate" & "Severity rate." (5*1=5 Marks)

26 DART stands for:

	<input type="checkbox"/> A. Direct Accident Response Time		<input type="checkbox"/> B. Days Away, Restricted, or Transferred
	<input type="checkbox"/> C. Danger Assessment and Risk Test		<input type="checkbox"/> D. Designated Action Response Team

27 Severity rate is calculated using:

	<input type="checkbox"/> A. $(\text{Number of injuries} \times 100) / \text{Total hours worked}$		<input type="checkbox"/> B. $(\text{Lost workdays} \times 200,000) / \text{Total hours worked}$
	<input type="checkbox"/> C. $(\text{Lost time cases} \times 100) / \text{Total employees}$		<input type="checkbox"/> D. $\text{Total accidents} / \text{Total hours worked}$

28 A high DART rate suggests:

	<input type="checkbox"/> A. Few incidents		<input type="checkbox"/> B. Effective hazard control
	<input type="checkbox"/> C. Many serious injuries		<input type="checkbox"/> D. Improved productivity

29 Which of the following contributes to a lower severity rate?

	<input type="checkbox"/> A. Fewer lost workdays		<input type="checkbox"/> B. More fatalities
	<input type="checkbox"/> C. More lost time cases		<input type="checkbox"/> D. Increased hazard exposure

30 What is the purpose of DART rate in safety metrics?

	<input type="checkbox"/>	A. Predict fire hazards	<input type="checkbox"/>	B. Assess training needs
	<input type="checkbox"/>	C. Measure serious workplace injuries	<input type="checkbox"/>	D. Track environmental risks
PC-7: Understand “Fault tree analysis” and “Event tree analysis.” (5*1=5)				
31	Fault Tree Analysis (FTA) is used to			
	<input type="checkbox"/>	A. Determine probable outcomes of an event	<input type="checkbox"/>	B. Identify possible causes of a top event
	<input type="checkbox"/>	C. Analyse cost implications	<input type="checkbox"/>	D. Predict human behaviour
32	A top event in FTA represents:			
	<input type="checkbox"/>	A. A desirable result	<input type="checkbox"/>	B. The root cause.
	<input type="checkbox"/>	C. The final undesired event	<input type="checkbox"/>	D. First step of process
33	Event Tree Analysis (ETA) is used for			
	<input type="checkbox"/>	A. Budget forecasting	<input type="checkbox"/>	B. Finding root causes
	<input type="checkbox"/>	C. Mapping multiple outcomes from an initiating event	<input type="checkbox"/>	D. Quality control
34	In ETA, branching represents:			
	<input type="checkbox"/>	A. Failures only	<input type="checkbox"/>	B. Success and failure paths
	<input type="checkbox"/>	C. Root causes	<input type="checkbox"/>	D. Incident reports
35	One difference between FTA and ETA:			

<input type="checkbox"/>	A. FTA moves backward, ETA moves forward	<input type="checkbox"/>	B. Both are forward logic
<input type="checkbox"/>	C. Both are used in accounting	<input type="checkbox"/>	D. ETA is simpler than FTA

PC-8: Learn the hierarchy of controls, Importance of hierarchy of control & steps in hierarchy of control (5*1=5 Marks)

36 Which is the most effective control in the hierarchy?

<input type="checkbox"/>	A. PPE	<input type="checkbox"/>	B. Substitution
<input type="checkbox"/>	C. Elimination	<input type="checkbox"/>	D. Administrative control

37 What is the correct order in hierarchy of controls?

<input type="checkbox"/>	A. Elimination, Substitution, Engineering, Administrative, PPE	<input type="checkbox"/>	B. Elimination, PPE, Engineering, Substitution, Administrative
<input type="checkbox"/>	C. Engineering, Elimination, PPE	<input type="checkbox"/>	D. Substitution, Administration, Elimination

38 Engineering controls involve:

<input type="checkbox"/>	A. Removing the hazard entirely	<input type="checkbox"/>	B. Isolating people from the hazard
<input type="checkbox"/>	C. Giving safety lectures	<input type="checkbox"/>	D. Using warning signs

39 PPE should be used:



	<input type="checkbox"/>	A. As the first line of defence	<input type="checkbox"/>	B. Only during emergencies
	<input type="checkbox"/>	C. When other controls are not sufficient	<input type="checkbox"/>	D. To avoid inspections

40 Administrative controls include:

	<input type="checkbox"/>	A. Design changes	<input type="checkbox"/>	B. Policies and procedures to reduce exposure to hazards
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	<input type="checkbox"/>	C. PPE usage	<input type="checkbox"/>	D. Machinery replacement
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**PC-9: Understand Maslow's theory of Hierarchical Needs, Herzberg's two-factor theory and McClelland's theory of needs.
(5*1=5 Marks)**

41 Maslow's lowest level of need is:

	<input type="checkbox"/>	A. Safety	<input type="checkbox"/>	B. Self-actualization
	<input type="checkbox"/>	C. Physiological	<input type="checkbox"/>	D. Social

42 Herzberg's two-factor theory includes:

	<input type="checkbox"/>	A. Motivators and Demotivators	<input type="checkbox"/>	B. Motivators and Hygiene factor
	<input type="checkbox"/>	C. Rewards and Punishments	<input type="checkbox"/>	D. Needs and Desires

43 In Herzberg's theory, which is a hygiene factor?

	<input type="checkbox"/>	A. Recognition	<input type="checkbox"/>	B. Advancement
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	<input type="checkbox"/>	C. Working conditions	<input type="checkbox"/>	D. Achievement
44	McClelland's theory focuses on:			
	<input type="checkbox"/>	A. Hierarchy of needs	<input type="checkbox"/>	B. Three needs – achievement, affiliation, and power
	<input type="checkbox"/>	C. Five needs	<input type="checkbox"/>	D. Motivators and Hygiene
45.	In McClelland's theory, a person motivated by power:			
	<input type="checkbox"/>	A. Prefers independence	<input type="checkbox"/>	B. Desires close relationships
	<input type="checkbox"/>	C. Likes to influence others	<input type="checkbox"/>	D. Avoids leadership roles
PC-10: Vroom's Theory of Expectancy, McGregor's theory X and theory Y and Alderfer's ERG theory				
(5*1=5 Marks)				
46	Vroom's expectancy theory links:			
	<input type="checkbox"/>	A. Performance and job design	<input type="checkbox"/>	B. Expectancy, Instrumentality, and Valence
	<input type="checkbox"/>	C. Needs and satisfaction	<input type="checkbox"/>	D. Motivation and punishment
47	According to Vroom, motivation is high when			
	<input type="checkbox"/>	A. Effort doesn't lead to reward	<input type="checkbox"/>	B. Performance has no outcome
	<input type="checkbox"/>	C. Expectancy, instrumentality, and valence are all high	<input type="checkbox"/>	D. There is low valence

48	McGregor's Theory X assumes workers are:			
<input type="checkbox"/>	A. Ambitious	<input type="checkbox"/>	B. Self-motivated	
<input type="checkbox"/>	C. Lazy and require supervision	<input type="checkbox"/>	D. Always cooperative	
49	Theory Y proposes that:			
<input type="checkbox"/>	A. People dislike work	<input type="checkbox"/>	B. Workers prefer to be directed	
<input type="checkbox"/>	C. Work is as natural as play if conditions are favourable	<input type="checkbox"/>	D. Motivation is irrelevant	
50.	Alderfer's ERG theory includes			
<input type="checkbox"/>	A. Esteem, Reward, Growth	<input type="checkbox"/>	B. Existence, Relatedness, Growth	
<input type="checkbox"/>	C. Expectation, Reward, Gratification	<input type="checkbox"/>	D. Empowerment, Respect, Goals	

ANSWER KEY

Q. No.	Answer	Q. No.	Answer	Q. No.	Answer	Q. No.	Answer	Q. No.	Answer
1	C	11	B	21	A	31	B	41	C
2	D	12	C	22	D	32	C	42	B
3	C	13	B	23	C	33	C	43	C
4	C	14	B	24	A	34	B	44	B
5	C	15	C	25	C	35	A	45	C
6	C	16	C	26	A	36	C	46	B

Q. No.	Answer	Q. No.	Answer	Q. No.	Answer	Q. No.	Answer	Q. No.	Answer
7	C	17	B	27	C	37	B	47	C
8	B	18	B	28	A	38	B	48	C
9	C	19	C	29	A	39	C	49	C
10	C	20	C	30	A	40	B	50	B