

# National Safety Aptitude Test

## NSAT January – 2027

### Syllabus

#### NSAT General

| SL.                                                         | Subject Area                    | Marks | Elements                                                     |
|-------------------------------------------------------------|---------------------------------|-------|--------------------------------------------------------------|
| <b>I) General Aptitude (20 questions)</b>                   |                                 |       |                                                              |
|                                                             | General Aptitude                | 20    | English Language                                             |
|                                                             |                                 |       | Logical reasoning                                            |
|                                                             |                                 |       | Leadership Skill                                             |
|                                                             |                                 |       | IT proficiency                                               |
| <b>II) Occupational Safety &amp; Health ( 80 questions)</b> |                                 |       |                                                              |
| 1                                                           | Industrial Safety Management    | 13    | Safety Management                                            |
|                                                             |                                 |       | Role of Management in Industrial Safety                      |
|                                                             |                                 |       | Organising for Safety                                        |
|                                                             |                                 |       | Directing Safety                                             |
|                                                             |                                 |       | Communication                                                |
|                                                             |                                 |       | Safety - Education and Training                              |
|                                                             |                                 |       | Employee Participation in Safety                             |
|                                                             |                                 |       | Behavior Based Safety (BBS)                                  |
|                                                             |                                 |       | Management Information System (MIS)                          |
|                                                             |                                 |       | Accident Prevention                                          |
|                                                             |                                 |       | Disaster Management                                          |
| 2                                                           | Safety in Engineering Industry  | 13    | Machine Operation and Guarding                               |
|                                                             |                                 |       | Safety in the use of Machines                                |
|                                                             |                                 |       | Safety in the use of Hand Tools and Power Tools              |
|                                                             |                                 |       | Material Handling and Storage                                |
|                                                             |                                 |       | Plant Layout Design and Housekeeping                         |
|                                                             |                                 |       | Electrical Hazards at Workplace                              |
|                                                             |                                 |       | Safety in Engineering Industries                             |
|                                                             |                                 |       | Hazards at Workplace                                         |
|                                                             |                                 |       | Safety in Textile Industry                                   |
|                                                             |                                 |       | Safety in Agro-Industry / Sugar Industry                     |
|                                                             |                                 |       | Safety in Docks Operations                                   |
|                                                             |                                 |       | Destructive Testing, Non Destructive Testing and Heat        |
|                                                             |                                 |       | Safety in IT and Electronic Industry and Service Sector      |
| 3                                                           | Safety in Construction Industry | 13    | Hazards in Construction Sector and their preventive measures |
|                                                             |                                 |       | Safety in the use of construction machinery                  |
|                                                             |                                 |       | Working below ground level                                   |
|                                                             |                                 |       | Working at height                                            |

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|   |                                            |    |                                                                                 |
|---|--------------------------------------------|----|---------------------------------------------------------------------------------|
|   |                                            |    | General Safety Measures                                                         |
|   |                                            |    | Special Works                                                                   |
|   |                                            |    | Special precautions for works of engineering construction                       |
|   |                                            |    | Safety in Demolition Operations                                                 |
|   |                                            |    | Transportation System                                                           |
|   |                                            |    |                                                                                 |
| 4 | Chemical and Process Safety Management     | 13 | Process Safety Management                                                       |
|   |                                            |    | Major Industrial Disasters                                                      |
|   |                                            |    | Enhancing safety in chemical industry                                           |
|   |                                            |    | Unit operations and process hazards                                             |
|   |                                            |    | Safe Handling of chemicals                                                      |
|   |                                            |    | Safety in plant operation and maintenance                                       |
|   |                                            |    | Fire and explosion                                                              |
|   |                                            |    | Pressure vessels                                                                |
|   |                                            |    | Chemical Process Plant                                                          |
|   |                                            |    | Chemical Reaction Hazards                                                       |
|   |                                            |    |                                                                                 |
| 5 | Quality Control in OSH                     | 9  | Safety Appraisal & Control Techniques                                           |
|   |                                            |    | Permit to work Systems                                                          |
|   |                                            |    | Accident / incident / near-miss / dangerous occurrence reporting, investigation |
|   |                                            |    | Measurement and evaluation of safety performance                                |
|   |                                            |    | Safety performance indicators                                                   |
|   |                                            |    | Classification of industrial accidents                                          |
|   |                                            |    | Hazard identification, Risk assessment and control                              |
|   |                                            |    | Major Accident Hazards (MAH) Control System                                     |
|   |                                            |    | Emergency Preparedness and response plans                                       |
|   |                                            |    | Occupational Health and Safety Audits                                           |
|   |                                            |    | Accident Analysis                                                               |
|   |                                            |    |                                                                                 |
| 6 | Industrial Hygiene and Occupational Health | 7  | Industrial Hygiene                                                              |
|   |                                            |    | Personal Protective Equipment                                                   |
|   |                                            |    | Ventilation and Heat Stress                                                     |
|   |                                            |    | Industrial Lighting & Illumination                                              |
|   |                                            |    | Noise and Vibration                                                             |
|   |                                            |    | Occupational Health                                                             |
|   |                                            |    | Occupational Health Hazards & Occupational Diseases                             |
|   |                                            |    | First Aid                                                                       |
|   |                                            |    | Introduction to Ergonomics:                                                     |
|   |                                            |    | Ergonomic Design of Workstation                                                 |
|   |                                            |    | Physiology at Work                                                              |
|   |                                            |    |                                                                                 |
| 7 | OSH Legislations and Standards             | 12 | Factories Act and Rules                                                         |
|   |                                            |    | BOCW Act and Rules                                                              |
|   |                                            |    | Dock Workers Act & Regulations                                                  |
|   |                                            |    | Boilers Act                                                                     |

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|                                        |                    |    |                                                                                                                 |
|----------------------------------------|--------------------|----|-----------------------------------------------------------------------------------------------------------------|
|                                        |                    |    | Petroleum Act & Rules                                                                                           |
|                                        |                    |    | Explosives Act & Rules                                                                                          |
|                                        |                    |    | Insecticides Act & Rules                                                                                        |
|                                        |                    |    | Electricity Act and CEA Regulations                                                                             |
|                                        |                    |    | CMV Rules                                                                                                       |
|                                        |                    |    | Employee Compensation Act & Rules<br>Contract Labour Act and Rules                                              |
|                                        |                    |    | PLI Act & Rules                                                                                                 |
|                                        |                    |    | ILO Conventions & Recommendations                                                                               |
|                                        |                    |    | Indian Standards including NBC 2016                                                                             |
|                                        |                    |    | ISO Standards                                                                                                   |
|                                        |                    |    | OISD Standards                                                                                                  |
|                                        |                    |    |                                                                                                                 |
| <b>III) Environment (20 questions)</b> |                    |    |                                                                                                                 |
|                                        | <b>Environment</b> | 20 | Legislations (EP Act & Rules, Air Act & Rules, Water Act & Rules, PLI Act, National Green Tribunal Act, Energy) |
|                                        |                    |    | Environmental Management Systems                                                                                |
|                                        |                    |    | Environmental Monitoring                                                                                        |
|                                        |                    |    | Waste Management                                                                                                |
|                                        |                    |    | Global Warming                                                                                                  |
|                                        |                    |    | Energy Conservation                                                                                             |
|                                        |                    |    | Sustainability and Reporting                                                                                    |
|                                        |                    |    |                                                                                                                 |

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#### NSAT Oil & Gas

| SL.                                                        | Subject Area                   | Marks | Elements                                                        |
|------------------------------------------------------------|--------------------------------|-------|-----------------------------------------------------------------|
| <b>I) General Aptitude (20 questions)</b>                  |                                |       |                                                                 |
|                                                            | General Aptitude               | 20    | English Language                                                |
|                                                            |                                |       | Logical reasoning                                               |
|                                                            |                                |       | Leadership Skill                                                |
|                                                            |                                |       | IT proficiency                                                  |
| <b>II) Occupational Safety &amp; Health (80 questions)</b> |                                |       |                                                                 |
| 1                                                          | Industrial Safety Management   | 10    | Management                                                      |
|                                                            |                                |       | Role of Management in Industrial Safety                         |
|                                                            |                                |       | Organising for Safety                                           |
|                                                            |                                |       | Directing Safety                                                |
|                                                            |                                |       | Communication                                                   |
|                                                            |                                |       | Safety - Education and Training                                 |
|                                                            |                                |       | Employee Participation in Safety                                |
|                                                            |                                |       | Behavior Based Safety (BBS)                                     |
|                                                            |                                |       | Management Information System (MIS)                             |
|                                                            |                                |       | Accident Prevention                                             |
|                                                            |                                |       | Disaster Management                                             |
| 2                                                          | Safety in Engineering Industry | 8     | Machine Operation and Guarding                                  |
|                                                            |                                |       | Safety in the use of Machines                                   |
|                                                            |                                |       | Safety in the use of Hand Tools and Power Tools                 |
|                                                            |                                |       | Material Handling and Storage                                   |
|                                                            |                                |       | Plant Layout Design and Housekeeping                            |
|                                                            |                                |       | Electrical Hazards at Workplace                                 |
|                                                            |                                |       | Safety in Engineering Industries                                |
|                                                            |                                |       | Hazards at Workplace                                            |
|                                                            |                                |       | Safety in Textile Industry                                      |
|                                                            |                                |       | Safety in Agro-Industry / Sugar Industry                        |
|                                                            |                                |       | Safety in Docks Operations                                      |
|                                                            |                                |       | Destructive Testing, Non-Destructive Testing and Heat Treatment |
|                                                            |                                |       | Safety in IT and Electronic Industry and Service Sector         |
| 3                                                          | Chemical and Process Safety    | 8     | Process Safety Management                                       |
|                                                            |                                |       | Major Industrial Disasters                                      |
|                                                            |                                |       | Enhancing safety in chemical industry                           |
|                                                            |                                |       | Unit operations and process hazards                             |
|                                                            |                                |       | Safe Handling of chemicals                                      |
|                                                            |                                |       | Safety in plant operation and maintenance                       |
|                                                            |                                |       | Fire and explosion                                              |
|                                                            |                                |       | Pressure vessels                                                |
|                                                            |                                |       | Chemical Process Plant                                          |
|                                                            |                                |       | Chemical Reaction Hazards                                       |

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### Syllabus

|   |                                            |    |                                                                                         |
|---|--------------------------------------------|----|-----------------------------------------------------------------------------------------|
| 4 | Quality Control in OSH                     | 10 | Safety Appraisal & Control Techniques                                                   |
|   |                                            |    | Permit to work Systems                                                                  |
|   |                                            |    | Accident / incident / near-miss / dangerous occurrence reporting, investigation         |
|   |                                            |    | Measurement and evaluation of safety performance                                        |
|   |                                            |    | Safety performance indicators                                                           |
|   |                                            |    | Classification of industrial accidents                                                  |
|   |                                            |    | Hazard identification, Risk assessment and control                                      |
|   |                                            |    | Major Accident Hazards (MAH) Control System                                             |
|   |                                            |    | Emergency Preparedness and response plans                                               |
|   |                                            |    | Occupational Health and Safety Audits                                                   |
|   |                                            |    | Accident Analysis                                                                       |
| 6 | Industrial Hygiene and Occupational Health | 6  | Industrial Hygiene                                                                      |
|   |                                            |    | Personal Protective Equipment                                                           |
|   |                                            |    | Ventilation and Heat Stress                                                             |
|   |                                            |    | Industrial Lighting & Illumination                                                      |
|   |                                            |    | Noise and Vibration                                                                     |
|   |                                            |    | Occupational Health                                                                     |
|   |                                            |    | Occupational Health Hazards & Occupational Diseases                                     |
|   |                                            |    | First Aid                                                                               |
|   |                                            |    | Introduction to Ergonomics:                                                             |
|   |                                            |    | Ergonomic Design of Workstation                                                         |
|   |                                            |    | Physiology at Work                                                                      |
| 7 | OSH Legislations and Standards             | 8  | Factories Act and Rules                                                                 |
|   |                                            |    | BOCW Act and Rules                                                                      |
|   |                                            |    | Dock Workers Act & Regulations                                                          |
|   |                                            |    | Boilers Act                                                                             |
|   |                                            |    | Insecticides Act & Rules                                                                |
|   |                                            |    | Electricity Act and CEA Regulations                                                     |
|   |                                            |    | CMV Rules                                                                               |
|   |                                            |    | Employee Compensation Act & Rules                                                       |
|   |                                            |    | Contract Labour Act and Rules                                                           |
|   |                                            |    | PLI Act & Rules                                                                         |
|   |                                            |    | ILO Conventions & Recommendations                                                       |
|   |                                            |    | Indian Standards including NBC 2016                                                     |
|   |                                            |    | ISO Standards                                                                           |
| 8 | Safety in Oil & Gas                        | 30 | Petroleum Act and Petroleum Rules, Explosives Act and Rules, Gas Cylinders Rules, 2016. |
|   |                                            |    | Hazards in Oil and Gas industry - their prevention & control measures                   |
|   |                                            |    | Hazards of air and water in refinery operations                                         |
|   |                                            |    | Safety in sampling                                                                      |
|   |                                            |    | Safe startup and safe shutdown                                                          |
|   |                                            |    | Safe handing over of equipment for maintenance                                          |

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|                                        |                    |    |                                                                                                                                  |
|----------------------------------------|--------------------|----|----------------------------------------------------------------------------------------------------------------------------------|
|                                        |                    |    | H2S safety                                                                                                                       |
|                                        |                    |    | Safe storage and handling of crude and petroleum                                                                                 |
|                                        |                    |    | Safety in operation and maintenance of LPG plants                                                                                |
|                                        |                    |    | Safety in transportation of petroleum products                                                                                   |
|                                        |                    |    | Firefighting equipment and systems in O&G industry                                                                               |
|                                        |                    |    | Emergency response and disaster management plan (ERDMP)                                                                          |
|                                        |                    |    | OISD Standards, Guidelines and Recommended                                                                                       |
| <b>III) Environment (20 questions)</b> |                    |    |                                                                                                                                  |
|                                        | <b>Environment</b> | 20 | Legislations (EP Act & Rules, Air Act & Rules, Water Act & Rules, PLI Act, National Green Tribunal Act, Energy Conservation Act) |
|                                        |                    |    | Environmental Management Systems                                                                                                 |
|                                        |                    |    | Environmental Monitoring                                                                                                         |
|                                        |                    |    | Waste Management                                                                                                                 |
|                                        |                    |    | Global Warming                                                                                                                   |
|                                        |                    |    | Energy Conservation                                                                                                              |
|                                        |                    |    | Sustainability and Reporting                                                                                                     |

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#### NSAT Construction

| SL.                                                        | Subject Area                           | Marks | Elements                                                |
|------------------------------------------------------------|----------------------------------------|-------|---------------------------------------------------------|
| <b>I) General Aptitude (20 questions)</b>                  |                                        |       |                                                         |
|                                                            | General Aptitude                       | 20    | English Language                                        |
|                                                            |                                        |       | Logical reasoning                                       |
|                                                            |                                        |       | Leadership Skill                                        |
|                                                            |                                        |       | IT proficiency                                          |
|                                                            |                                        |       |                                                         |
| <b>II) Occupational safety &amp; Health (80 questions)</b> |                                        |       |                                                         |
| 1                                                          | Industrial Safety Management           | 9     | Management                                              |
|                                                            |                                        |       | Role of Management in Industrial Safety                 |
|                                                            |                                        |       | Organising for Safety                                   |
|                                                            |                                        |       | Directing Safety                                        |
|                                                            |                                        |       | Communication                                           |
|                                                            |                                        |       | Safety - Education and Training                         |
|                                                            |                                        |       | Employee Participation in Safety                        |
|                                                            |                                        |       | Behavior Based Safety (BBS)                             |
|                                                            |                                        |       | Management Information System (MIS)                     |
|                                                            |                                        |       | Accident Prevention                                     |
|                                                            |                                        |       | Disaster Management                                     |
|                                                            |                                        |       |                                                         |
| 2                                                          | Safety in Engineering Industry         | 9     | Machine Operation and Guarding                          |
|                                                            |                                        |       | Safety in the use of Machines                           |
|                                                            |                                        |       | Safety in the use of Hand Tools and Power Tools         |
|                                                            |                                        |       | Material Handling and Storage                           |
|                                                            |                                        |       | Plant Layout Design and Housekeeping                    |
|                                                            |                                        |       | Electrical Hazards at Workplace                         |
|                                                            |                                        |       | Safety in Engineering Industries                        |
|                                                            |                                        |       | Hazards at Workplace                                    |
|                                                            |                                        |       | Safety in Textile Industry                              |
|                                                            |                                        |       | Safety in Agro-Industry / Sugar Industry                |
|                                                            |                                        |       | Safety in Docks Operations                              |
|                                                            |                                        |       | Destructive Testing, Non-Destructive Testing and Heat   |
|                                                            |                                        |       | Safety in IT and Electronic Industry and Service Sector |
|                                                            |                                        |       |                                                         |
| 3                                                          | Chemical and Process Safety Management | 9     | Process Safety Management                               |
|                                                            |                                        |       | Major Industrial Disasters                              |
|                                                            |                                        |       | Enhancing safety in chemical industry                   |
|                                                            |                                        |       | Unit operations and process hazards                     |
|                                                            |                                        |       | Safe Handling of chemicals                              |
|                                                            |                                        |       | Safety in plant operation and maintenance               |
|                                                            |                                        |       | Fire and explosion                                      |
|                                                            |                                        |       | Pressure vessels                                        |

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|   |                                            |    |                                                                                 |
|---|--------------------------------------------|----|---------------------------------------------------------------------------------|
|   |                                            |    | Chemical Process Plant                                                          |
|   |                                            |    | Chemical Reaction Hazards                                                       |
| 4 | Quality Control in OSH                     | 9  | Safety Appraisal & Control Techniques                                           |
|   |                                            |    | Permit to work Systems                                                          |
|   |                                            |    | Accident / incident / near-miss / dangerous occurrence reporting, investigation |
|   |                                            |    | Measurement and evaluation of safety performance                                |
|   |                                            |    | Safety performance indicators                                                   |
|   |                                            |    | Classification of industrial accidents                                          |
|   |                                            |    | Hazard identification, Risk assessment and control                              |
|   |                                            |    | Major Accident Hazards (MAH) Control System                                     |
|   |                                            |    | Emergency Preparedness and response plans                                       |
|   |                                            |    | Occupational Health and Safety Audits                                           |
|   |                                            |    | Accident Analysis                                                               |
| 5 | Industrial Hygiene and Occupational Health | 9  | Industrial Hygiene                                                              |
|   |                                            |    | Personal Protective Equipment                                                   |
|   |                                            |    | Ventilation and Heat Stress                                                     |
|   |                                            |    | Industrial Lighting & Illumination                                              |
|   |                                            |    | Noise and Vibration                                                             |
|   |                                            |    | Occupational Health                                                             |
|   |                                            |    | Occupational Health Hazards & Occupational Diseases                             |
|   |                                            |    | First Aid                                                                       |
|   |                                            |    | Introduction to Ergonomics:                                                     |
|   |                                            |    | Ergonomic Design of Workstation                                                 |
|   |                                            |    | Physiology at Work                                                              |
| 6 | OSH Legislations and Standards             | 5  | Factories Act and Rules                                                         |
|   |                                            |    | BOCW Act and Rules                                                              |
|   |                                            |    | Dock Workers Act & Regulations                                                  |
|   |                                            |    | Boilers Act                                                                     |
|   |                                            |    | Petroleum Act & Rules                                                           |
|   |                                            |    | Explosives Act & Rules                                                          |
|   |                                            |    | Insecticides Act & Rules                                                        |
|   |                                            |    | Electricity Act and CEA Regulations                                             |
|   |                                            |    | CMV Rules                                                                       |
|   |                                            |    | Employee Compensation Act & Rules                                               |
|   |                                            |    | Contract Labour Act and Rules                                                   |
|   |                                            |    | PLI Act & Rules                                                                 |
|   |                                            |    | ILO Conventions & Recommendations                                               |
|   |                                            |    | Indian Standards including NBC 2016                                             |
|   |                                            |    | ISO Standards                                                                   |
| 7 | Safety in Construction Industry            | 30 | Hazards in Construction Sector and their preventive measures                    |
|   |                                            |    | Safety in the use of construction machinery                                     |
|   |                                            |    | Working below ground level                                                      |

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|                                        |                    |    |                                                                                                                |
|----------------------------------------|--------------------|----|----------------------------------------------------------------------------------------------------------------|
|                                        |                    |    | Working at height                                                                                              |
|                                        |                    |    | General Safety Measures                                                                                        |
|                                        |                    |    | Special Works                                                                                                  |
|                                        |                    |    | Special precautions for works of engineering construction                                                      |
|                                        |                    |    | Safety in Demolition Operations                                                                                |
|                                        |                    |    | Transportation System                                                                                          |
|                                        |                    |    |                                                                                                                |
| <b>III) Environment (20 questions)</b> |                    |    |                                                                                                                |
|                                        | <b>Environment</b> | 20 | Legislations (EP Act & Rules, Air Act & Rules, Water Act & Rules, PLI Act, National Green Tribunal Act, Energy |
|                                        |                    |    | Environmental Management Systems                                                                               |
|                                        |                    |    | Environmental Monitoring                                                                                       |
|                                        |                    |    | Waste Management                                                                                               |
|                                        |                    |    | Global Warming                                                                                                 |
|                                        |                    |    | Energy Conservation                                                                                            |
|                                        |                    |    | Sustainability and Reporting                                                                                   |
|                                        |                    |    |                                                                                                                |

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