

# Rubber, Chemical & Petrochemical Skill Development Council

## Assessment Protocol Ver. 2.0

Promoted by:



## **Introduction**

This assessment protocol document outlines generic framework for assessment of trainees being trained on National Occupational Standards as designed by Rubber, Chemical & Petrochemical Skill Development Council (RCPSDC). This document should be used as a reference reading material to understand and follow the assessment process that will be followed to assess the skill knowledge of the trainees.

This document should be used by assessors, trainees, training institutions, industry bodies, corporate, government affiliated bodies and others as guiding tool of assessment process being followed.

The protocol that will be followed to conduct the assessments consists of the following:

1. Identification of KSAs (Knowledge-Skills-Abilities) and module mapping
2. Assessment Timelines
3. Assessment framework
  - 2.1 Trainee Evaluation
  - 2.2 Assessor Evaluation
  - 2.3 Trainer Evaluation
4. Process Details
  - 4.1 Theory Test – Delivery Mechanism
  - 4.2 Practical Test – Delivery Mechanism
  - 4.3 SOP – Assessment Delivery team
  - 4.4 Result compilation and storage
  - 4.5 Event team composition
  - 4.6 Technology infrastructure
  - 4.7 Contingency plan
5. Question Types and Assessment content overview
6. Penalty Clauses
7. Process of blacklisting of Assessors and Assessment agencies
8. Content Design
  - 7.1 Content creation process
  - 7.2 Sample questions

## 1. Identification of KSAs (Knowledge-Skills-Abilities) of a candidate and module mapping

The different occupations listed in the NOSs of the Rubber, Chemical & Petrochemical Skill Development Council deal with different stages of Rubber Manufacture and Processing Technology. Although the technical knowledge required for these occupations are different, these jobs entail a specific set of common aspects which have been listed below.

<b>Job Aspects</b>
Material/Equipment Handling
Operational Know-how
Ensuring Safety
Quality Assurance
Problem Identification & Resolution
Problem Escalation
Reporting & Documentation

Assessment tools will be available in multiple languages like English, Hindi, Telegu, Tamil, Gujarati, Marathi etc.

The set of KSAs (Knowledge-Skills-Abilities) required in a candidate for him/her to be able to perform well on job are detailed below. Each KSA has been mapped on to a particular module.

<b>Knowledge-Skill-Abilities</b>	<b>Proposed Module</b>	<b>What will the module check?</b>
1. Domain Knowledge	<b>Rubber Technology specific module</b>	Will check for technical know-how of all the aspects of the job that the candidate is supposed to perform.
2. Situation Handling	<b>Situational Judgment Test</b>	Will check for the ability to handle critical situations at job.
3. Attention to Detail	<b>Contextual ATD</b>	Will check for the ability to remember critical steps, identify various buttons/switches of operation and prevent potential hazards by identifying loopholes/flaws.

4. Analytical Ability	<b>Contextual Reasoning</b>	Will check the ability to identify cause for problems, interpret data and results and suggest improvements.
5. Applied Skills	<b>Assessor driven assessments/ Simulations</b>	Will check the ability of the test taker if he knows “how” to do required tasks as part of the job role. Questions will be asked by a subject matter expert who will evaluate the practical knowledge of the test taker. Questions will include situations which the trainee will face in a real job and tasks which trainee would have to perform while on the job
<b><i>Wherever applicable</i></b>		
6. Reading Skills	<b>Basic English</b> (8th Pass Level)	Will check basic communication to be able to comprehend instructions, read manuals, and understand processes and document findings.
Listening & Speaking Skills		
Writing Skills		

## 2. Assessment Timelines

### 2.1 For Assessment Agencies

S.No	Procedure Guidelines	Stakeholder	Timelines	Remarks
1	Development of assessment guideline and question bank as per the job role	AA		
	Develops Question Bank (Min 3 sets), on Each set require 40 Questions as per define Level (Easy/Medium/Difficult )	AA	20 days from the day new job role shared by RCPSDC	
	Validation and approval of question bank by Subject Matrix Expert	SSC	3 Working days from the submission of question bank	
2	Each batch will be assigned to the affiliated assessment agency	SSC	5 days from the date of upload on SIP	
3	Respond with the acceptance or non-acceptance for conducting assessments by email and on Skill India Portal.	AA		
			2 working days	
4	If the AA does not accept, another AA needs to be identified	SSC	2 working days	
5	Respond with the acceptance or non-acceptance of the system generated date for conducting assessment, post consultation with AA	SSC	2 working days	
6	In case of non-acceptance of the system generated date of assessment, a new date for assessment should be provided.	SSC	2 working days	
7	Post acceptance, the AA will have assigned a batch to certified assessor before 3 days from its approved pool of assessor listed on Skill India Portal.	AA	3 working days	
8.	Assessor mandate to accept the batch within 24 Hours on SIP for the assessment.	AA+Assessor	24 Hours	

9	<p>AA shared the New Assessor Profile as per the eligibility criteria for the job role which is decided by the SSC.</p> <p>AA not to share the such profile of assessor who already worked with same TP. (To avoid conflict of interests)</p>	AA	2 Working days	
10	<p>Details of the concerned training center and the assigned assessors (With Unique Identification number) should be shared with the SSC along with operational plan.</p>	AA	2 working days	
11	<p>Details of Assessment Plan shared from SSC to Training Partner keeping loops with AA Team.</p>	SSC	2 Working Days	
12	<p>The assessor will report at the TP location at the designated date and time and share the ongoing report in batch start and end time with photo of center and Geo Tagging is mandatory.</p> <p>Conduct assessment as per the guidelines ( Proctor with 8 Tablets ) on minimum batch size of 30.</p>	Assessor + Proctor	As per specified date, place and time ( Sharp 9 )	
13	<p>Authentication of the assessor prior to the start of the assessment. Assessor to produce a valid photo ID proof – Aadhaar number/ PAN card/ ID card issued by the concerned AA.</p>	Trainer of the concerned batch	On the day of Assessment	A unique code mentioned on the identification card of the assessor need to be verified by the TP
14	<p>Assessor conducts the assessment in accordance with the assessment guidelines and question bank.</p>			
15	<p>Share Attendance Sheet, Annexure M Feedback from duly signed &amp; Stamp by TP, photos (HD image and videos of the assessments.</p>	AA	5 days from the assessment day	
16	<p>Assessor will upload the assessment marks on Skill India Portal.</p>	Assessor	5 working days post completion assessment	

17	The assessor to complete the training feedback from the candidates of the batch (5 Candidate's) and share with SSC. The assessor will also check candidate wise feedback at TP/TC.	Assessor	3 working days post completion assessment	
18	Post conduct of the assessment, the assessment agency will upload the result along with the original assessment sheet and attendance sheet, physically as well as electronically , Photos ( 10 photos ) and video ( 5 Video ) & One Group Photo on Google Drive path ( Monthly basis ) and share the mail to SSC.	AA	7 working days post completion assessment	
19	AA will store the original physical assessment records of the trainee assessed for a minimum of 10 years from the date of the assessment.	AA		
20	AA will review and validate the assessment marks on SIP and will provide the NOS wise result of each candidate of the batch.	AA	2 working days	
21	The SSC will validate the results received from the AA and approve the same on SIP	SSC	5 working days	
22	In case of any discrepancy in result prior to approval by SSC, revaluation of the result by assessment agency or reassessment of the batch, depending upon the decision of the SSC	SSC		
23	Fees due to the AA will be paid after validation of the assessment results received	SSC	14 days	

## 2.2 For Re-assessment

S.No	Procedure Guidelines	Stakeholder	Timelines	Remarks
1	Detailed MIS is maintained regarding moderation of assessment including distribution of assessment result for each batch conducted (across schemes)	AA	MIS will share in Every Month	
2.	SSC to undertake complete validation of at least 30% batches assessed before approving the results.	AA+SSC		AA will share the evidences of particular batches which is undergone in Audit.

### 2.3 For Training Partners

Process description	Stakeholder	Timelines	Remarks
Share the batch start, end and assessment date with no. of trainees with RCPSDC	TP	On the day of commencement of Batch	Assessment date can end day of training + 7 days
Upload the batch on SDMS and report to RCPSDC	TP		
Share centre SPOC details and language preference for assessments with RCPSDC	TP	15 days before the assessment date	
RCPSDC accept the assessment date and confirm to TP	RCPSDC	10 days before the assessment date	
Operational Plan will be shared with TP	RCPSDC	3 days before assessments	
A joint con-call between Assessment Agency, TP and RCPSDC if required	RCPSDC	2 days before the assessment date	
TP make necessary arrangements for assessments according to the operational plan shared by RCPSDC	TP		
On the day of assessment, batches will be divided in two i.e. one for theoretical test suite and second for practical knowledge. Both the batches will run parallel to each other.	AA +TP		
To increase transparency in the assessment process and visibility, SSCs to facilitate the sharing of NOS-wise student-wise marks obtained with the TPs for all assessments conducted by SSC.	SSC	On or Before 7th Day of assessment	
Certificates to be shared with TP	RCPSDC	on or before 15th day after the assessments	
Re-assessment requests	TP	15 Days from the date the SSC approves the result.	
Re-assessment Fees	TP		TC pays the reassessment fees in advance to the SSC



Re-assessment Batch Size	TP		less than 10 candidates, SSC may consider clubbing these requests with upcoming assessments.
--------------------------	----	--	--

### 3. Assessment framework for a Trainee, Trainer and Assessor

#### 3.1 Trainee Evaluation

With uniformity and setting of National Occupational Standards (NOS), for different Jobs Roles the assessment of candidates will be at NOS level. Assessment criterion has been defined for each NOS and it includes both theoretical and practical skills on which the candidate will be assessed. The question suite which will be used to check the skills of the trainee would include

- Theoretical test suite – Will include multiple choice questions, audio-video question etc. which will test the trainee on his knowledge of the subject
- Practical Knowledge suite – Practical knowledge can be tested through Assessor driven evaluation, Situational Judgment Tests and Simulations. A mix of the three would be able to evaluate the trainee on his practical knowledge of the QP

#### 3.2 Assessor Evaluation

The underlying responsibility of the assessor would be to operationalize the process of on-site assessment of the trainees taking overall care of the process of evaluation. The evaluation will be focused on evaluating if the candidate knows how to perform the required tasks as part of his job role.

#### Sourcing

For sourcing the assessors, Assessment agencies will reach out to the Industry experts, Academicians, Members of industry bodies and others with the support of RCPSDC to volunteer for the role of an assessor. Following general guidelines would apply to all people who volunteer to be an assessor.

## **General Guidelines**

- a. Assessor should be familiar with the process of assessment
- b. Assessor should have complete knowledge of the content of assessment, examination methodology and operational aspects
- c. Assessor should be fluent in the language of assessment
- d. Assessor should be impartial in assessing the trainees

Sourced volunteers who would adhere to the above guidelines would go through the process of evaluation as described below.

## **Evaluation Process**

Assessor needs to be competent in order to conduct assessments and its foundation is based on foundation provided by education, training and experience. These skills of the assessor need to be evaluated as per the following methods

- a. Technical knowledge assessment – Technology enabled assessment of the assessor to evaluate his theoretical knowledge and the same will act as an objective benchmark which needs to be cleared by the assessor to move to the next stage. Assessor evaluation will be of a higher difficulty when compared to trainee evaluation.
- b. Interview – SSC to hold the formal interview and evaluate the assessor to bring the assessor on-board.
- c. Pre-screening - SSCs to conduct detailed check of the profile of assessor and conduct pre-screening, through an online mode, prior enrollment in the ToA program.

AA will sign a MoU/SLA with assessor to ensure that assessment process is followed with integrity and impartiality. The AA and RCPSDC can mutually agreed upon the details of the document.

## ***Training of assessor and certification***

Post assessor empanelment assessors would need to undergo training of Assessors by RCPSDC. The training of assessors will cover the following points

1. Occupational Standards Overview – This module of the training would give an overview to the assessors on the overall framework of QP evaluation. Assessor shall be given a NOS and PC level overview of each QP as applicable. Overview on the assessment framework of evaluation shall be shared with the assessor with explanation.
2. Assessment Technology Overview – This module of training will give an overview to the assessor on how technology will be deployed for the assessment. Assessor will be trained on the following
3. Use of delivery mediums (Tablets, computer etc.) which will be used to both deliver the questions and to give marks to the candidates
  - a. Overall structure of assessment and objectivity of the marking scheme
  - b. Sample assessment exercise basis the sample question bank to take an assessor through entire process of assessment

Basis the selection process which an assessor needs to clear and post selection training completion, an assessor will be certified and allocated a unique identification number by RCPSDC.

### **Assessor role and responsibility**

Assessor will ask the candidates to perform certain pre-defined tasks (which will be delivered to the assessor using a computer/tablet) and then assessor will evaluate if the candidate is able to perform the designated task. Evaluation will be on pre-defined objective criterion which will ensure standardization across assessor evaluations.

Assessors will play a vital role in successfully delivering assessments. The effectiveness and credibility of the certification would depend on competence, professionalism and integrity of the assessors.

An effective system needs to be in place to ensure the competence of assessors by establishing, implementing and maintaining procedures for qualifying and monitoring the performance and competence of the assessors involved. In particular, SSC and Assessment agency shall review the performance and competence of assessors in order to identify and streamlines any gaps in the process.

### **Training of Trainer and certification**

Post trainer empanelment trainers would need to undergo training of trainer by RCPSDC. The training of trainer will cover the following points

1. Occupational Standards Overview – This module of the training would give an overview to the trainers on the overall framework of QP. Trainer shall be given a NOS and PC level overview of each QP as applicable.
2. Training Technology Overview – This module of training will give an overview to the trainer on how technology will be deployed for the training if sources are available.
3. Use of delivery mediums which will be used to deliver the training modules to the candidates.
4. These training can be basic technical knowledge or situation based questions where a trainer's ability to handle a particular situation will be gauged.
5. Trainer shall be given demonstration of mock class sessions on ability to handle a real class scenario, effective communication, sharing of knowledge, problem handling etc.

Post the selection process that trainer needs to clear and on completion of TOT, an trainer will be certified and allocated a unique identification number by RCPSDC.

#### **4. Process Details**

The process will be broadly classified as the following

1. Test takers will be administered a technology driven test which will be taken on a computer/tablet
2. Test takers will give the practical assessment which will be conducted by the Assessor

These assessments will be **Technology-driven, Objective & Standardized Assessments.**

##### **4.1 Theory Test - Delivery Mechanisms**

1. Internet Delivery/Tablets
  - a. Cloud based synchronized online servers
  - b. Available for assessments in remote locations, office reception

##### **4.2 Practical Test – Delivery Mechanisms**

Assessor/Proctor will be carrying tablet/laptop which he will use as a delivery mechanism which will aid the assessor in the process of assessment.

Assessment of the trainees will be solely based on the NOS of QP that the candidate is being assessed for. A preloaded question bank, which will be delivered to the assessor using a tablet/laptop which he will be carrying, will be used by the assessor to ask the questions from the candidate.

Assessor will also use the tablet to give his judgment, based on responses to his questions given by the candidate. Thus score generation also will be an automated process, basis the assessment of the candidate done by the assessor.

#### **4.3 SOP – Assessment Delivery team**

These instructions will be followed by the proctors for all Assessment Events managed by AA. Understated are the guidelines that have to be followed by the proctor when conducting the drive at the venue. The event consists of Testing of candidates. The sequence of events is as follows:

##### ***Infrastructure Mapping***

The proctor will be responsible for infrastructure mapping at the venue. The closure should include the following:

1. Identifying all necessary equipment's. In case computer lab is available, test the network otherwise get in place the required number of tablets for the event in advance.
2. Ensure all essential supplies like stationary etc. are available and are ready to be used on the day of the testing.

##### ***Event Day***

Pre-event Checklist:

The proctor has to report at the venue at 8:00 am on the event day. The proctor has to make sure that:

1. Testing room is available with proper seating arrangement for candidates to appear for the knowledge assessment
2. Machinery, equipments and tools on which the candidate has been trained on and which are part of NOS should be available to test the candidate on his applied skills

3. Rough sheets are placed on each seat. This has to be done after each subsequent batch finishes the test.

The event will start with an introductory overview and assessment process delivered by the Assessors/proctor. Once the introduction gets over, the students will be divided into groups for assessment. The proctor has to ensure that the following things are already in place. They are:

1. Have the exact no. of candidates ready to move into the knowledge based assessments
2. The instructions for taking the test are clearly written on the board in the lab or shared with the candidates verbally
3. Re-check if the stationary is available in the testing area.

Once the students are in the testing area, proctor would have to run through the instructions for the students to take the test.

Post Testing Work Flow:

1. After the students are in the labs and the test is underway, the proctor has to ensure that all remaining batches of candidates are also ready to be tested
2. Escort the candidates from the knowledge based assessment area to practical assessment area, after the batch finishes their testing.
3. Once the first batch has moved out of the knowledge based assessment area, the second batch must be taken from the main waiting area and seated in the respective seats for their knowledge based assessment.

All the above mentioned points have to be repeated till all the candidates have undergone their testing

#### **4.4 Result Compilation and storage**

Once the testing of candidates is completed, the results have to be synched with the central servers. The same has to be done as soon as internet availability is possible.

Duration by which the test results will be shared with the SSC will depend on the medium of delivery of the test

1. In case test is delivered using a computer/tablet the test results will be shared with the SSC within 2 days of date of assessment

2. In case test is delivered using a paper pencil test the results will be shared with the SSC within 4 days of date of assessment

Data for the assessments will be stored for 10 years as per norms laid down.

#### 4.5 Event Team composition

##### *Assessor and a Proctor*

Event team will comprise of a Assessor (Subject Matter Expert) who is chosen from the industry to act as an assessor for the practical part of the assessment. He will be accompanied by a proctor who would be responsible of operational execution of the assessment in the early stages of engagement. He will have mandate of managing all the infrastructural requirements and operations for the assessment.

This will be contingent on number of trainees per batch.

#### 4.6 Technology Infrastructure

- a. Minimum 8 number of tablets to be assigned for every assessment by the AA for the batch of 30 students.

##### Online AI Based Proctoring

- b. Seeking help from others available around in the room
- c. Identity risks and candidate authentication
- d. Exposure to the questions and question paper
- e. Use of other resources available on computer/ web
- f. Candidate distracted/ not present in front of the system
- g. Usage of mobile
- h. IP change or restrictions

#### 4.7 Contingency Planned

**Resource contingency** – Back up of assessors and proctor will be kept to be sent to the assessment center in case the first set of assessor is not able to fulfill his commitments.

**Offline Sync** – The question paper will be downloaded in the tablet by the assessment agency before one day of assessment and assessment will conduct offline in low internet connectivity area.

**Paper/pencil Test-** As a contingency plan, assessors will also be carrying a paper pencil test, to cover up for a remote possibility of any technological challenges which might occur. To ensure that assessment does not suffer in any way, knowledge and

assessor based assessments will be carried out using a paper and pencil and answer responses will be later uploaded to the server using OMR sheets. The scoring will still be an automated process which will be done by just uploading the answer responses onto the server.

## **5. Question Types and Assessment Content overview**

The questions across these modules can be of various formats: Multiple Choice Questions, Audio/Video-based, Touch/Click-based, Drag-and-drop, Assessor-Evaluation-based, etc. They can also be delivered in the bilingual format.

### **5.1 Multiple Choice Questions**

Will check the theoretical knowledge of the test taker on skills he has learnt in training. For each question addressed to the test taker, the best option among two or more options would have to be chosen which appears to the test taker as the best option.

### **5.2 Audio/Video Based**

To eliminate the read and write ability requirement of the test taker audio/video tests design will ensure that test taker is able to attempt the test and get assessed for skills in rubber industry without having knowledge of reading.

Video based questions also add diagrams, machine photographs and questions based on the same, checking on theoretical knowledge of test taker on machinery and tools he will be using for practical purposes

### **5.3 Touch/Click Based**

Questions addressed to the test taker will not require him to have any technical knowledge to use the computer/tablet to give the assessment. Questions will be touch/click based making it very simple and easy for the test taker to select the right options

### **5.4 Drag-and-drop**

Simulations will be addressed as questions to test taker to check the practical knowledge. Drag and drop type questions are one type of simulation questions where in test taker will need to arrange the items on screen in the right order. Similar simulation based questions will be testing the test taker on practical knowledge.

### **5.5 Assessor Evaluation-based**



Pre-defined rubrics and set question bank will ensure an objective evaluation of test takers on their practical knowledge. Assessors will be testing candidates on their practical skills but the marking will be driven by an objective framework which will maintain standardization of marking scheme.

**The weight age of content of the theoretical and practical assessments will be 60% and 40% respectively.**

Total marks for a candidate will be calculated using a weight age of 70% marks given to theory exam and 30% weight age given to practical examination.

### **Passing Criteria**

Passing criteria would be

Trainer & Assessor - 80% passing marks in Total marks

**Trainees - 70% cut off Marks for NSQF Level 4 & above Job Roles and 50% cut off Marks for NSQF level 3 Job Roles.**

*Grace Marks* – There will be grace marks of 1 mark given to a candidate if he/she is failing any one of the above passing criteria by one mark. In that scenario the candidate will be marked as passed.

### **Duration of Assessment**

Theoretical Assessment: 1 hour

Practical Assessment: 15 minutes

## **6. Penalty Clauses**

**6.1** RCPSDC will be imposing penalty on the assessment agency of 20% of the batch Fees for Non adherence to the assessment processes & issues/failure of tablets will also attract the same penalty.

**6.2** Assessment agency to ensure that the validated results are uploaded on the SDMS within 5 working days from RCPSDCs approval. Failure to do so would lead to a penalty of a 5% reduction per day for each batch from the assessment fees payable to agency. Delay due to SDMS server issues or any other technical issues will be considered provided assessment agency intimates RCPSDC on time and provides the screen shot for the same.

- a. In case of Tabs are not properly / completely charged

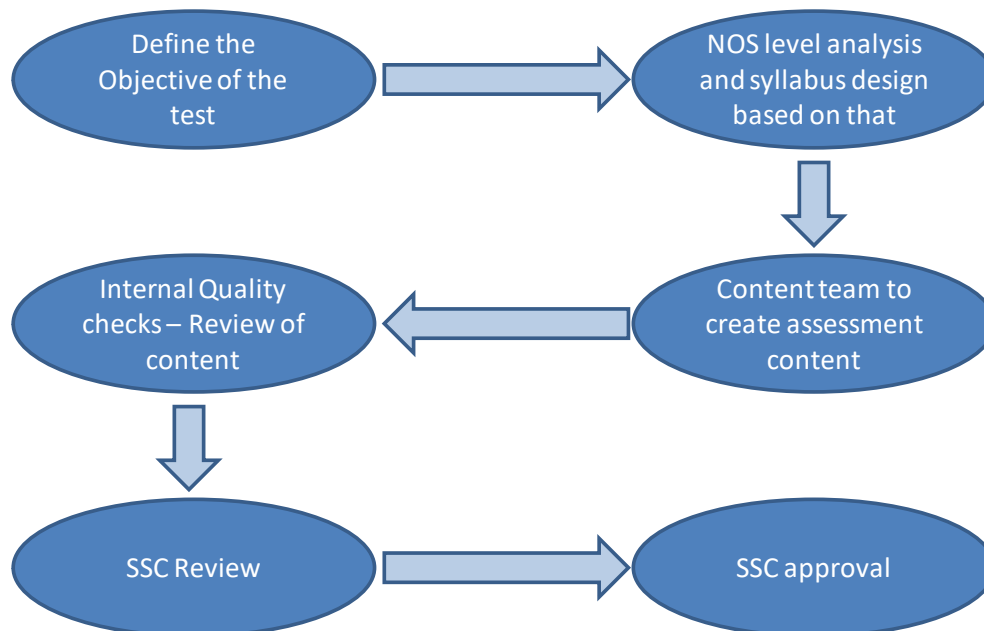
- b. Malfunctioning Tabs
- c. Assessor or proctor reaching late at the venue
- d. Delay in processing of the results
- e. Delay in uploading of the results

**6.3 RCPSDC will take action towards assessor and AA for blacklisting / suspension in such cases**

- a. Taking bribe from TPs or individual to pass candidate
- b. Assessor is found to be sending someone else on his/her behalf for the assessment.
- c. The assessor is found to have allowed fake candidates to appear for assessments
- d. If the Assessor is found to be not adhering the roles and responsibilities mentioned in SSC-SLA
- e. Receiving complaints by TP/TC regarding the malpractice or any other favors

## 7. Content Design

### 7.1 Content Creation process



As part of content creation question bank will be generated for each of the NOS to access the candidates on NOS based criterion.

Question bank will be a repository of questions from which backend technological system will randomly select certain questions which will in turn be addressed to the candidates. As questions will be chosen by technological system in a random order, different sets of question papers will appear in front of candidates.

## 7.2 Sample Questions

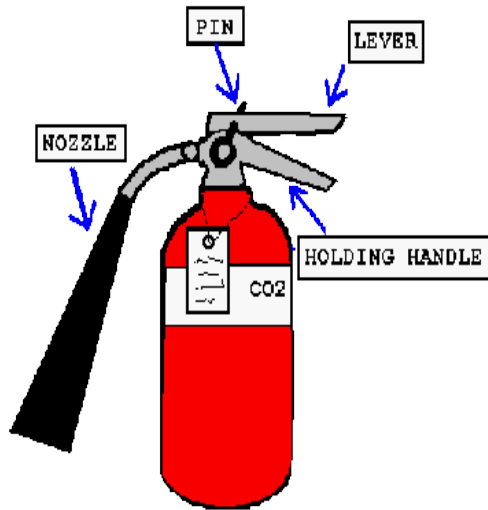
1. Given below are three different signs which are printed at various locations on different equipments. Arrange them in the increasing order of the seriousness of the hazard that each sign would depict.

**DANGER**

**CAUTION**

**WARNING**

2. Given below is the figure of a fire extinguisher. Click on the parts of the fire extinguisher in the sequence in which it is to be operated.



3. Safety is a major concern while operating the injection molding machine. There are several guards which are installed to ensure safety. Given below are three such guards along with their uses. Match each guard with its correct purpose of use.



1. Parts Discharge Guard

1. Prevents access to mold areas



2. Rear Guard

2. Keeps employees from reaching under the operator's gate and into hazardous areas



3. Barrel Cover

3. Protects from exposure to high voltage and high temperatures

4. While operating the injection molding machine, the operator observes a problem of insufficient pellet flow into the barrel resulting in the build-up of solid material in the hopper-barrel throat area. What could be the possible reason for the same?

- A. The machine must be running in the single cycle mode.
- B. There must be air spaces in the machine barrel.
- C. The purging of the machine on shutdown must have been inadequate.
- D. The cover above the nozzle area is not closed.

5. Given below are the steps involved in the operation of the Injection Moulding Press. The first and the last steps have been provided correctly while all the other steps are jumbled. You are required to arrange these steps in the correct order.

**Mould**

Mould

Machine

Building

a

Producing

Temperature

Specifying

Injection

Ejector

**Machine Shutdown**

**Installation**

Setup

Startup

Shot

Parts

Specification

Conditions

Setup

6. Assessor-based Evaluation: The assessor can ask the candidate to operate a particular machine. The candidate shall be evaluation on a set of parameters:
- Did the candidate switch on the right buttons to start the machine?
  - Did the candidate perform all the safety checks before starting the machine?
  - Did the candidate set the right specifications (temperature, pressure, etc.)?
  - Did the candidate follow the steps in the proper sequence?