

Niramaya

Feature PRD

Exams & Admissions Module

V2

July 2023

Version Control of PRD

Version	Release Date	SMF Sign off Date
V1	24 May 2023	TBD
V2		

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1. Overall purpose and vision

The Dept of Medical Education, Govt of UP has undertaken a set of reforms to improve the quality of healthcare professionals in the state. The main lever of change is the regulatory body in UP - the UP SMF - responsible for affiliation of institutes, conducting exams of candidates and providing license to registered healthcare practitioners. To enable these reforms, an Ayushman Bharat Digital Mission compliant digital platform is being developed using open source code. The platform will have a core system in the center that would be accessible through APIs from various modules. The users will interact with modules with their frontend portals - websites and progressive web apps.

Transparent efficient enrollments and conduction of fair exams in the institutes are few of the main reforms undertaken for the year 2023. One cycle was conducted in 2022 using the existing UPSMF website and affordable tech solutions - google sheets, forms and docs. Under the Exams & Admissions module, all the process flows undertaken in the previous cycle need to be migrated online for smooth functioning of UPSMF in conducting subsequent exams.

The key user of this module will be the Exam Cell of UPSMF for interacting with the institutes (secondary user) and candidates (tertiary user). Additionally, the Director General of Medical Education (DGME) would be interacting with the module for monitoring and oversight.

2. Scope of Exams & Admissions Module

The Exams & Admissions module development aims to allow the following use cases to be enabled for the admin (UP SMF) and the institutes:

1. Enable the institutes to enroll students
2. Enable the admin to setup exam cycles, exams, and schedules
3. Enable the admin to issue hall tickets
4. Enable the admin to issue question papers
5. Enable the admin to maintain control room log sheet (<to be confirmed>)
6. Enable the admin to publish results for candidates
7. Enable the institute to register for exams
8. Enable the institute to make exam fee payments
9. Enable the institute to upload internal, practical and theory exam marks
10. Enable the students to download hall ticket and results

Main Roles involved in the module

#	Role	Users
1	Institute	Institute Head/Faculty

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2	Admin	Regulator
3	DGME	Director General of Medical Education
4	Exam Controller	Regulator
5	Question repository contributor (QR_C)	Faculty, Regulator
6	Question repository manager (QR_M)	Regulator
7	Candidate	Candidates

Role-based access to portal relevant for the module

1. **Institute Portal** - This is the HRH portal accessed by the Institute Head/Faculty/Employee
2. **Admin Portal** - This is the HRH portal accessed by the Admin
3. **Candidate Portal** - This is the HRH portal accessed by the Candidates
4. **Questions Setup Portal** - This is the Prashna Bhandar portal (built using CoKreat) built for Assessments module

Key terms

Exam Cycle - Set of exams that the admin will host (ex. GNM 1st Year Final Exams)

Exam - Single exam in an exam cycle (ex. GNM 1st Year Microbiology Final Exam)

Exam Fee - Exam fee paid by the institute to the admin for each candidate

The document details the flows and use cases of the features that will enable the central examination management in the UPHRH tech platform.

3. Success Metric for Exam Module

Key metrics for success of exam module will be as below:

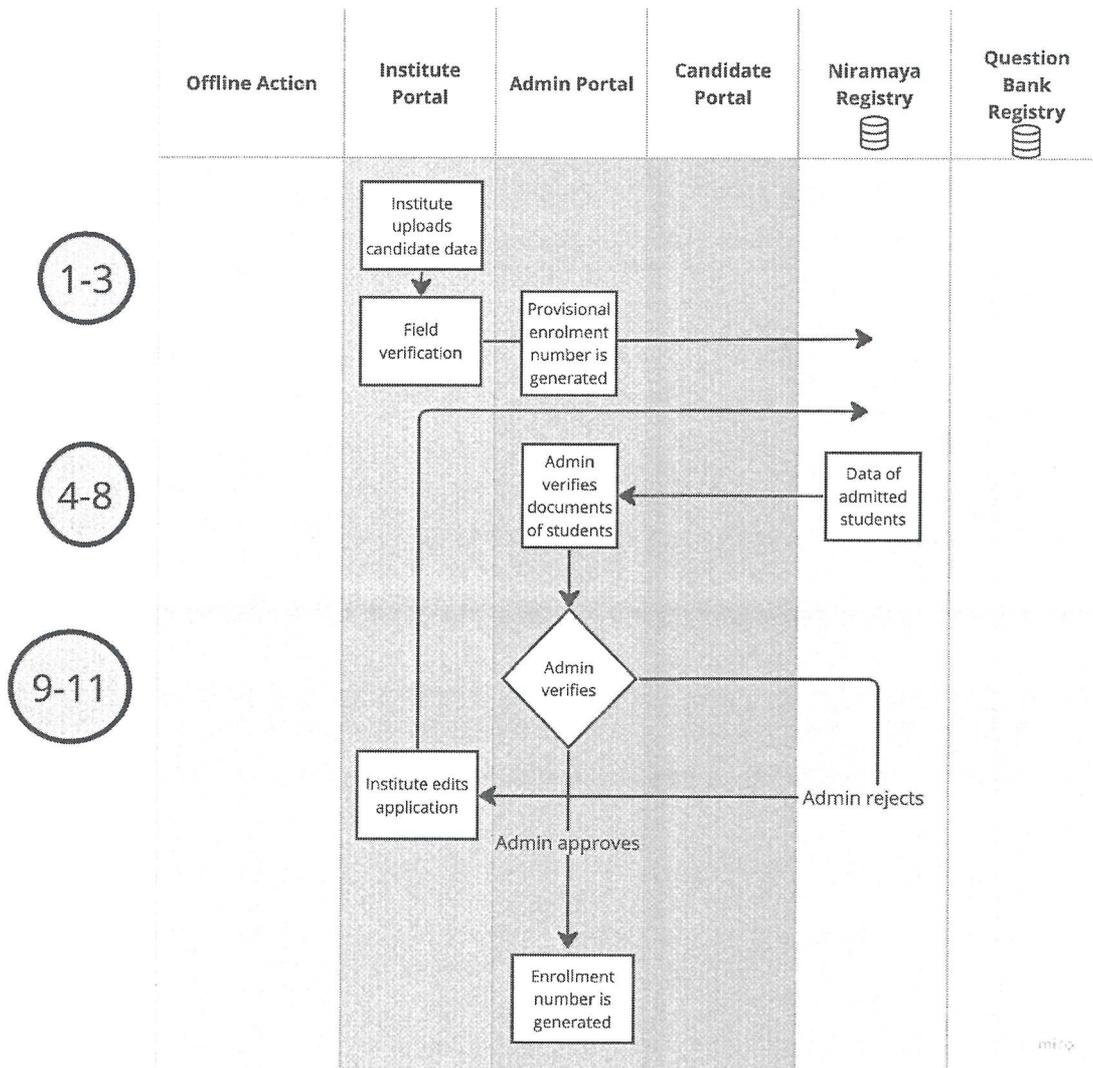
1. 100% document verification during enrollments in a year completed in <21 days
2. Smooth conduction of examination - Module down for <10% of total duration of exams
3. 100% institutes would download question paper from exam module
4. Hall tickets for 100% students gets generated & 100% students are able to download them
5. 90% students can access their exam results from tech platform

4. Overall Workflow

Miro workflow: https://miro.com/app/board/uXjVMH9axxc=?share_link_id=696492409498

4.1 Enrollment Flow (Use case 2)		Portal in use for step
1	Institute uploads student enrolment details on the institute portal along with document proofs of all students	Institute Portal
2	Institute Portal verifies the course, seat availability for the course, and other fields and based on the validation, allows/rejects the student enrolment	Institute Portal
3	Provisional enrollment number is generated for every student and displayed on candidate portal	Backend
4	Admin is able to view all the documents on their portal	Admin Portal
5	Admin can approve an enrolment after reviewing documents on their portal	Admin Portal
6	Admin can reject an enrolment by providing the required reason from their portal	Admin Portal
7	DGME and Secretary are able to view list of students who have been enrolled by institute but not had their documents verified by the admin for > 21 days	DGME/Secretary Portal
8	Once documents are approved, enrollment number is generated for students and displayed on the candidate portal and institute portal	Backend, Candidate Portal and Institute Portal
9	If rejected, institute gets the application on their portal and they are able to make necessary edits in the application	Institute Portal
10	If an updated application is received from institute within 14 days, the admin can review the application	Admin Portal
11	If the updated application is not received from institute within 14 days, the application is closed	Backend

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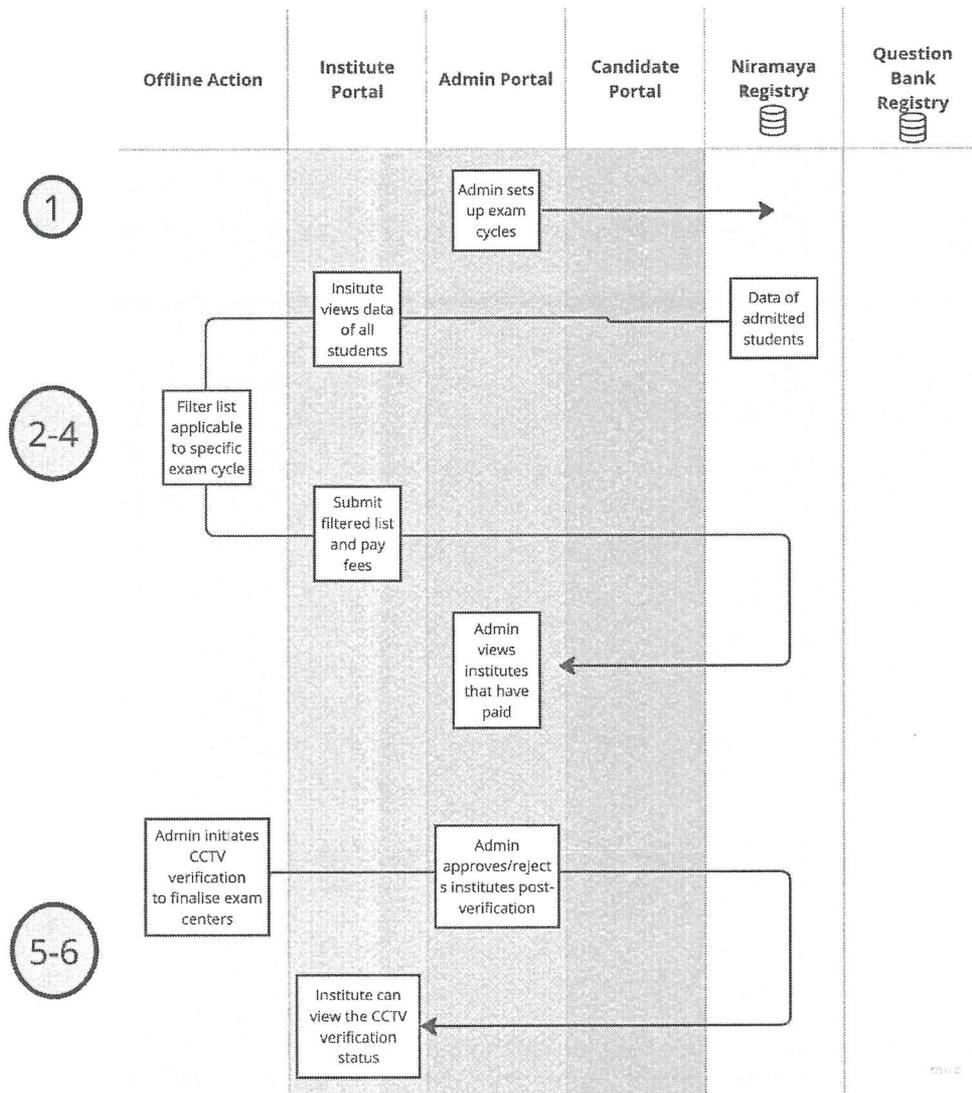


4.1 Enrollment Flow

4.2 Exam Setup Flow (Use cases 3.1 - 3.11, 4.1-4.6)		Portal in use for step
1	Admin will set up an exam cycle with information about each course	Admin portal
2	Institutes mark the candidates taking exams in the particular exam cycle directly from the total list of candidates in their institute for a course	Institute portal
3	Institutes will make an "Exam Fee" payment for each of their candidates The payment details are going to be pre-populated as per the payment	Institute portal

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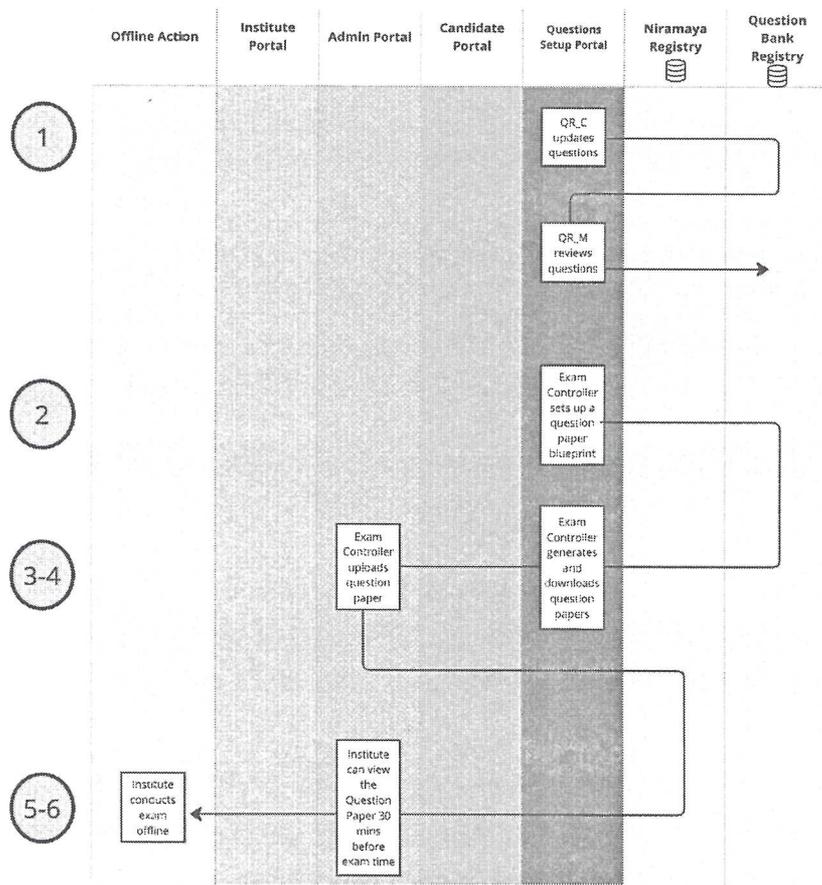
	gateway information for every enrolment number	
4	Admin views the list of institutes that have made the "Exam Fee" payment on the admin portal	Admin portal
5	Admin initiates offline CCTV verification for all institutes	Offline
6	Admin will update the result of CCTV verification on the portal	Admin portal



4.2 Exam Setup Flow

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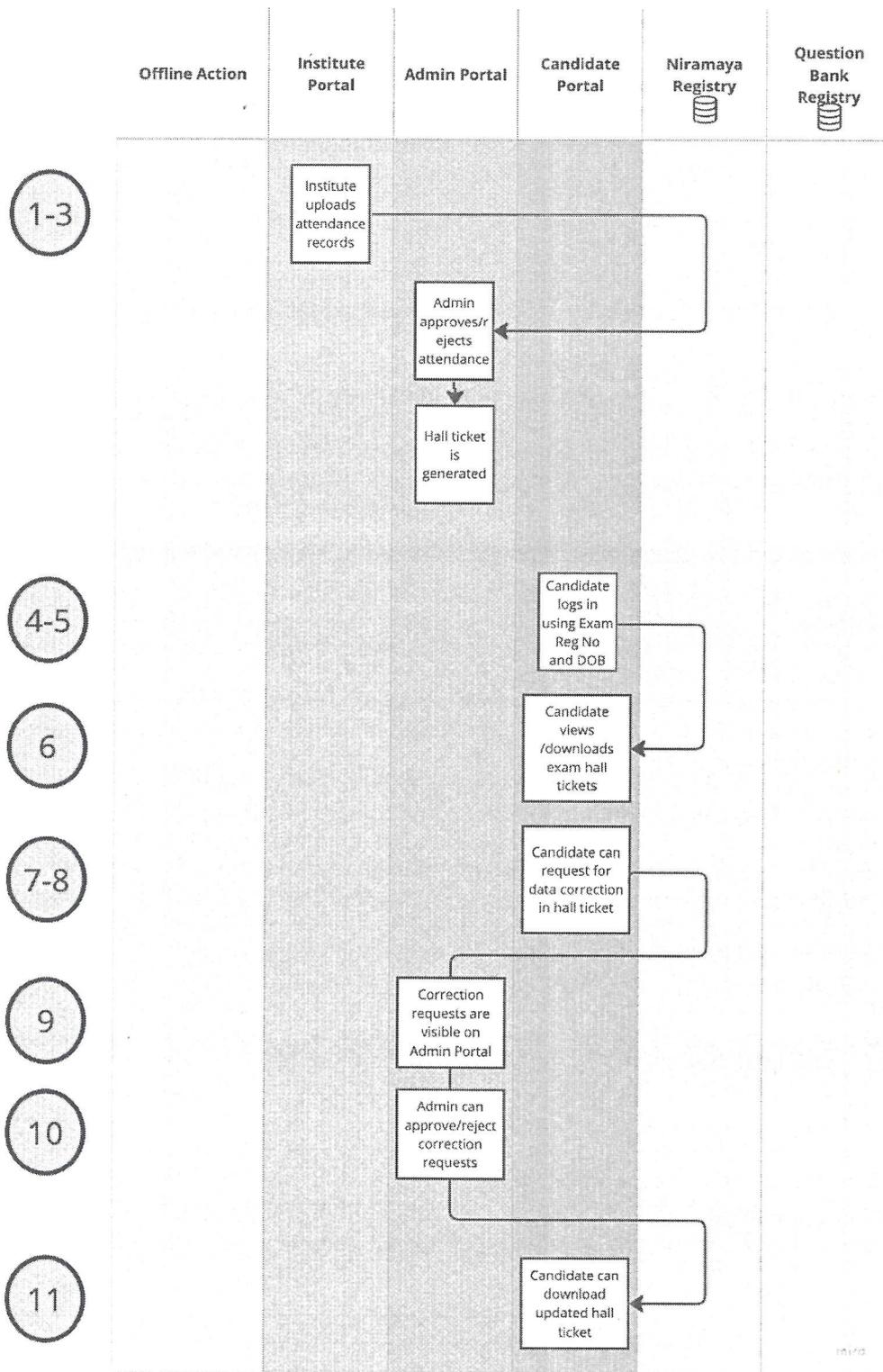
4.3 Question Paper Generation Flow V1 (Use case 3.12, 4.7 & who e of use case 6)		Portal in use for step
1	QR_C will update questions from various courses QR_M will review questions submitted by QR_C	Questions Setup Portal
2	Exam Controller will setup a Question Paper blueprint	Questions Setup Portal
3	Exam Controller will generate and download question papers from the blueprint	Questions Setup Portal
4	Exam Controller will upload a question paper to admin portal	Admin Portal
5	Institutes will be able to view the question paper on their portal 30 minutes before an exam	Institute Portal
6	Exam is conducted in each institute	Offline



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4.3 Question Paper Generation Flow V1

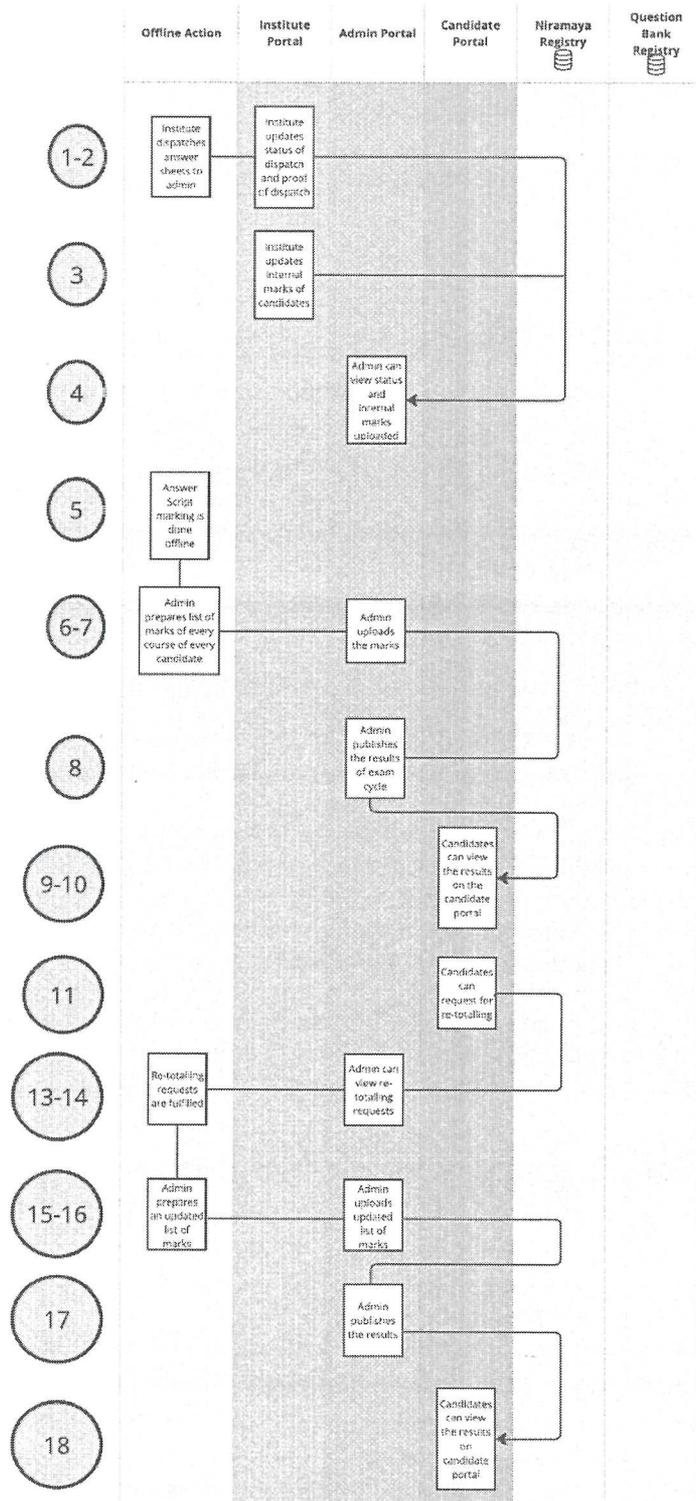
4.4 Candidate Hall Ticket Generation (Use case 5)		Portal in use for step
1	Institute will upload attendance records biometric data for all students	Institute Portal
2	Admin will approve/reject the records based on the criteria of minimum 75% attendance	Admin Portal
3	Hall ticket is generated for all verified students if attendance is approved and exam fees is paid	Backend
4	Candidate portal will show active links corresponding to hall ticket generation and exam results for appropriate exam cycles. Note: At a time, there could be multiple exam cycles for which hall ticket generation is enabled	Candidate Portal
5	Candidates can login to appropriate link using enrolment number and date of birth	Candidate Portal
6	Candidates can view/download their exam hall tickets after logging in Note: Hall ticket is generated for each candidate by mapping candidates for whom "Exam Fee" has been paid to institutes that have passed cctv verification	Candidate Portal
7	Candidates at ineligible institutes to be mapped to other institutes (which are eligible to be exam centres) in the same district by admin	Admin Portal
8	Candidates can request for hall ticket data updation through a button	Candidate Portal
9	Candidate portal will prompt for OTP verification to successfully allow request to be saved	Candidate Portal
10	Admin can view hall ticket data updation requests on their portal	Admin Portal
11	Admin can approve/reject the request	Admin Portal
12	Candidate can download new hall ticket once request is resolved by Institute	Candidate Portal



4.4 Candidate Hall Ticket Generation

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4.5 Exam Results Flow (Use case 7)		Portal in use for step
1	After the exam is conducted successfully, the institute dispatches the answer sheets to admin	Offline
2	Institute updates the status of dispatch and proof of dispatch for corresponding exam in exam cycle on portal	Institute Portal
3	Institute marks the list of students attending exam on the particular date on the institute portal	Institute Portal
4	Institute updates the internal, theory, and practical marks for the exam	Institute Portal
5	Admin can view the status of dispatch, proof of dispatch, and marks of the candidates	Admin Portal
6	Answer script marking is done offline	Offline
7	Admin prepares a list of marks of answer scripts for each course of the exam cycle	Offline
8	Admin uploads the marks to the portal for an exam cycle	Admin Portal
9	Admin publishes the results of exam cycle & issued marksheet document, diploma certificate and migration certificate	Admin Portal
10	Candidate portal shows appropriate link for corresponding exam cycle results	Candidate Portal
11	Candidates can login to the link using enrolment number and date of birth	Candidate Portal
12	Candidates can request for re-totalling requests through a button & pay the required fee	Candidate Portal
13	Candidate portal will prompt for OTP verification to allow re-totalling request to be saved	Candidate Portal
14	Admin can view the re-totalling requests	Admin Portal
15	Admin will fulfill the re-totalling requests offline	Offline
16	Admin will prepare an updated list of exam results	Admin Portal
17	Admin will upload the list on the portal	Admin Portal
18	Admin will publish the results	Admin Portal
19	Candidates can view the updated results on the candidate portal	Candidate Portal



4.5 Exam Results Flow

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5. Overview of Use Cases

Use Case Group 1 - User Management on Admin, Institute, Candidate, and Questions Setup Portal

#	Use Case	Description
1.1	Adding users	As an admin, I am able to add users to the platform and assign them to their user roles so that they can perform the actions of their role (Admin, Institute, QR_C, QR_M, Candidate)
1.2	Edit / Delete users	As an admin, I am able to edit user information / role and delete users after adding them
1.3	OTP based login by institute	As an institute, I am able to generate OTP on my email ID while logging in, so that I can successfully login and access the platform
1.4	Login by DGME	As the DGME, I should be able to login to the DGME portal through email ID and password or OTP generated on my email
1.5	Login by candidate	As a candidate, I am able to login to the candidate portal through email ID and password or OTP generated on my email
1.6	Login by QR_C	As a QR_C, I am able to login to the Questions Setup portal through email ID and password or OTP generated on my email
1.7	View and edit fields in 'My Profile'	As a user, I am able to edit fields in 'My Profile' so that I can record any changes in my profile

Use Case Group 2 - Enrollment

#	Use Case	Description
2.1	View Student Enrollment tab	As an admin and as an institute, I should be able to view a student enrollment tab among other options (Affiliations, Exam Management, etc.)
2.2	Upload student enrolment data	As an institute, I should be able to upload a list of candidates to the system along with their documents

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2.3	Verify fields	As an institute, my uploaded data should be verified by the system for course, seat availability and other field validations <validations to be updated>
2.4	View provisional enrolment number	As a candidate and as an institute, I should be able to view a provisional enrolment number once my/candidate's documents have been uploaded by the institute successfully
2.5	Verify documents	As an admin, I should be able to verify documents uploaded by the institute for a student and approve/reject the enrolment System should maintain audit trail of information related to my approval - datetime of approval and user name
2.6	View outstanding verifications	As the DGME/Secretary, I should be able to see the list of students for whom the document verification has been pending for >21 days
2.7	View enrolment number	As a candidate, I should be able to view a enrolment number once my documents have verified by the admin
2.8	View rejected applications	As an institute, I should be able to view rejected applications and the reasons for rejection in such applications As an institute, I should be able to edit these applications and re-submit in 14 days before the application is closed
2.9	View enrolment number	As a candidate and as an institute, I should be able to view my/candidate's final enrolment number

Use Case Group 3 - Exam Management as an admin

#	Use Case	Description
3.1	View Exam Management tab	As an admin, I am able to view a exam management tab on the admin portal
3.2	Adding exam cycle	As an admin, I am able to add exam cycles for institutes to register/onboard to with the following information Exam Cycle fields: Exam cycle name, course name, start date, end date <fields to be updated>

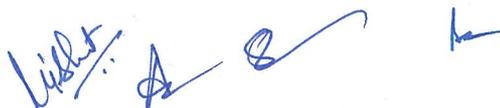
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3.3	Delete exam cycle	As an admin, I am able delete exam cycles
3.4	Add/Delete exams in exam cycles	As an admin, I am able to add/delete exams in every exam cycle Exam fields: Exam subject name, date, time, max marks <fields to be updated>
3.5	Bulk create exam cycles and exam	As an admin, I am able to download a csv template for bulk creation of exam cycles and exams As an admin, I am able to upload a csv for bulk creation of exam cycles and exams
3.6	View exam cycles and exams	As an admin, I am able to view list of exam cycles and exams
3.7	Backend-create exam cycles (V2)	As an admin, I am able to view pre-created exam cycles for every course
3.8	View payment status of institutes	As an admin, I am able to see the list of institutes that have made payment for an exam cycle
3.9	View/Download candidates appearing for exam cycle from each institute	As an admin, I am able to see the list of candidates for which the institutes have made the payment
3.10	View/Update cctv verification status of institutes	As an admin, I am able to update the CCTV verification status of institutes for an exam cycle
3.11	Mark "Not allowed for exam center" for an institute	As an admin, I am able to mark "Not allowed for exam center" for an institute
3.12	Upload Question Paper	As an admin, I am able to upload question paper PDFs for every exam

Use Case Group 4 - Exam Management as an Institute

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#	Use Case	Description
4.1	Register for exam cycle	As an institute, I am able to register for an exam cycle
4.2	View enrolled candidates list	As an institute, I am able to view the list of candidates in the institute in different courses
4.3	<p>Pay exam fees for candidates</p> <p>Download enrolled candidates list</p>	<p>V1:</p> <p>As an institute, I am able to download the list of candidates in different courses</p> <p>As an institute, I am able to upload a list of candidates as a csv appearing for an exam cycle (including list of subjects they are appearing for)</p> <p>As an institute, I am able to view the payment amount for the uploaded list of students</p> <p>As an institute, I am able to pay exam fees for the list of candidates that was uploaded before making the payment wherein payment information is pre-populated from the payment gateway for every enrolment number</p> <p>As an institute, I am able to view list of students for whom the payment has been made successfully</p> <p>As an institute, I am able to repeat the process to make repeat payments</p> <p><Payment vendor to be updated></p> <p><Schema for exam fees to be updated></p> <p>V2:</p> <p>As an institute, I am able to filter the list of candidates in different courses on the portal</p> <p>As an institute, I am able to submit the filtered list of candidates</p> <p>As an institute, I am able to upload a csv of candidates (including of subjects they are appearing for)</p> <p>As an institute, I am able to view the payment amount for the list of candidates</p> <p>As an institute, I am able to pay exam fees for the list of the candidates filtered wherein payment information is pre-populated from the payment gateway for every enrolment number</p> <p>As an institute, I am able to repeat the process to make repeat payments</p> <p><Payment vendor to be updated></p> <p><Schema for exam fees to be updated></p>
4.6	View CCTV verification status	As an institute, I am able to view the status of CCTV verification of my institute

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4.7	Download Question Paper	As an institute, I am able to download the question paper PDF for an exam 30 minutes before the scheduled exam time
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Use Case Group 5 - Hall Ticket Management

#	Use Case	Description
5.1	Upload student attendance record	As an institute, I am able to upload attendance records for the students
5.2	Verify attendance criteria	As a admin, I am able to approve/reject that the attendance criteria for students is as per the minimum attendance criteria System should store my audit information - datetime of approval and name of user
5.3	View/download candidate hall ticket for exam cycle	As a candidate, I am able to view/download candidate hall ticket on the candidate portal by giving my "Enrolment number" and "Date of Birth" Note: Hall ticket is generated by the system only after attendance criteria is met and the exam fees has been paid by the institute Note: Hall ticket is generated based on mapping between candidates (payment for whom is made by institutes) and exam centres (institutes which have cctv verification done) <business logic to be updated>
5.4	Request data correction in hall ticket	As a candidate, I am able to request data correction in hall ticket
5.5	View requests for candidate data correction	As an admin, I am able to view requests for candidate data correction
5.6	Approve/Reject requests for candidate data correction	As an admin, I am able to approve/reject requests for candidate data correction
5.7	Update candidate data	As an admin, I am able to update candidate data

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Use Case Group 6 - Question Paper Setup on Question Setup Portal

V1:

Prashna Bhandar (CoKreat instance for UP SMF) should be used for the Question Setup Portal fulfilling the below use cases. Admin should be able to login to Prashna Bhandar and all required security criteria should be met.

#	Use Case	Description
6.1	Upload questions	As a QR_C, I am able to upload questions for every course QR_M will review questions submitted by QR_C
6.2	Bulk upload questions	As a QR_C, I am able to download a csv template to upload questions As a QR_C, I am able to upload a csv with multiple questions Question fields: Question, Course, Subject, Difficulty <Tarento to provide csv fields of questions from Prashna Bhandar>
6.3	Set a blueprint for question paper	As an exam controller, I am able to set a blueprint for a question paper
6.4	Generate Question Papers	As an admin, I am able to generate question papers based on the blueprint
6.5	Re-generate Question Paper	As an admin, I should be able to re-generate different random question papers everytime I click on the "Generate Question Paper" button based on the blueprint
6.6	Download Question Paper	As an admin, I am able to download a question paper for any course
6.7	Documentation	As an admin, I should have an offline documentation for using the questions setup portal to be shared with the QR_C, QR_M and exam controller

V2:

Same use cases as above but the user experience is integrated into the Admin Portal.

<Details to be updated>

Use Case Group 7 - Exam Result Generation



#	Use Case	Description	Portal
7.1	Update status of dispatch and upload proof of dispatch	As an institute, I am able to update status of dispatch and upload proof of dispatch for an exam in an exam cycle	Institute Portal
7.2	Update internal marks for every candidate	As an institute, I am able to enter internal (theory+practical) marks for every candidate for every course through a CSV upload <schema to be updated>	Institute Portal
7.3	View dispatch status and proof of dispatch	As an admin, I am able to view dispatch status and proof of dispatch for every institute for every exam in every exam cycle	Admin Portal
7.4	View/Export internal marks of every candidate for every course in every exam cycle	As an admin, I am able to view/export internal marks of every candidate for every exam in every exam cycle	Admin Portal
7.5	Upload final marks for every candidate for every exam in exam cycle	As an admin, I am able to upload final marks for every candidate in every course in every exam cycle <schema to be updated>	Admin Portal
7.6	Generate final results for every candidate for every exam in exam cycle	As an admin, I am able to generate results for every exam in every exam cycle	Admin Portal
7.7	View final results for every candidate for every exam in exam cycle	As an admin, I am able to view marks for an exam cycle for every candidate	Admin Portal
7.8	Publish results for an exam cycle	As an admin, I am able to publish results for an exam cycle after all results have been generated	Admin Portal
7.9	View/Download final results	As a candidate, I am able to view/download final result card by giving my "Enrolment number" and "Date of birth"	Candidate Portal

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7.10	Initiate re-totalling request for selected subjects	As a candidate, I am able to initiate a re-totalling request for selected subjects	Candidate Portal
7.11	View re-totalling requests	As an admin, I am able to view the re-totalling requests in an exam cycle	Admin Portal
7.12	Update marks for candidates	As an admin, I am able to update marks of the candidates for every exam in an exam cycle	Admin Portal
7.13	View dashboard of marks	As an admin, I am able to see a dashboard of the marks of all candidates for an exam cycle using metabase <details on types of views in dashboard to be updated>	Admin Portal

6. Versioning

#		Description
1	Candidate Portal	<p>V1: Integrated with assessments portal Candidates login to the candidate portal and can view their results and hall ticket on the portal through "Enrolment number" and "Date of birthday"</p> <p>V2: Integrated with Avsar app Candidates are able to view their hall ticket and results on the Avsar app as an e-credential <V2 details to be updated by program team></p>
2	Questions Setup Portal	<p>V1: Question Contribution and Question Paper Generation is done on a separate portal designed similar to the Assessments admin portal using CoKreat and Prashnabhandaar. Generated question paper is uploaded by the admin on the Admin portal.</p> <p>V2: Question Contribution and Question Paper Generation is integrated into the Admin portal. Question contribution is done on a "Question Management" tab and Question paper generation is done on the "Exam Management" tab.</p>
3	Exam Cycle Setup	<p>V1: Admin will create each exam cycle on admin portal</p> <p>V2: Admin will see pre-created exam cycles for each degree</p>

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4	Pay fees on institute portal	<p>V1: Download list of all admitted students data on institute portal, filter the list offline, and upload csv of filtered students on the institute portal to make the payment</p> <p>V2: View list of admitted students list, filter the list on the portal, and submit the list to make the payment of applicable students for the exam cycle</p>
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Appendix

Open Questions

Decision Points for UP SMF:

1. Will UP SMF set up new exam cycles every year? Or do we need pre-filled exam cycles?
2. Confirmation if the control log sheet is required for the exam module?
3. Is it possible for institutes to filter and furnish a csv/excel with a list of students applicable for an exam cycle if given the total list of admitted students in the institute?
4. Can you please confirm the amount of exam fee - is it the same for all exam cycles or different? Also, is the exam fee same for all candidates, or different for some candidates?
5. Is there a verification for internal marks uploaded by the institutes in the programmatic flow?
6. Please discuss and finalize the dashboard view of the marks that are required by SMF.
7. Is there any requirement for a notification scheme if the hall ticket or exam results for a candidate get updated? Does something like this exist currently?
8. Please clarify the flow for a supplementary exam.
 1. Will the student receive the entire result card or only the particular subject for which they have taken the exam?
 2. Will the exam fees for supplementary exam giving students be only for the selected exam or will the fees be the same as the entire exam cycle?

Data to be shared by UP SMF:

1. We would need the business logic for mapping students to exam centers for the generation of hall tickets (including corner cases if any)
2. We would need the schema for:
 1. Exam Cycle information
 1. Share existing exam cycles that run in the SMF degrees
 2. Share parameters that define an exam cycle
 2. Internal marks uploaded by the Institutes
 3. External marks uploaded by SMF



