



सत्यमेव जयते

**PUNJAB PUBLIC SERVICE COMMISSION  
BARADARI GARDEN, PATIALA- 147001**

**GENERAL INFORMATION**

**REGARDING RECRUITMENT TO 04 POSTS OF RESEARCH OFFICER  
(GROUP-A) AND 16 POSTS OF ASSISTANT RESEARCH OFFICER  
(GROUP-A)**

**IN THE DEPARTMENT OF WATER RESOURCES,  
GOVERNMENT OF PUNJAB**

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**PUNJAB PUBLIC SERVICE COMMISSION**  
**BARADARI GARDEN, PATIALA- 147001**  
**WEBSITE : <http://ppsc.gov.in>**

Advt. No.  
**202282**  
 To  
**202283**

## GENERAL INFORMATION FOR THE CANDIDATES

### RECRUITMENT TO:

- **04 POSTS OF RESEARCH OFFICER (GROUP-A) IN THE DEPARTMENT OF WATER RESOURCES, GOVERNMENT OF PUNJAB.**
- **16 POSTS OF ASSISTANT RESEARCH OFFICER (GROUP-A) IN THE DEPARTMENT OF WATER RESOURCES, GOVERNMENT OF PUNJAB.**

**Note:- A Joint Competitive Examination will be conducted for the ibid posts. The Candidates shall fill separate online application forms for the ibid posts.**

### 1. INTRODUCTION

*The Punjab Public Service Commission (PPSC) has been established under Article 315 of the Constitution of India, with the basic purpose of recruiting officials in various departments of the Government as per the requisitions sent by the Government in this regard from time to time.*

**The Punjab Public Service Commission invites Online Application Forms from eligible candidates for recruitment to 04 Posts of Research Officer (Group-A) and 16 Posts of Assistant Research Officer (Group-A) in the Department of Water Resources, Government of Punjab.**

**Note:** This advertisement is being published as per requisitions received from the Department of Water Resources, Govt. of Punjab vide letter no. 1/25/2020-4742/19/1 dated 05/01/2021, 01/01/2019-2741/22 dated 12/01/2021 and Memo no. 12404/4 ਈ. ਜੀ/2022 dated 15/07/2022 and letter no. WR-IRP101/1/2022-2IP1/394223/2022 dated 15/07/2022.

### 2. NUMBER AND RESERVATION OF THE POSTS

Advt. No.	Name of the Post	Category code	Category	Total No. of Posts	Posts Reserved For Women Out of Total No. of Posts
202282	Research Officer (Group-A)	71	General	03	01
		81	Balmiki/Mazbhi Sikhs, Punjab	01	01
		<b>Total</b>		<b>04</b>	<b>02</b>

General Information regarding 04 posts of Research Officer (Group-A) and 16 posts of Assistant Research Officer (Group-A) in the Department of Water Resources, Government of Punjab in the year of 2022

202283	Assistant Research Officer (Group-A)	71	General	06	02
		92	General Economically Weaker Section, Punjab	01	01
		72/73	Ex-Serviceman/ LDESM, Punjab	02	01
		76	Person with Disability - 76-B Deaf and Hard of Hearing, Punjab	01	00
		77	Scheduled Castes(Others), Punjab	02	01
		81	Balmiki/Mazbhi Sikhs, Punjab	02	01
		85	Backward Classes, Punjab	02	01
		<b>Total</b>		<b>16</b>	<b>07</b>

- Note 1** The number of posts may be increased or decreased by the Government at any time before the selection process is complete without giving any prior notice to the candidates.
- Note 2** The Punjab Civil Services (Reservation of posts for women) Rules 2020 issued by the Department of Social Security and Women & Child Development that provides for 33% reservation for women of Punjab is attached as **Annexure-I** with General Information for candidates.
- Note 3** There will be a **JOINT COMPETITIVE EXAMINATION for 04 Posts of Research Officer (Group-A) and 16 Posts of Assistant Research Officer (Group-A) in the Department of Water Resources, Government of Punjab.**
- Note 4** Before applying for the posts, candidate is advised to refer to clause 10 of the GENERAL INFORMATION FOR CANDIDATES. The process of applying for the advertisements (for which the Commission will conduct a **JOINT COMPETITIVE EXAMINATION**) will be divided into TWO PHASES as illustrated at Clause 10. Candidate is advised to read clause 10 i.e. **“INSTRUCTIONS TO APPLY FOR JOINT APPLICATION FORMS”** before filling online application form.

### 3. INITIAL PAY: Rs. 47,600/-

The minimum pay admissible for the ibid posts shall be as per notification no 7/204/2012-4F.P.1/66 dated 15/01/2015 Government of Punjab, Department of Finance (Finance Personnel-I Branch) Chandigarh; and Notification No.1/6/2016- 4P.P.1/834680/1 dated 07/09/2016 Government of Punjab, Department of Personnel PP-I Branch Chandigarh and letter no. 7/2004/2012-4F.P.1/853793/1 dated 04/10/2016, Fixed emolument equal to minimum pay without any allowance, will be paid during the probation period of 3 years.

#### 4. ESSENTIAL QUALIFICATIONS

Sr. No.	Advt. No.	Post Name	Qualifications
1.	202282	<b>Research Officer (Group-A)</b>	<p>(i) Possesses Ph.D in Science stream i.e. Physics or Chemistry or Mathematics preceded by the Degree in M.Sc. /M.Sc. (Hons) with minimum sixty percent marks in aggregate from any recognized university in any one of the subject (Physics/Chemistry/Mathematics), subject to the condition that the candidate should be B.Sc. (Non Medical) or B.Sc.(Hons) in any of the subject (Physics/Chemistry) with minimum sixty percent marks in aggregate from any recognised university. <b>(Specialization in Ph.D should be in the same subject as taken in M.Sc./M.Sc.(Hons)]; and</b></p> <p>(ii) Experience of three years in the line of his research and should have published work to his credit.</p>
2.	202283	<b>Assistant Research Officer (Group-A)</b>	<p>(i) Degree in M.Sc./M.Sc.(Hons) with minimum sixty percent marks in aggregate from any recognized university in any one of the subject(Physics/Chemistry/Mathematics), subject to the condition that the candidate should be B.Sc.(Non Medical) or B.Sc. Hons in any of the subject (Physics/Chemistry) with minimum sixty percent marks in aggregate from recognized university; and</p> <p>(ii) Experience of two years in the line of his research and should have published work to his credit.</p>

4.2 Should have passed Punjabi of Matric or its equivalent Standard.

Provided further that where a ward of Defence Service Personnel, who is a bonafide resident of Punjab State, is appointed by direct appointment, he shall have to pass an examination of Punjabi Language equivalent to Matriculation Standard or he shall have to qualify a test conducted by the Language Wing of the Department of Education of Punjab Government within a period of two years from the date of his appointment. Provided further that where a

War Hero, who has been discharged from defence services or paramilitary forces on account of disability suffered by him or his widow or dependent member of his family, is appointed under the instructions issued in this behalf by the Government, the person so appointed will not be required to possess afore said knowledge of Punjabi language:

**IMPORTANT NOTE:** The candidates MUST possess the requisite qualification before or by **30/08/2022.**

## 5. **AGE**

**5.1 Candidates should not be below 18 years and above 37 years of age as on 01/01/2022.**

5.2 The upper age limit may be relaxed up to 45 years for Punjab Government employees, the employees of its Boards/Corporations/Commissions and Authorities, and all States/ Central Government employees.

5.3 The upper age limit is relaxed up to 42 years for Scheduled Castes and Backward Classes of Punjab.

5.4 Ex-servicemen of Punjab Domicile shall be allowed to deduct the period of his service in the Armed Forces of Union from his actual age and if the resultant age does not exceed the maximum age limit prescribed for direct appointment to such a vacancy in the Service Rules concerned by more than three years, he shall be deemed to satisfy the condition regarding age limit.

5.5 The upper age limit is also relaxed up to 42 years for widows, divorcees and certain other categories of women.

5.6 The upper age limit is also relaxed up to 47 years for "Persons with Disability" of Punjab.

**Note:** Provisions mentioned in Punjab Civil Services(General and Common Conditions of Service) Rules, 1994 amended from time to time may be considered

## 6. **PATTERN AND SCHEME OF COMPETITIVE EXAMINATION FOR SELECTION**

### 6.1 **PROCEDURE FOR SELECTION**

The procedure for selection of candidates to 04 Posts of Research Officer (Group-A) and 16 Posts of Assistant Research Officer (Group-A) in the Department of Water Resources, Government of Punjab will be as per the following details:-

Subject Matter	No. of Questions	Total Marks
Written Competitive Examination	120	480
Interview	-	60
Total Marks	-	<b>540</b>

The written competitive examination for the post will be scheduled soon.

### 6.2 **PATTERN OF THE WRITTEN COMPETITIVE EXAMINATION**

The pattern for written competitive examination comprising of 120 questions (@ 4 marks for each question) is as follows:

Sr.No.	Topic	No. of Questions	Marks (Each Question carries 4 marks)	Type of Questions
1.	Questions from the Subject(Part A of Syllabus)	100	400	MCQs (Multiple Choice Questions)
2.	Questions from General Knowledge & Current Affairs, General Mental Ability, Logical Reasoning and Quantitative Aptitude. (Part B of Syllabus)	20	80	
<b>Total</b>		<b>120</b>	<b>480</b>	

***The important points to note:***

*There will be a JOINT COMPETITIVE EXAMINATION for 04 Posts of Research Officer (Group-A) and 16 Posts of Assistant Research Officer (Group-A) in the Department of Water Resources, Government of Punjab.*

- I. The question paper will be in English language only.*
- II. Each question carries **4 marks** and for each correct answer, the candidate will get **4 (four) marks**.*
- III. There will be **negative marking** (one mark for each question) in the written examination for questions wrongly answered i.e. for each incorrect answer, **1 (one) mark** will be deducted from the total score.*
- IV. To answer a question, the candidate has to find, for each question, the correct answer/ best option.*
- V. Answer key will be uploaded on the PPSC website (after written examination), and the candidates will be permitted to raise objections (if any). Candidates will be given four days to deliberate before putting up the objections.*
- VI. Unanswered/unattempted questions will be given no marks. In case, a question is withdrawn, all candidates will be given **four (04) marks** irrespective of the fact whether the question has been attempted or not attempted by the candidate.*

### **6.3 DURATION OF EXAMINATION**

The exam will be of two (02) hours duration.

### **6.4 SYLLABUS OF THE WRITTEN EXAMINATION**

**The Question Paper will be based on the given syllabus from the subject and General Knowledge & Current Affairs, General Mental Ability, Logical Reasoning & Quantitative Aptitude (Annexure-VIII)**

### **6.5 MODE OF EXAMINATION**

The examination is a pen and paper-based, to be answered on the specially designed machine gradable OMR sheet using ball point pen.

## 6.6 INFORMATION ABOUT EXAM CENTRE

Information about the examination centre(s) will be mentioned on Admit Cards of all candidates. The Public Notice to download the Admit cards will be given on the website of the Commission.

## 6.7 ELIGIBILITY AND SCRUTINY OF APPLICATION FORMS AND TESTIMONIALS

**6.7.1** All candidates who apply for the ibid posts will be treated "provisionally eligible" for appearing in the competitive exam. Acceptance of applications at this stage and allotment of Roll Numbers by PPSC does not indicate acceptance of candidature by the PPSC, since there is no scrutiny of documents before the written exam.

**6.7.2** The scrutiny of application forms shall be done after the conduct of the examination. During the process of scrutiny, the application forms and other relevant documents, certificates, etc. of the candidates shall be examined to determine their eligibility **as on 30/08/2022**. Candidates not meeting the eligibility criteria will be rejected after the scrutiny process or any time thereafter if found ineligible.

**6.7.3** The candidates applying for the Competitive Examination should ensure that they fulfill all the eligibility conditions for admission to the examination. Their admission at all the stages of examination for which they are admitted by the Commission viz. Competitive Examination will be purely provisional, subject to their satisfying the prescribed eligibility conditions. If on checking at any time before or after the Competitive Examination, it is found that they do not fulfill any of the eligibility conditions their candidature for the examination will be cancelled by the Commission. If any of their claims is found to be incorrect, they may render themselves liable to disciplinary action by the Commission or the civil court. Any attempt on the part of a candidate to obtain support for his candidature by any unfair means will render him/ her liable for disqualification and disciplinary action.

## 6.8 INTERVIEW

**6.8.1** For Advt. No.202282 [04 Posts Of Research Officer(Group-A)] candidates not more than **three** times the total number of posts and for Advt. No.202283 [16 Posts of Assistant Research Officer(Group-A)] candidates not more than **two** times of the total number of posts as mentioned at Note 3 (in their order of merit of written examination) who have scored a minimum of 40 percent marks in written examination (35% for candidates of Scheduled Castes of Punjab and Backward Classes of Punjab) will be short-listed for appearing in the interview. However, this number shall be subject to variation if two or more candidates at the bottom of this list (the number at the end) get equal marks. In such case, then all of them will be considered for appearing in the



Interview (subject to eligibility), warranting the corresponding increase in the stipulated ratio.

- 6.8.2** No candidate shall be eligible to be shortlisted for interview unless he/she obtains 40% marks in the written competitive examination (read 35% for the candidates belonging to Schedules Caste of Punjab and Backward Classes of Punjab) and no candidate shall be eligible to be appointed unless he/she obtains at least 40% marks in the aggregate i.e., competitive examination including interview (read 35% for the candidates belonging to Schedules Castes of Punjab and Backward Classes of Punjab).
- 6.8.3** The aim of the Interview is to assess the candidate's suitability for the job in terms of his personal qualities by the Interview Panel.

## **6.9 FINAL RESULT**

- 6.9.1 Final result shall be prepared on the basis of the grand total of the marks obtained by the candidates in the Written Competitive Examination and the Interview. The marks of written competitive examination obtained by the candidates or cut off marks for interview will not be disclosed at the time of short listing the candidates for interview, to avoid the same influencing the interview panel. However, the complete details of written marks and interview marks will be available on the website of Commission after compiling the final result.
- 6.9.2 Category wise merit list will be drawn on the basis of grand total of marks obtained by the candidates in the Written Competitive Examination and the Interview.
- 6.9.3 Government of Punjab, Department of Personnel (Personal Policies-I Branch) Notification No. GSR 40/Const./Art.309/Amd. (2)/2020 dated 20/07/2020 (Annexure VII) prescribes the criteria required to be met by candidates for being considered under the "Sportsperson" category. All candidates qualifying as "Sportsperson" under this notification will be treated equally in the compilation of final merit list under this category.

## **7. NATIONALITY:**

A candidate shall be a:

- (i) Citizen of India; or
- (ii) Citizen of Nepal; or
- (iii) Subject of Bhutan; or
- (iv) Tibetan refugee who came over to India before the 1<sup>st</sup> January 1962, with the intention of permanently settling in India; or.
- (v) A person of Indian origin who has migrated from Pakistan, Burma, Sri Lanka and East African countries of Kenya, Uganda and United Republic of Tanzania (formerly Tanganyika and Zanzibar) Zambia, Malawi, Zaire, Ethiopia and Vietnam with the intention of permanently settling in India;

Provided that a candidate belonging to categories (ii), (iii), (iv) and (v) shall be a person in whose favour a certificate of eligibility has been issued by the Government of Punjab in the Department of Home Affairs and Justice.

## 8. SUBMISSION OF APPLICATION FORM

- 8.1 The candidates can ONLY apply by filling Online Application Form, a link of which is available on the website of the Commission <http://ppsc.gov.in>. No other mode of application will be accepted.

<b>Process</b>	<b>Last Date</b>
Last date for filling online Application forms,	<b><u>30/08/2022</u></b> <b>By 11:59:00 PM</b>
Schedule for filling Application Fee and Examination fee by using online mode of payment	<b><u>31/08/2022</u></b> <b><u>-07/09/2022</u></b> <b>By 11:59:00 PM</b>

There will be a **JOINT COMPETITIVE EXAMINATION** for 04 Posts of Research Officer (Group-A) and 16 Posts of Assistant Research Officer (Group-A) in the Department of Water Resources, Government of Punjab.

- 8.2 Candidates are advised to fill their details in the online application form carefully e.g., Name, Father's Name, Date of Birth, Category for post, Qualification, Experience, Photo and Signature, Category for fee, etc. After the final submission of online application form by the candidate, no change will be allowed, and the candidate will be responsible for any mistake in the data filled in the online application form.
- 8.3 **Submission of printed copy of the application form:-** **The candidates are NOT REQUIRED to send the hard copy of the Online Application Form to the Office of Punjab Public Service Commission.** However, the candidates must take copy in soft form or the print out of the Application Form at the time of applying, as he/she will not be able to take out the copy at a later stage. He/she must retain the hard/soft copy of online application form along with all eligibility documents ready to be sent at a short notice to PPSC, whenever required by PPSC.
- 8.4 However, candidates applying under the Sports Category will send a hard copy of **Online Application Form' along with Sports Gradation Certificate issued by the Department of Sports, Punjab, latest Punjab Residence Certificate, Reserve Category Certificate issued by the competent authority (if applicable)** by post or by email at [scrutiny.ppsc@gmail.com](mailto:scrutiny.ppsc@gmail.com) **or by hand** at the reception counter of PPSC **by 30/09/2022** to establish his/her eligibility under the sports category
- 8.5 Also, "Persons with Disabilities" must submit the hardcopies of Disability Certificate and request for scribe, if any and other eligibility documents by post or by email at [supdt.exam@ppsc.gov.in](mailto:supdt.exam@ppsc.gov.in) or by hand at the reception counter of PPSC **by 30/09/2022** for any assistance, Persons with disabilities may contact Superintendent Examination: 0175-5014832, 0175-5014833. The candidate who applies as PwD must carry the ORIGINAL DISABILITY CERTIFICATE on the day of examination.
- 8.6 *The following **SELF ATTESTED CERTIFICATES** shall be submitted by candidates along with printout of online application form when asked for at short notice:*
- i) Proof of Date of Birth: Certificate of Matriculation/Higher Secondary

- ii) Proof of having passed Punjabi language
- iii) Relevant Degree and DMC Certificate
- iv) Reserve Category Certificate issued by the competent authority (if applicable)
- v) Latest Punjab Residence certificate (all reserve categories) issued by competent authority.
- vi) Experience certificate issued by competent authority (if applicable)
- vii) For ESM, certificates/documents mentioning the following:-
  - a) Date of Enrolment
  - b) Date of Release/Discharge
  - c) Reason of Release/ Discharge
- viii) Certificate as proof of age relaxation claim (if applicable)
- ix) Certificate as proof of fee concession (if applicable)
- x) Proof of being a government employee (if applicable)
- xi) Copy of Bank Challan (PPSC Copy only)

**The Candidates SHALL sign the declaration on the last page of the printout of Online Application Form before submitting the same.**

## 9. APPLICATION AND EXAMINATION FEE

- 9.1** The candidates are required to pay the application fee as per Government Letter No. 10/26/2007-3.P.P.3/540 dated 15-07-2022 as mentioned below: -

Name of Category	Online Application charges	Examination Fee	Total
Scheduled Castes/ Scheduled Tribes of all States and Backward Classes of Punjab State only.	Rs. 500/-	Rs. 250/-	750/-
Ex-Serviceman of Punjab state only	Rs. 500/-	No Fee to be paid	<b>500/-</b>
Economically Weaker Sections (EWS), Persons with Disabilities (PWD) and Lineal Descendants of Ex-Serviceman (LDESM) Punjab	Rs. 500/-	No Fee to be paid	<b>500/-</b>
All Other Categories i.e., General, Sports Persons of Punjab and Wards of Freedom Fighters, Punjab.	Rs 500/-	Rs. 1000/-	<b>1500/-</b>

- 9.2** The candidates entitled to fee concession/exemption MUST submit with their Application Form, a self-attested copy of the certificate certifying their claim for fee concession/exemption. Candidates who do not submit such a certificate shall not be entitled to fee concession/exemption under any circumstances.

**9.3** Candidate should carefully fill the details in the Online Application Form and click on the "SUBMIT" button at the end of the Online Application Format. Before pressing the "SUBMIT" button, candidates are advised to verify every detail filled in the application. No Change/Edit will be allowed after submitting the Application Form.

9.4 Application fee and examination fee will be accepted via online mode only. The fee is non-refundable. Guidelines for online submission of fee are given below. A copy of Guidelines is also uploaded on respective advertisement page.

## 10. INSTRUCTIONS TO APPLY FOR JOINT APPLICATION FORMS

Before applying for the post, candidate is advised to refer to the GENERAL INFORMATION FOR CANDIDATES uploaded on the website. The process of applying for the advertisements (For which the commission will conduct a Joint competitive examination) as mentioned in the GENERAL INFORMATION FOR CANDIDATES will be divided into **TWO-PHASES** illustrated as below.


### PHASE-1: - APPLYING /EDITING OF THE APPLICATIONS

1. Candidate will need to apply and fill the online application forms separately for each of the department/post.
2. During this phase, candidate will be able to **ONLY APPLY** to the single/multiple departments/posts for which the Commission will conduct a Joint competitive examination. Candidate can **EDIT** his application details during this phase i.e. PHASE- 1.
3. Candidate is **ADVISED NOT** to fill TWO application forms under the same advertisement to avoid duplication.
4. The candidates are also advised to fill in the details of their matriculation examination carefully as these details would be used to merge their applications for different posts covered under this joint examination.
5. During this phase candidate is also required to upload the Photo and signature separately for each of the department/post/Advertisement.
6. In case the **Candidate does not receive the registration number by SMS/email**, the candidate can find it through a link on the Home page "**FIND YOUR REGISTRATION NUMBER**". Candidate needs to enter the following details to find his registration number
  - (i) Select Advertisement ( dropdown)
  - (ii) Select Post Name ( dropdown)
  - (iii) Registered Date of Birth (DD/MM/YYYY)
  - (iv) Registered Mobile
  - (v) Captcha

**PHASE-2:METHOD FOR FILLING APPLICATION AND EXAMINATION FEE BY ONLINE MODE**  
**JOINT ADVERTISMENTS ONLINE PAYMENT GUIDELINES**

**STEP-1: ONLINE PAYMENT LOGIN SCREEN.**

Candidate can login with any of his/her registration number(s) of a particular Joint advertisement group. The link of login for online payment is available on the home page of the website.

Back	Online Payment
<b>Instructions</b>	
1	Enter your Registration Number,Date of Birth in DD/MM/YYYY (eg. 09/07/1984) and Password
2.	Password will be encrypted when you leave the box.
3.	If you wants to change the password , completely remove and type again
4.	Captcha needs to be entered as shown in figure and not Case Sensitive
5.	Dont Refresh or Press Back Button
Registration No*	<input type="text" value="REDACTED"/>
Date of Birth(DD/MM/YYYY)*	<input type="text" value="01/01/1990"/>
Password*	<input type="password" value="REDACTED"/>
Enter the code shown*	<input type="text" value="A2L7W2"/>  <a href="#">Change Image</a>
<input type="button" value="Login"/>	

**STEP-2: FEE DETAIL PAGE**

After the login, below screen will be shown displaying all the registration numbers of the candidate registered in Joint advertisements group.

Dear Candidate, please note that you have applied for below single/multiple posts for which the Commission will conduct a Joint competitive examination.				
Registration Number	Advertisement No.	Post Name	Candidate Name	Father Name
REDACTED	REDACTED	REDACTED	GURKIRAT	GURBHEJ
REDACTED	REDACTED	REDACTED	GURKIRAT	GURBHEJ
<b>Total Fee to be Paid: 750</b>				
Note:				
1. Total fee mentioned above is the one-time minimum examination fee based on the fee category chosen by the candidate while applying in different Joint advertisements and one-time application fee of Rs.600.				
2. Once the payment is done, your candidature will be considered against all the above mentioned registration number(s).				
<input type="button" value="Make Payment"/> <input type="button" value="Pay Later"/>				

Service

Note..

Please note that the mentioned fee payable is against all the posts for which you have applied but details displayed pertains to one of the registration no. for which the fee payable is minimum.

Ok

CONSTITUTION THE COMMISSION

CONTACT US

### Fee Payment Details

Registration No :	[REDACTED]
Fee Amonunt	750
Advertisement Number	[REDACTED]
Advertisement Name	Detailed advertisement
Post Name	[REDACTED]
Candidate Name	GURKIRAT
Date of Birth	01/01/1990
Post Category Name	SC OTHERS, PUNJAB
Fee Category Name	SC/ST ALL STATES
Online application form submission date	22/07/2022

### Fee Payment Details

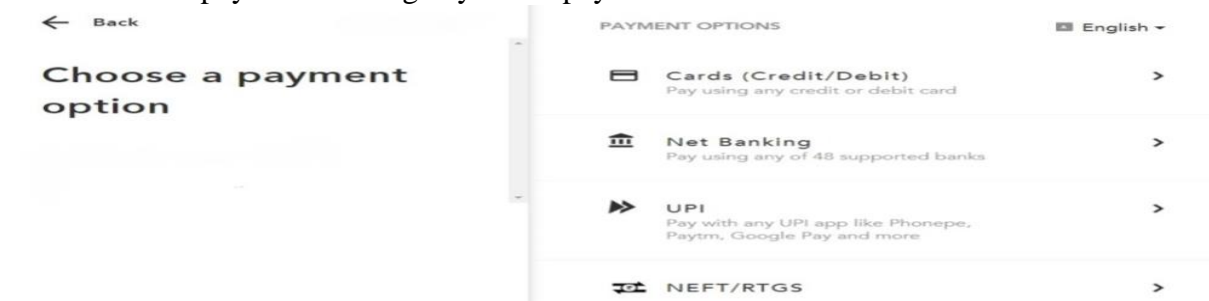
Registration No :	[REDACTED]
Fee Amonunt	750
Advertisement Number	[REDACTED]
Advertisement Name	Detailed advertisement
Post Name	[REDACTED]
Candidate Name	GURKIRAT
Date of Birth	01/01/1990
Post Category Name	SC OTHERS, PUNJAB
Fee Category Name	SC/ST ALL STATES
Online application form submission date	22/07/2022

Pay Now

Pay Later

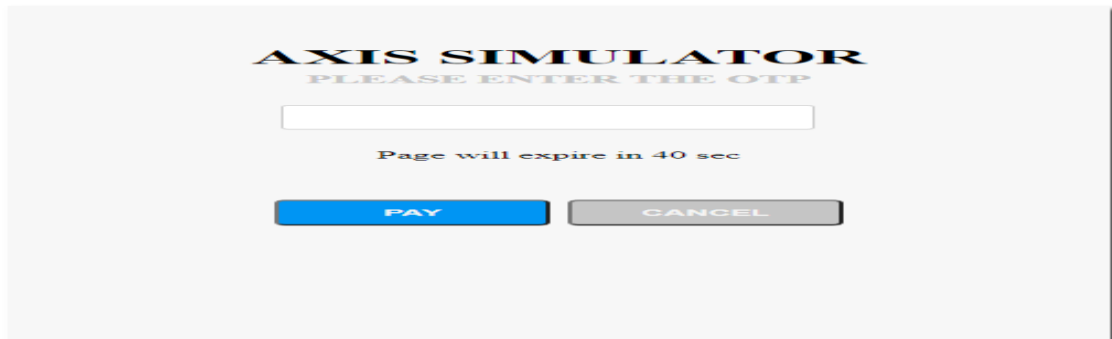
#### STEP-4: PAYMENT MODES

Candidate can pay the fee using any of the payment modes as shown below.



#### STEP-5:- OTP SCREEN

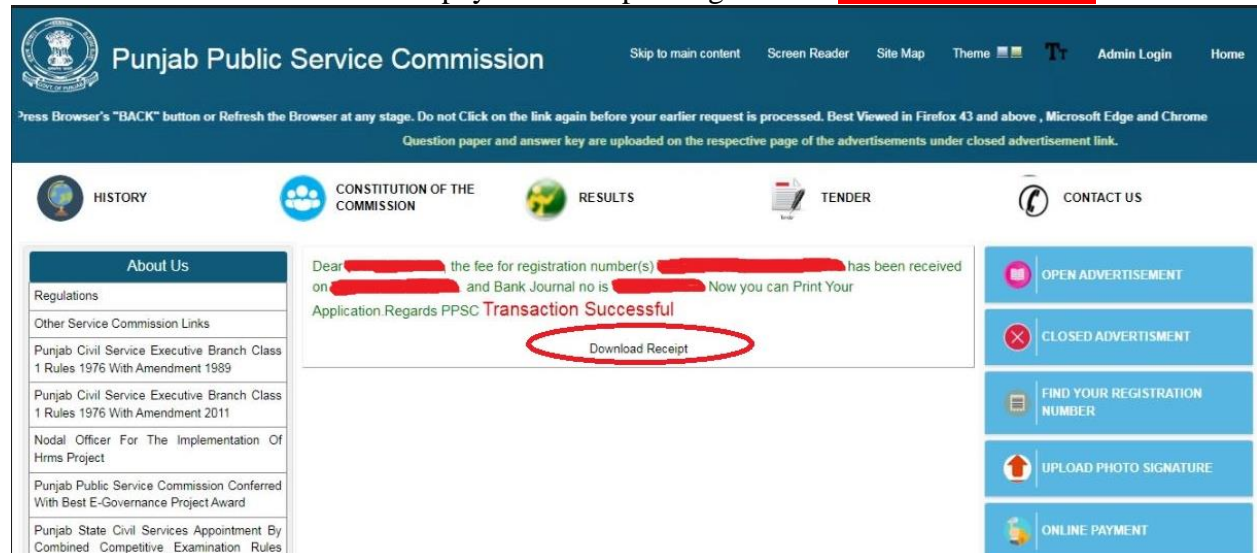
OTP will be received by the candidate on his/her mobile number registered with the payment bank.



#### STEP-6:-PAYMENT SUBMISSION RECEIPT

Once the payment is successful, below screen will be shown and confirmation will be received by the candidate on both registered mobile number and email id.

Candidate can also download the payment receipt using the link [Download Receipt](#).



#### STEP-7:-SCREEN AFTER RE-LOGIN TO ONLINE PAYMENT LINK WHEN THE PAYMET IS ALREADY DONE.

Candidate can download the Payment receipt after clicking on the [Print Receipt](#) button as shown below.

Dear Candidate, please note that you have applied for below single/multiple posts for which the Commission will conduct a Joint competitive examination.

Registration Number	Advertisement No.	Post Name	Candidate Name	Father Name
[REDACTED]	[REDACTED]	[REDACTED]	GURKIRAT	GURBHEJ
[REDACTED]	[REDACTED]	[REDACTED]	GURKIRAT	GURBHEJ

[Print Receipt](#)

[Cancel](#)

**NOTE: -**

1. if the candidate has submitted more than one application under the same advertisement, candidate cannot make the online payment. Upon login, below screen will be shown and the candidate needs to approach the office of PPSC as per the contact details shared on the screen.

Dear Candidate, you have applied more than once for any/all of the below advertisements for which the single joint competitive examination has to be conducted by the commission. Hence you are unable to make online payment at this stage. You are advised to visit to the office of Punjab Public Service Commission at the earliest and not later than 2 days before the last date of online payment to give a written representation confirming a single registration number under a particular advertisement for which you want your candidature to be considered by the PPSC. Advertisement number(s) [REDACTED]

Note: For any queries, please contact at 0175-5014822 (9 AM to 5 PM) OR technicalhelp.ppsc@gmail.com, enquiry@ppsc.gov.in.

[LogOut](#)

2. If the payment process is not completed successfully due to any of the reasons like network/system failures etc., then the candidate can re-login again using the link **“ONLINE PAYMENT”** available on the home page of the website. Below is the screen shot of page after re-login.

Dear candidate please note that if the payment from your bank account has been deducted and 'Transaction Status' is still pending, Click on 'Verify Status' Link. If still the payment has not been made by you, please proceed to make the payment.

Ref. No.	Candidate Reference Number	Total Amount	Transaction Date	Transaction Status	Action	Remarks
[REDACTED]	[REDACTED]	1500	18/07/2022 14:44:46	Pending	<a href="#">Verify Status</a>	

[Cancel](#)

- If the payment is already deducted from the bank account of the candidate but the **Transaction status** shown is still **“Pending”**, please click on the **“Verify Status”** link for fee reconciliation.
- If the payment has not been deducted from the bank account of the candidate so far, upon clicking on the **“Verify Status”** link, **failure message** will be shown and the candidate is required to click on the **Make Payment** link for the payment.



Dear candidate please note that if the payment from your bank account has been deducted and 'Transaction Status' is still pending, Click on 'Verify Status' Link. If still the payment has not been made by you, please proceed to make the payment.

Ref. No.	Candidate Reference Number	Total Amount	Transaction Date	Transaction Status	Action	Remarks
		1500	18/07/2022 15:48:24	Pending	Verify Status	Transaction failure at bank end. Please make payment again

Make payment

Cancel

## 11. CONDITIONS WHICH MAY RENDER A CANDIDATE INELIGIBLE

11.1 The following conditions, among others, may render the candidates ineligible:

- Insufficient fee.
- Application fee deposited by means other than a Bank Challan through any branch of State Bank of India.
- Late receipt of print out of Online Application Form.
- Wrong/incomplete information given in the application form.
- Candidates debarred by the PPSC/other Public Service Commissions.
- Non-fulfillment of any of the eligibility conditions, including those of age and educational qualifications.

11.2 Only Scheduled Castes, Backward Classes, Ex-Servicemen/ LDESM, Persons with Disability, Freedom Fighter, Sports Persons & EWS of Punjab domicile are eligible for the benefit of reservation.

11.3 **A candidate should indicate the specific category for which he/she wants to be considered and category once opted cannot be changed under any circumstances. A candidate will be eligible to get the benefits of community reservation in case the particular caste to which the candidates belong is included in the list of reservation communities issued by the Punjab Government. If a candidate indicates in his/her application form that he/she belongs to a particular category but subsequently writes to the commission to change his/her category, such request shall not be entertained by the Commission and shall be filed without any intimation.**

11.4 SC/ST Candidates belonging to other States are required to fill their Post Category as General Category (Code 71). They are entitled only to fee concession but not entitled to avail reservation/age relaxation.

11.5 Ex-servicemen/Lineal Descendent of Ex-servicemen (LDESM)/ Grandchildren of Gallantry Award Winners who have domicile of Punjab are eligible for reservation under the Ex-Servicemen category. LDESM/Grandchildren of Gallantry Award Winners shall be considered against the vacancies for Ex-servicemen ONLY if no Ex-servicemen are available. In case sufficient numbers

of Ex-servicemen are available, then LDESM shall be treated in his/her basic category.

## 12. SELECTION OF CATEGORIES

Candidates should select their categories carefully, because candidates belonging to categories other than category 71 (General), are entitled to fee concession/exemption, age relaxation and job reservation. **The category once selected by a candidate will not be changed under any circumstances.**

Candidates shall submit certificates issued by the Competent Authority in support of their claim to a particular category (as mentioned in the application form) at the time of scrutiny of documents.

### 12.1 CATEGORIES AND CATEGORY CODE

<u>Code No.</u>	<u>Category Name</u>
71	General Category
72	ESM, Punjab
73	LDESM, Punjab
74	Freedom Fighter, Punjab
75	Sports Person, Punjab
76	Persons with Disability, Punjab: A: Blind and Low Vision B : Deaf and Hard of Hearing C: Locomotive Disability D: Intellectual Disability
77	SC Others, Punjab
78	SC Others ESM, Punjab
79	SC Others LDESM, Punjab
80	SC Others Sports Person, Punjab
81	Balmiki/ Mazhbi Sikh, Punjab
82	Balmiki/ Mazhbi Sikh ESM, Punjab
83	Balmiki/ Mazhbi Sikh LDESM, Punjab
84	Bairiki/ Mazhbi Sikh Sports Person, Punjab
85	BC, Punjab
86	BC ESM, Punjab
87	BC LDESM, Punjab
92	General Economically Weaker Sections, Punjab.

### 12.2 CODE FOR AGE RELAXATION (IF CLAIMED)

<u>Code No</u>	<u>Category Name</u>
91	State Government/Central Government Employees. SC Punjab only
92	Balmiki/Mazhbi Sikh Punjab Only
93	Widows & certain other categories of women of Punjab.
94	B.C., Punjab Only
95	ESM, Punjab Only
96	

97	Persons with Disability, Punjab Only
98	SC Punjab only+ State Government/Central Government Employees.
99	SC Punjab only + ESM, Punjab.
100	SC Punjab only + Persons with Disability, Punjab.
101	Balmiki/Mazhbi Sikh Punjab only+ State Government/Central Government Employees.
102	Balmiki/Mazhbi Sikh Punjab only + ESM, Punjab.
103	Balmiki/Mazhbi Sikh Punjab only + Persons with Disability, Punjab.
104	B.C., Punjab. + State Government/Central Government Employees.
105	B.C., Punjab. + ESM, Punjab
106	B.C., Punjab. + Persons with Disability, Punjab.

**Note 1:-** SC/ST Candidates belonging to other States are required to fill their Post Category as General Category (Code 71). They are entitled only to fee concession but not entitled to avail reservation/age relaxation.

**Note 2:-** **Only Resident of Punjab Ex-servicemen/Lineal Descendent of Ex-Servicemen (LDESM) are eligible for reservation under the Ex-servicemen category.** LDESM shall be considered against the vacancies for Ex-servicemen only if no Ex-servicemen are available. **In case sufficient numbers of Ex-servicemen are available, then LDESM shall be treated as General Category candidates.**

**Note 3:-** Only those persons with "**Benchmark disabilities**" would be eligible for reservation. "**Benchmark disability**" means a person with not less than 40% of a specified disability where specified disability has not been defined in measurable terms and includes the persons with disability, where disability has been defined in a measurable term, as certified by the certifying authority.

**Note 4:-** A candidate should indicate the specific category for which he/she wants to be considered and category once opted cannot be changed under any circumstances. A candidate will be eligible to get the benefits of community reservation in case the particular caste to which the candidates belong is included in the list of reservation communities issued by the Punjab Government. If a candidate indicates in his/her application form that he/she belongs to a particular category but subsequently writes to the commission to change his/her category, such request shall not be entertained by the Commission and shall be filed without any intimation.

## **13. DEFINITIONS OF CATEGORIES**

### **13.1 EX-SERVICEMEN (PUNJAB)**

**13.1.1** As per the Punjab Recruitment of Ex-Servicemen Rules, 1982, "Ex-serviceman" means a person who has served in any rank, whether as a combatant or a non combatant, in the Naval, Military and Air Forces of the Union of India (here-in-after referred to as the Armed forces of the Union of India), and who has:

- a.** retired or released from such service at his or her own request after earning his or her pension; or

- b. has been released from such service on medical grounds attributable to military service or circumstances beyond his control and awarded medical or other disability pension; or
- c. been released otherwise than on his own request from such service as a result of reduction in establishment; or
- d. been released from such service after completing the specific period of engagement otherwise than at his own request or by way of dismissal or discharge on account of misconduct or inefficiency, and has been given a gratuity;

But does not include a person who has served in the Defence Security Corps, the General Reserve Engineering Force, the Lok Sahayak Sena and the Para Military Forces, but includes personnel of the Lok Sahayak Sena of the following categories, namely: -

- i. pension holders for continuous embodied service.
- ii. persons with disability attributable to military service; and
- iii. gallantry award winners.

**Explanation:** The persons serving in the Armed Forces of the Union, who on retirement from service would come under the category of 'Ex-servicemen' may be permitted to apply for re-employment one year before the completion of specified terms of engagement and avail themselves of all concessions available to Ex-servicemen but shall not be permitted to leave the uniform until they complete the specified terms of engagement in the Armed Forces of the Union.

**13.1.2 As per Punjab Government letter No.15/25/2001-4DW/1591 dated 21/5/2002, an Ex-serviceman is allowed the benefit of reservation for the second time and even thereafter in subsequent recruitment in accordance with the provisions of these Rules.**

**13.1.3** Provided that where an Ex-serviceman is not available for recruitment against a reserved category, such a vacancy shall be reserved to be filled in by recruitment of either the wife or one descendent child of an Ex-serviceman.

**13.1.4** Provided further that the wife or the Lineal Descendent child of the Ex-serviceman shall be recruited against the reserved vacancy subject to the conditions that:

- a) he or she possesses the prescribed qualifications and is within the prescribed age limit,
- b) he or she is not already in service;
- c) he or she will be eligible to avail the benefit only once in life.

Provided further that one grandchild of the Gallantry Award Winner shall be recruited against the reserved vacancy, in case the benefit or reservation has not been availed of by any of the children or dependents of such winner or by the winner himself subject to the conditions specified in the second provision.

**Explanation:** For the purpose of this proviso Gallantry Award Winner includes the winner of the Paramvir Chakra, the Mahavir Chakra, the Vir Chakra, the Sena or Nao Sena or Vayu Sena Medal and Mention-in-Despatches.

**13.1.5** As per Punjab Government notification No. GSR9/Const./Art. 309, 234 and 318/Amd(5)/2003 dated 06/11/2002 and letter No. 1/28/92-3ET/2805 dated 14/05.2003;

- a) “Lineal Descendent” means sons/daughters (married/un-married/ widowed/legally divorced) of the re-employed/ unemployed Ex-Serviceman.
- b) “Wife” shall include the widow of an Ex-serviceman, provided she has not re-married up to the date of the issue of the appointment letter.”
- c) In any case, including the case where the Ex-Serviceman has died, his sons/daughters shall be treated as “Lineal descendent” only if a certificate to this effect has been issued by the authority appointed by the Government.

**13.1.6** Ex-servicemen should be of Punjab domicile and they should submit a Punjab Resident Certificate from the competent authority, failing which would result in of their candidature would be cancelled.

### **Definition of War Hero**

- (i) “War hero” means a defence services personnel or a para-military forces personnel, who is a bona fide resident of Punjab State and has been killed or discharged from service on account of disability suffered by him on or after 1st January, 1999, while fighting in a war declared so by Government of India, in operations in Kargil or any other sector in J & K in the ongoing conflict with Pakistan or in any other operations which may be notified by the State Government to have been undertaken for preserving the unity and integrity of the Country ; or
- (ii) A defence services personnel or a para-military forces personnel who was a *bona fide* resident of Punjab State and was posthumously decorated with Parmvir Chakra, Mahavir Chakra or Vir Chakra: provided that,-
  - (a) In exceptional instances, the cases of such War Heroes may also be covered, with the prior approval of the Department of Personnel who though not *bona fide* residents of Punjab State are yet closely connected to the State of Punjab;
  - (b) In the case of War Heroes, falling in the category (ii) above, the benefits to be given by the State Government will be restricted only to first generation dependent member/next of the kin.

**Note.-** The Government reserves the right to include any other category of Awardees for the purpose of providing employment to the category of War Heroes, as may be notified.

### **13.2 SON/DAUGHTER/GRAND SON/GRAND DAUGHTER OF FREEDOM FIGHTERS (PUNJAB)**

- i) Candidates claiming to be son/daughter/grandson/granddaughter of Freedom Fighters are required to submit a certificate issued by the competent authority (i.e., Deputy Commissioner of the district concerned) as per Punjab Government Instructions No. 9(13)-3PII-84/5822 dated 4/4/1985, No. 7(135)-8P-II-83/10120 dated 19/6/1991 and No. 4-13-8PII-97/10112 dated 22/8/1997.
- ii) Only those Freedom Fighters and their son/daughter/grand-son/grand-daughter are eligible for consideration for reservation under this category who:

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General Information regarding 04 posts of Research Officer (Group-A) and 16 posts of Assistant Research Officer (Group-A) in the Department of Water Resources, Government of Punjab in the year of 2022

- a) belong to the State of Punjab; and
- b) have either been granted a Freedom Fighter pension by the Punjab Government or have been awarded Tamra Patra by the Government of India; or
- c) are otherwise eligible for the grant of Freedom Fighter pension and Tamra Patra but for any reason whatsoever did not apply for Freedom Fighter pension and Tamra Patra but can obtain Freedom Fighter certificate or son/daughter/grand-son/grand-daughter of Freedom Fighter certificate from the General Administration (Political wing) of the Punjab Government.

### 13.3 SPORTS PERSON (PUNJAB)

**13.3.1** A candidate can claim reservation under the Sports Person category only if:

- a) He/ She belongs to the State of Punjab; and
- b) that he/ She has won Gold, Silver or Bronze Medal in Senior National Championship or National Games in team or individual events while representing the State of Punjab in such sports events as have been conducted by such respective National Sports federations as are affiliated or recognized to the Indian Olympic Association;

OR

- c) He/ She has won first, second or third position in team or individual events and/or he/she has won Gold or Silver or Bronze Medal, at International Sports meets, conducted by Sports Federation affiliated or recognized by the International Olympic Committee or by the International Olympic Committee itself.

**13.3.2** If candidate belongs to Sports Person, Punjab Category, an attested copy of Gradation Certificate strictly in accordance with the Punjab Sportsman Rules, 1988 amended **as per Government of Punjab, Department of Personnel (Personnel Policies-I Branch) Notification No. GSR 40/Const./Art.309/Amd.(2)/2020 dated 20/07/2020(Annexure VII)** issued by the competent authority should be attached with the application form.

**13.3.3** Director Sports, Punjab is the competent authority to issue Sports Gradation Certificate and any other Sports Certificate issued by any other authority will not be accepted a valid Certificate for claim of reservation under the Sports Person, Punjab Category.

**13.3.4** Applicants claiming reservation under Sports Person, Punjab Category must submit Punjab Resident Certificate from the competent authority, failing which would result in cancellation of their candidature.

### 13.4 WIDOWS AND CERTAIN OTHER CATEGORIES OF WOMEN

The definitions as per Government Instructions issued vide letter No. 1/50/83-5PP (1368)/3454 dated 23-4-1984 as amended from time to time the widows and certain other categories of women for reservation in employment is as under:

- (a) Widows;
- (b) Women who are legally separated from their husbands or have been divorced;
- (c) Women whose husbands have been ordered by Civil or Criminal Courts to pay maintenance to them;

- (d) Women whose husbands have remarried; and
- (e) Wives of serving military personnel or those who are disabled while in military service.

### 13.5 PERSONS WITH DISABILITIES, (PUNJAB)

Only those persons with "**Benchmark disabilities**" would be eligible for reservation.

According to Section 2 (r) of The Rights of Person with Disabilities Act, 2016, "**Person with Benchmark disability**" means a person with not less than 40% of a specified disability where specified disability has not been defined in measurable terms and includes the persons with disability, where disability has been defined in a measurable term, as certified by the certifying authority.

As per the Instructions of Government of Punjab, Department of Social Security and Women and Child Development issued vide letter No. 1/1/2017-3DC/1588894/1 dated 03-10-2019, the reservation for disabled persons under Section 34 of the Right of Persons with Disabilities Act, 2016 is as under:-

Sr. No	Type of Disability	Percentage
1	Blindness and Low – Vision;	1%
2	Deaf and Hard of hearing;	1%
3	Locomotor Disability (including Cerebral palsy, Leprosy cured, Dwarfism, Acid attack victims and Muscular dystrophy);	1%
4	Intellectual disability (including Autism and Specific learning disability), and Mental illness; OR Multiple disabilities specified in Serial No. 1 to 4 above, including deaf blindness.	1%

**For definition of the above-mentioned categories, please refer the Schedule appended to the Right of Persons with Disabilities Act, 2016 attached as Annexure-II.**

A person who wants to avail benefit of reservation will have to submit a "Disability Certificate" issued by a Competent Authority as per Government of India guidelines. The certificate should be dated on or before last date of registration of application.

- a) For persons with disability (with 40% or more disability), compensatory time of 20 minutes per hours is allowed. **The candidate who applies as PWD must carry the ORIGINAL DISABILITY CERTIFICATE on the day of examination.**
- b) Persons with disabilities (with 40% or more disability) who apply for scribe in a prescribed format attached as **Annexure-III**, compensatory time of 20 minutes per hours is allowed. The candidate who applies as PWD must carry the ORIGINAL DISABILITY CERTIFICATE on the day of examination.
- c) The facility of Scribe would be allowed to any person with benchmark disability as defined under section 2(r) of the RPwD Act, 2016 and has limitation in writing including that of speed, if so desired by him/her.

In case of person with benchmark disabilities in the category of blindness, locomotor disability (both arm affected BA) and cerebral palsy, the facility of scribe shall be given, if so desired by the person.

**In case of other category of persons with benchmark disabilities, the provision of scribe can be allowed on production of a certificate to the effect that the person concerned has physical limitation to write and a scribe is essential to write examination on his behalf, from the Chief Medical Officer/Civil Surgeon/Medical Superintendent of a Government health care institution as per proforma at **Annexure- IV**.**

- d) Punjab Public Service Commission has framed a panel of scribes having qualification matriculation & above. The eligible candidates may request the PPSC for scribe, if needed alongwith submission of hardcopies of Disability Certificate and request for scribe by hand or via email: [suptd.exam@ppsc.gov.in](mailto:suptd.exam@ppsc.gov.in) by 30/09/2022 in the office of PPSC. On receipt of request from the candidates, the candidate will be allotted scribe by PPSC, and he/she will be allowed to meet the scribe 02 days before the examination. However, if the candidate wants to bring his/her own scribe, the qualification of scribe should be one step below the minimum prescribed qualification for the post. The candidate opting for his/her own scribe should submit an affidavit annexed as **Annexure-V**.

Persons with disabilities must submit the hardcopies of Disability Certificate and request for scribe, if any and other eligibility documents at the reception counter of PPSC by hand or via email: [suptd.exam@ppsc.gov.in](mailto:suptd.exam@ppsc.gov.in) by 30/09/2022.

**Note : Only those persons with "benchmark disabilities" would be eligible for reservation.**

### **13.6 SCHEDULED CASTES, (PUNJAB)/ SCHEDULED TRIBES**

The competent authorities for issuing Scheduled Castes/Scheduled Tribes certificates are:

- (a) District Magistrate/Additional District Magistrate/ Collector/Deputy Commissioner/ Additional Deputy Commissioner/ Deputy Collector/ Ist Class Stipen Dairy Magistrate/ City Magistrate/ Sub Divisional Magistrate/ Taluka Magistrate/ Executive Magistrate/Extra Assistant Commissioner (Not below the rank of Ist Class Stipen Dairy Magistrate);
- (b) Chief Presidency Magistrate/Additional Chief Presidency Magistrate/ Presidency Magistrate;
- (c) Revenue Officer not below the rank of Tehsildar;
- (d) Sub Divisional Officer (C) of the area where the candidate and or his family formally resides;
- (e) Administrator/Secretary to Administrator/Development Officer Lakshadweep Islands;
- (f) As per para-3 of Punjab Government Instructions No. 1/8/2007-RC-1/815, dated 10<sup>th</sup> July, 2008, Head of Department or Head of Offices are competent to issue Scheduled Castes Certificates to those applicants whose parents are serving or residing in Chandigarh/Mohali on the basis of their parents service record.

### **13.7 BACKWARD CLASSES (PUNJAB)**



**13.7.1** The candidates desiring to be considered for the Backward Classes category are required to submit a certificate as per Punjab Government letter No.1/41/93-RC-I/459 dated 17/1/1994, No. 1/41/93-RC-1/1597, dated 17-8-2041, No.1/41/93 – RC-I/209, dated 24/2/2009 and No.1/41/93-RC-I/609 dated 24/10/2013 in the Section of prescribed proforma.

**13.7.2** The BC Certificate in proforma other than the prescribed proforma will not be accepted. The candidates belonging to Backward Classes are required to attach a declaration (as per **Annexure-VI**) along with Backward Class certificate that no change occurred in their status and they do not fall in the section of creamy-layer as per Government letter No. 10/9/2009-RCI/62 Dated 08/1/2010.

**13.7.2** The Competent Authorities to issue the necessary certificate are:

- a) Deputy Commissioner
- b) Additional Deputy Commissioner
- c) Sub-Divisional Magistrate
- d) Executive Magistrate (PCS Officers only)
- e) Tehsildar

### **13.8 ECONOMICALLY WEAKER SECTIONS (EWS)**

**13.8.1** Residents of Punjab belonging to Economically Weaker Sections (whose family income is less than Rs. 8.00 lacs per annum) who are not covered under the existing scheme of reservation for Scheduled Castes and Backward Classes.

**13.7.2** The reservation will be provided in respect of all Direct Recruitment vacancies in all the Departments/ Boards/Corporations/ Local Bodies of the State of Punjab.

**13.7.3**"Family" for this purpose will include the person who seeks benefit of reservation, his/her parents, siblings below the age of 18 years, as also his/her spouse and children below the age of 18 years.

**13.7.3**"Income" will include all sources for the financial year prior to the year of application. Further, a person will be excluded whose family owns/possesses any of the following assets: -

- a) 5 acres of Agricultural Land and above;
- b) Residential flat of 1000 sq.ft. and above;
- c) Residential plot of 100 sq. yards and above in notified municipalities/nagar panchayats;
- d) Residential plot of 200 sq. yards and above in other than the notified municipalities/nagar panchayats.

**NOTE-** Recruitment of EWS category will be governed as per the notification of Government of Punjab issued vide letter No 1/3/2019-RCI/196 dated 18/03/2021.

**Note: (1)** For any General query, candidates may contact the Commission's Office on telephone number 0175-5014847, 0175-5014826, 5014825, 5014829 & 5014831, 5014843 or by sending email at [scrutiny.ppsc@gmail.com](mailto:scrutiny.ppsc@gmail.com) with

subject as **“RESEARCH OFFICER AND ASSISTANT RESEARCH OFFICER.”**

**Note: (2)** For any Technical query, regarding form submission, fee issue etc. candidates may contact the Commission's Office on telephone number 0175-5014811, 5014822 or by sending email with subject as **“TECHNICAL QUERY REGARDING THE POST OF RESEARCH OFFICER AND ASSISTANT RESEARCH OFFICER.”** to **enquiry@ppsc.gov.in** and **technicalhelp.ppsc@gmail.com**

**Note: (3)** Candidates are advised in their own interest to apply using Online Application Form much before the closing date and not to wait till the last date to avoid congestion on the web server on account of heavy load on Internet/Website.

**Note: (4)** Candidates are advised to go through the 'General Information for the candidates' and 'Instructions for filling Online Application Form' carefully before filling up Online Application Form. The Commission will not be responsible for any consequence arising out of incorrect filling up of Application.

**Sd/-  
Secretary (Examinations)  
Punjab Public Service Commission  
Patiala**

**Dated : 11/08/2022**

## ANNEXURE (I) – Reservation of Posts for Women

ਨੰ. 11/5/2017-1ਸਸ(3ਸਸ)/ 2594

ਪੰਜਾਬ ਸਰਕਾਰ

ਸਮਾਜਿਕ ਸੁਰੱਖਿਆ ਅਤੇ ਇਸਤਰੀ ਦੇ ਕਾਲ ਵਿਕਾਸ ਵਿਭਾਗ  
(ਸਮਾਜਿਕ ਸੁਰੱਖਿਆ ਸਾਖਾ)

ਸੇਵਾ ਵਿਖੇ,

ਪੰਜਾਬ ਦੇ ਸਮੂਹ ਵਿਭਾਗਾਂ ਦੇ ਮੁੱਖੀ,  
ਰਜਿਸਟਰਾਰ, ਪੰਜਾਬ ਅਤੇ ਹਰਿਆਣਾ ਹਾਈ ਕੋਰਟ,  
ਡਵੀਜ਼ਨਾਂ ਦੇ ਕਮਿਸ਼ਨਰ, ਡਿਪਟੀ ਕਮਿਸ਼ਨਰਜ਼ ਅਤੇ  
ਜਿਲ੍ਹਿਆਂ ਦੇ ਸੈਸ਼ਨ ਜੱਜ।  
ਮਿਤੀ, ਚੰਡੀਗੜ੍ਹ 26.10.2020

ਵਿਸ਼ਾ The Punjab Civil Services (Reservation of Posts for Women) Rules, 2020.

ਸ਼੍ਰੀਮਾਨ ਜੀ,

ਮੈਂ ਨੂੰ ਹਦਾਇਤ ਹੋਈ ਹੈ ਕਿ ਮੈਂ Notification No. G.S.R.27/Const./Arts.309 and 15/2020, dated the 21<sup>st</sup> October, 2020, containing the Punjab Civil Services (Reservation of Posts for Women) Rules, 2020 ਦੀ ਕਾਪੀ (ਨਾਲ ਨੱਕੀ) ਆਪ ਜੀ ਨੂੰ ਅਗਲੇਰੀ ਲੇੜੀਂਦੀ ਕਾਰਵਾਈ ਹਿੱਤ ਭੇਜਾਂ।

ਵਿਸ਼ਵਾਸਪੱਤਰ

26/10/20

(ਨਰਿੰਦਰ ਕੌਰ) 26/10/20

ਅਧੀਨ ਸਕੱਤਰ ਸਮਾਜਿਕ ਸੁਰੱਖਿਆ

ਇਸ ਵਾ ਇੱਕ ਉਤਾਰਾ ਹੇਠ ਲਿੱਖਿਆਂ ਨੂੰ (ਸਮੇਤ ਉਕਤ ਰੂਲਜ਼ ਦੀ ਕਾਪੀ) ਸੂਚਨਾ ਅਤੇ ਅਗਲੇਰੀ ਲੇੜੀਂਦੀ ਕਾਰਵਾਈ ਹਿੱਤ ਭੇਜਿਆ ਜਾਂਦਾ ਹੈ-

1. ਸਕੱਤਰ/ਮੁੱਖ ਸਕੱਤਰ, ਪੰਜਾਬ ਸਰਕਾਰ।
2. ਸਪੈਸ਼ਲ ਸਕੱਤਰ/ਮੁੱਖ ਪ੍ਰਮੁੱਖ ਸਕੱਤਰ, ਮੁੱਖ ਮੰਤਰੀ, ਪੰਜਾਬ।
3. ਸਮੂਹ ਵਧੀਕ ਮੁੱਖ ਸਕੱਤਰ/ਵਿੱਤੀ ਕਮਿਸ਼ਨਰਜ਼/ਪ੍ਰਮੁੱਖ ਸਕੱਤਰ ਅਤੇ ਪ੍ਰਬੰਧਕੀ ਸਕੱਤਰ, ਪੰਜਾਬ ਸਰਕਾਰ।

26/10/20

ਅਧੀਨ ਸਕੱਤਰ ਸਮਾਜਿਕ ਸੁਰੱਖਿਆ

PUNJAB GOVT. GAZ. (EXTRA), OCTOBER 26, 2020 557  
(KRTK 4, 1942 SAKA)

**PART III**

**GOVERNMENT OF PUNJAB  
DEPARTMENT OF SOCIAL SECURITY, WOMEN  
AND CHILD DEVELOPMENT  
(SOCIAL SECURITY BRANCH)**

**NOTIFICATION**

The 21st October, 2020

**No. G.S.R. 87/Const./Arts.309 and 15/2020.**-In exercise of the powers conferred by the proviso to Article 309 read with clause (3) of Article 15 of the Constitution of India, the Governor of Punjab is pleased to make the following rules for providing reservation in services for women in direct recruitment, namely:-

**RULES**

1. **Short title and commencement.**- (1) These rules may be called The Punjab Civil Services (Reservation of Posts for Women) Rules, 2020.  
(2) These rules shall come into force on and with effect from the date of their publication in the Official Gazette.
2. **Definitions.**- In these rules, unless the context otherwise requires,-
  - (a) "establishment" means any office of the State Government, a local authority or a statutory authority constituted under any State Law for the time being in force, or a Board or Corporation in which not less than fifty-one per cent of the paid up share of capital is held by the Government of the State of Punjab and includes a university or college affiliated to the university, primary and secondary schools and other educational institutions, which are owned by the State Government and also includes an establishment in public sector; and
  - (b) "establishment in public sector" means any industry, trade, business or occupation owned, controlled or managed by,-
    - (i) the State Government ; and
    - (ii) Government Company as defined in sub-section (45) of section 2 of the Companies Act, 2013, in which not less than fifty-one per cent of the paid up share capital is held by the Government of the State of Punjab.
3. **Scope and application.**- Without prejudice to the generality of the

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provisions contained in any Service rules, these rules shall apply to the filling up of posts by direct recruitment in all the establishments in Group 'A', Group 'B', Group 'C' and Group 'D' services.

4. **Percentage and manner of reservation of posts.-** (1) Notwithstanding anything contained in any Service rules, there shall be a thirty-three percent reservation, in favour of women, in all posts in Group 'A', Group 'B', Group 'C' and Group 'D' services under all the establishments at the stage of direct recruitment and this reservation shall be horizontal and compartmentalised.
- (2) Where a vacancy is filled by direct recruitment by a woman on the basis of merit, then such woman candidate shall be appointed against the horizontal reservation for women within their respective vertical reservation in any category.

**Explanation.-**

- (i) "Vertical reservation" means reservation in favour of the Scheduled Castes, Backward Classes, Other Backward Classes and Economically Weaker Sections under clauses (4) and (6) of Article 16 of the Constitution of India.
- (ii) For the purposes of this rule, "horizontal and compartmentalised reservation" means reservation within each watertight category, namely, Scheduled Castes, Backward Classes, Other Backward Classes, Economically Weaker Sections and Open Category.

5. **Procedure for reservation of posts.-** (1) The reservation of posts for women set out in rule 4 shall be applied in the following manner, namely:-
- (i) firstly, to fill the quota of the Open Category in order of merit and thereafter;
  - (ii) secondly, to fill up each of the vertical reservation quotas and thereafter;
  - (iii) thirdly, to find out how many women belonging to specific vertical reservation have been selected on the above basis and thereafter;
  - (iv) if the number of women candidates in each vertical is equal to or more than the thirty three percent reservation quota for women, then there shall be no further selection towards the reservation quota for women.
- (2) Only if there is any shortfall of women candidates in a vertical

category, then the requisite number of women belonging to such vertical category shall have to be taken and adjusted or accommodated against their respective vertical reservation categories by deleting the corresponding number of candidates therefrom. This process of verification and adjustment or accommodation shall be applied separately to each of the vertical reservations. In such a case, the overall reservation of thirty-three percent in favour of women, may be satisfied or may not be satisfied.

(3) If the posts remain unfilled due to lack of sufficient number of eligible women candidates, then the unfilled posts shall not be carried forward to subsequent years and such posts shall be filled from the other candidates of the respective vertical categories.

*Example.-*

*If there are 200 vacancies and fifteen percent are reserved for Schedule Castes and twenty seven percent for Other Backward Classes under vertical reservation; and thirty three percent are reserved for women under horizontal reservation, then, there are 116 seats in Open Category, thirty seats for Schedule Castes and fifty four seats for Other Backward Classes under vertical reservation. Since, thirty three percent seats in each vertical is the reservation quota for women, i.e. thirty eight seats for Open Category women, ten seats for Schedule Caste women and eighteen seats for Other Backward Classes women.*

*Step 1.- Candidates shall have to be first listed in accordance with merit, from out of the successful eligible candidates, in their respective vertical categories.*

*Step 2.- As such, thirty posts are reserved for Schedule Caste (of which the quota for women is ten), Schedule Caste candidates shall have to be first listed in accordance with merit, from out of the successful eligible candidates. If such list of thirty candidates contains ten Schedule Caste women candidates, then there is no need to disturb the list by including any further Schedule Caste women candidates. On the other hand, if the list of thirty Schedule Caste candidates contains only eight women candidates, then the next two Schedule Caste women candidates in*

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*accordance with merit, will have to be included in the list and corresponding number of candidates from the bottom of such list shall have to be deleted, so as to ensure that the final list of thirty selected Schedule Caste candidates contains ten women Schedule Caste candidates. But if the list of thirty Schedule Caste candidates contains more than ten women candidates, selected on own merit, all of them will continue in the list and there is no question of deleting the excess women candidates on the ground that Schedule Caste women have been selected in excess of the specified internal quota of ten.*

*Step 3.- Repeat this exercise for each vertical to fill vacancies.*

*It is clarified that if there is a shortfall of women in any watertight vertical category e.g. two Schedule Caste women (above) are not available in the list then,-*

- (i) the vacancy shall not be made available to women of any other vertical category i.e. Open Category Women or Other Backward Class women; and*
- (ii) as such, the overall reservation of thirty three percent in favour of women, may be satisfied or may not be satisfied.*

**6. Power to remove difficulties.-** If any difficulty arises in giving effect to the provisions of these rules, it shall be referred to the State Government in the Department of Personnel, whose decision thereon shall be final.

**RAJI P. SHRIVASTAVA,**  
Principal Secretary to Government of Punjab,  
Department of Social Security, Women  
and Child Development.

2137/10-2020/Pb. Govt. Press, S.A.S. Nagar

## ANNEXURE (II)- The Schedule for Specified Disability

### THE SCHEDULE

[See clause (zc) of section 2]  
SPECIFIED DISABILITY

#### 1. Physical disability. —

A. Locomotor disability (a person's inability to execute distinctive activities associated with movement of self and objects resulting from affliction of musculoskeletal or nervous system or both), including—

(a) "leprosy cured person" means a person who has been cured of leprosy but is suffering from—

(i) loss of sensation in hands or feet as well as loss of sensation and paresis in the eye and eye-lid but with no manifest deformity;

(ii) manifest deformity and paresis but having sufficient mobility in their hands and feet to enable them to engage in normal economic activity;

(iii) extreme physical deformity as well as advanced age which prevents him/her from undertaking any gainful occupation, and the expression "leprosy cured" shall construed accordingly;

(b) "cerebral palsy" means a test of non-progressive neurological condition affecting body movements and muscle coordination, caused by damage to one or more specific areas of the brain, usually occurring before, during or shortly after birth;

(c) "dwarfism" means a medical or genetic condition resulting in an adult height of 4 feet 10 inches (147 centimeters) or less;

(d) "muscular dystrophy" means a group of hereditary genetic muscle disease that weakens the muscles that move the human body and persons with multiple dystrophy have incorrect and missing information in their genes, which prevents them from making the proteins they need for healthy muscles. It is characterised by progressive skeletal muscle weakness, defects in muscle proteins, and the death of muscle cells and tissue;

(e) "acid attack victims" means a person disfigured due to violent assaults by throwing of acid or similar corrosive substance.

#### B. Visual impairment—

(a) "blindness" means a condition where a person has any of the following conditions, after best correction—

(i) total absence of sight; or

(ii) visual acuity less than 3/60 or less than 10/200 (Snellen) in the better eye with best possible correction; or

(iii) limitation of the field of vision subtending an angle of less than 10 degree.

(b) "low-vision" means a condition where a person has any of the following conditions, namely:—

(i) visual acuity not exceeding 6/18 or less than 20/60 upto 3/60 or upto 10/200 (Snellen) in the better eye with best possible corrections; or

(ii) limitation of the field of vision subtending an angle of less than 40 degree up to 10 degree.

#### C. Hearing impairment —

(a) "deaf" means persons having 70 DB hearing loss in speech frequencies in both ears;

(b) "hard of hearing" means person having 60 DB to 70 DB hearing loss in speech frequencies in both ears;

D. "speech and language disability" means a permanent disability arising out of conditions such as laryngectomy or aphasia affecting one or more components of speech and language due to organic or neurological causes.

2. Intellectual disability, a condition characterised by significant limitation both in intellectual functioning (reasoning, learning, problem solving) and in adaptive behaviour which covers a range of every day, social and practical skills, including—



- (a) "specific learning disabilities" means a heterogeneous group of conditions wherein there is a deficit in processing language, spoken or written, that may manifest itself as a difficulty to comprehend, speak, read, write, spell, or to do mathematical calculations and includes such conditions as perceptual disabilities, dyslexia, dysgraphia, dyscalculia, dyspraxia and developmental aphasia;
- (b) "autism spectrum disorder" means a neuro-developmental condition typically appearing in the first three years of life that significantly affects a person's ability to communicate, understand relationships and relate to others, and is frequently associated with unusual or stereotypical rituals or behaviours.
3. Mental behaviour,—  
"mental illness" means a substantial disorder of thinking, mood, perception, orientation or memory that grossly impairs judgment, behaviour, capacity to recognise reality or ability to meet the ordinary demands of life, but does not include retardation which is a condition of arrested or incomplete development of mind of a person, specially characterised by subnormality of intelligence.
4. Disability caused due to—
- (a) chronic neurological conditions, such as—
- (i) "multiple sclerosis" means an inflammatory, nervous system disease in which the myelin sheaths around the axons of nerve cells of the brain and spinal cord are damaged, leading to demyelination and affecting the ability of nerve cells in the brain and spinal cord to communicate with each other;
- (ii) "parkinson's disease" means a progressive disease of the nervous system marked by tremor, muscular rigidity, and slow, imprecise movement, chiefly affecting middle-aged and elderly people associated with degeneration of the basal ganglia of the brain and a deficiency of the neurotransmitter dopamine.
- (b) Blood disorder—
- (i) "haemophilia" means an inheritable disease, usually affecting only male but transmitted by women to their male children, characterised by loss or impairment of the normal clotting ability of blood so that a minor wound may result in fatal bleeding;
- (ii) "thalassemia" means a group of inherited disorders characterised by reduced or absent amounts of haemoglobin.
- (iii) "sickle cell disease" means a hemolytic disorder characterised by chronic anemia, painful events, and various complications due to associated tissue and organ damage; "hemolytic" refers to the destruction of the cell membrane of red blood cells resulting in the release of hemoglobin.
5. Multiple Disabilities (more than one of the above specified disabilities) including deaf blindness which means a condition in which a person may have combination of hearing and visual impairments causing severe communication, developmental, and educational problems.
6. Any other category as may be notified by the Central Government.

DR. G. NARAYANA RAJU,  
Secretary to the Government of India.



**ANNEXURE (IV) - Certificate regarding Physical limitation in an examinee to write**

This is to certify that, I have examined Mr/Ms/Mrs \_\_\_\_\_ (name of the candidates with disability), a person with \_\_\_\_\_ (nature and percentage of disability as mentioned in the certificate of disability), S/o/D/o \_\_\_\_\_ a resident of \_\_\_\_\_ (Village/District/State) and to state that he/she has physical limitation which hampers his/her writing capabilities owing to his/her disability.

Signature

Chief Medical Officer/Civil Surgeon/ Medical Superintendent of a government health care institution

Name and Designation

Name of Government Hospital/Health care centre with seal

Place:

Date:

**Note:** Certificate should be given by a specialist of the relevant stream/disability (e.g., Visual impairment - Ophthalmologist, Locomotor disability - Orthopedic specialist/PMR).

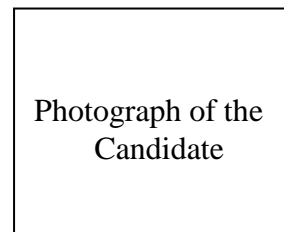
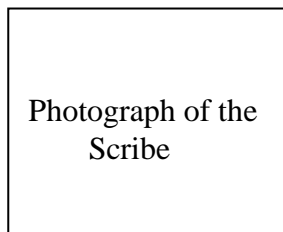
## ANNEXURE (V)- Affidavit by Candidate for Scribe

### AFFIDAVIT

I \_\_\_\_\_ a candidate with \_\_\_\_\_  
 (name of the disability) appearing for the \_\_\_\_\_  
 (name of the examination) bearing Roll. No. \_\_\_\_\_  
 at \_\_\_\_\_ (name of the centre) in the district  
 \_\_\_\_\_ (name of the State). My qualification  
 is \_\_\_\_\_.

I do hereby state that \_\_\_\_\_ (name of the scribe)  
 will provide the service of scribe for the undersigned for taking the aforesaid  
 examination.

I do hereby undertake that his qualification is \_\_\_\_\_ In  
 case, subsequently it is found that his/her qualification is not as declared by the  
 undersigned and is beyond my qualification. I shall forfeit my right to the post  
 and claims relating thereto.



(Signature of Scribe)

(Signature of the candidate with Disability)

Place:

Date:

## ANNEXURE (VI)- Self Declaration From BC Candidates

Gosh\$dkyb/ ;w/A bJ/ ikDtkb/ gZSVh ;q/Dh Bkb ;pzXs ftresh s'A bJ/ ikD tkb/ ;t?  
x';aDk gZso dk gockowk

1H w?A.....g[Zso\$g[Zsoh

;qh.....tk;h..... fgzv

\$e;pk\$;afjo.....fiabQk.....x';aDk eodk\$eodh jK fe

w?A..... iksh Bkb ;pzX oZydk\$oZydh jK s/ fJj iksh gzikip ;oeko tZb'A gZso

BzL.....fwsh.....okjhA gZSVh ;qa/Dh eoko fdZsh rJh j?.

2H w?A fJj th x';aDk eodk jK fe w?A gzikip ;oeko tZb'A ikoh jdkfJsK BzL1\$41\$

93^o;1\$459,fwsh 17^01^1994,fi; B{z pknd ftZu gZso fwsh 1\$41\$93^o;1\$1597fwsh 17^08^2041

Bzpo 4\$41\$93^o;1\$209,fwsh 4^02^2009 ns/ gZso BzL1\$41\$93^o;1\$609 fwsh 24^10^2013 Bkb

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x';aBkeosk

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t?ohfce/;aB L^

w?A fJE/ fJj x';aDk eodk jK fe T[go'es fdZsh rJh ikDekoh w/oh ;wM nB[;ko ;jhtk  
do[;s j? ns/ fJ; ftZu e[ZM th S[gkfJnk BjhA frnk j?. w?A fJBQK sZEK s'A ikD{ jK fe i/eo w/oh  
e'Jh th fdZsh ;{uBK rbs fBebdh j? sK w?A ekB{zB ftZu doi ;iak dk\$dh jZedko j'tKrk\$j'tKrh ns/  
gqkoEh B{z fJ; ;{uBK d/ nkXko s/ fdZs/ rJ/ bkG tkfg; b? bJ/ ikDr/.

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**ANNEXURE (VII)- Sportsperson Rules**

PUNJAB GOVT. GAZ. (EXTRA), JULY 22, 2020  
(ASAR 31, 1942 SAKA)

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**PART III  
GOVERNMENT OF PUNJAB  
DEPARTMENT OF PERSONNEL  
(Personnel Policies-I Branch)**

**NOTIFICATION**

The 20th July, 2020

No. G.S.R. 40/Const./Art.309/Amd.(2)/2020.-In exercise of the powers conferred by the proviso to Article 309 of the Constitution of India and all other powers enabling him in this behalf, the Governor of Punjab is pleased to make the following rules further to amend the Punjab Recruitment of Sportsmen Rules, 1988 namely:-

**RULES**

1. (1) These rules may be called the Punjab Recruitment of Sportsmen (First Amendment) Rules, 2020.
- (2) They shall come into force on and with effect from the date of their publication in the Official Gazette.
2. In the Punjab Recruitment of Sportsmen Rules, 1988, in rule 2, in clause (d), for sub-clause (a), the following shall be substituted, namely :-
  - (a) In the case of recruitment to a reserved vacancy in Group A or Group B posts:-
    - (i) that he belongs to the State of Punjab; and
    - (ii) that he has won Gold, Silver or Bronze Medal in Senior National Championship or National Games in team or individual events while representing the State of Punjab in such sports events as have been conducted by such respective National Sports federations as are affiliated or recognized to the Indian Olympic Association;
    - or
    - (iii) that he has won first, second or third position in team or individual events and/or he has won Gold or Silver or Bronze Medals at International Sports meets, conducted by Sports Federation affiliated or recognized by the International Olympic Committee or by the International Olympic Committee itself.

**YINI MAHAJAN,**  
Chief Secretary to Government of Punjab.

2064/7-2020/Pb. Govt. Press, S.A.S. Nagar

## ANNEXURE (VIII)- Syllabus

### Part A -Subject Syllabus

#### 1. MECHANICS

Motion of a particle with constant acceleration, acceleration of falling bodies, motion under gravity, motion of a body projected vertically upward, motion of a two particles connected by a string, motion along a smooth inclined plane, constrained motion along a smooth inclined plane. Variable acceleration, Simple harmonic motion, elastic string, simple pendulum.

Projectile, Work, Power, conservative fields and potential energy, work done against gravity, potential energy of a gravitational field.

Relative motion, relative displacement, velocity and acceleration, motion relative to a rotating frame of reference. Linear momentum, angular momentum, conservation of angular momentum, impulsive forces, principle of impulse and momentum.

#### 2. ELECTRICITY AND MAGNETISM-I

Coulomb's Law for point charges and continuous distribution of charges. Electric field due to dipole line charge and sheet of charge. Electric flux. Gauss's Law and its applications.

Work and potential difference. Potential difference as line integral of electric field. Electric potential due to a point charge, a group or point charges, dipole and quadruple moments, long uniformly charged wire, charged disc. Electric field as gradient of scalar potential. Calculation of E due to a point charge and dipole from potential. Potential due to arbitrary charge distribution and multipole moments. Poisson and Laplace's Equation. Calculation of electric potential and field due to a point charge placed near an infinitely conducting sheet.

Current and current density, equation of continuity. Microscopic form of Ohm's Law. ( $J = \sigma E$ ) and conductivity. Failure of Ohm's Law. Invariance of charge. E in different frames of reference. Field of a point charge moving with constant velocity. Interaction between moving charges and force between parallel currents. Behaviour of various substances in magnetic field. Definition of M and H and their relation to free and bound currents. Permeability and susceptibilities and their inter-relationship. Orbital motion of electrons and diamagnetism. Electron spin and paramagnetism. Ferromagnetism. Domain theory of Ferromagnetism. Hysteresis Loss. Magnetisation curve. Ferrites..

Lorentz's force. Definition of B. Biot Savart's Law and its applications to long straight wire, circular current loop and solenoid. Ampere's Circuital law and its application. Divergence and curl of B. Hall effect expression and co-efficient. Vector potential, Definition and derivation of current density-definition its use in calculation or change in magnetic field at a current sheet. Transformation equation or E and B from one frame to another. Faraday's Law of EM induction. Displacement current. Maxwell's equations. Mutual inductance and reciprocity theorem. Self inductance L for solenoid. Coupling of Electrical circuits. Analysis of LCR series and parallel resonant circuits. Q-factor. Power consumed power factor..

#### 3. VIBRATIONS AND WAVES

Physical interpretation of Maxwell's equations. Electromagnetic waves and wave equation in a medium having finite permeability and permittivity but with conductivity  $\sigma = 0$ . Poynting vector. Impedance of a dielectric to EM waves, EM waves in a conducting medium and skin depth. EM waves velocity in a conductor an anomalous dispersion. Response of a conducting medium of EM waves. Reflection and transmission of EM waves at a boundary of two dielectric media for normal incidence. Reflection of EM waves from the surface of a conductor at normal incidence.

#### 4. OPTICS

**Interference:** Concept of coherence, Spatial and temporal coherence. Coherence time, Coherence length, Area of coherence, Conditions for observing interference fringes, Interference by wave front division and amplitude division, Michelson's interferometer—working, Principle and nature of fringes, Interference in thin films, Role of interference in anti-reflection and high reflection dielectric coatings. Multiple beam interference, Fabry-Perot interferometer, Nature of fringes, Newton Rings.

**Diffraction:** Huygens-Fresnel theory, half-period zones, Zone plates, Distinction between Fresnel and Fraunhofer diffraction, Fraunhofer diffraction at rectangular and circular apertures, Effects of diffraction in optical imaging, resolving power of telescope. The diffraction grating, its use as a spectroscopic element and its resolving power.

**Polarization:** Concept and analytical treatment of un-polarized, plane polarized and elliptically polarized light. Double refraction, Nicol prism, Sheet polarizer, Retardation plates, Production and analysis of polarized light (quarter and half wave plates).

## 5. QUANTUM MECHANICS

**Formalism of Wave Mechanics:** Brief introduction to need and development of quantum mechanics, Wave-particle duality, de-Broglie hypothesis, Complimentarity and uncertainty principle, Gaussian wave-packet, Schrodinger equation for a free particle, operator correspondence and equation for a particle subject to forces. Normalization and probability Interpretation of wave function, Super position principle, Expectation value, probability current and conservation of probability, Admissibility conditions on the wave function. Ehrenfest theorem, Fundamental postulates of wave mechanics, Eigen functions and eigen values. Operator formalism, Orthogonal systems, Expansion in eigen functions, Hermitian operators. Simultaneous eigen functions. Equation of motion.

**Problems in one and three dimensions:** Time dependent Schrodinger equation. Application to stationary states for one dimension, Potential step, Potential barrier, Rectangular potential well, Degeneracy, Orthogonality, Linear harmonic oscillator, Schrodinger equation for spherically symmetric potential, Spherical harmonics. Hydrogen atom energy levels and eigen functions. Degeneracy, Angular momentum.

**One Electron Atomic Spectra:** Excitation of atom with radiation. Transition probability, Spontaneous transition, Selection rules and life time, Spectrum of hydrogen atom. Frank Hertz Experiment, Line structure, Normal Zeeman effect, Electron spin, Stern Gerlach experiment, Spin orbit coupling (electron magnetic moment, total angular momentum), Hyperfine structure, Examples of one electron systems, Anomalous, Zeeman effect, Lande-g factor (sodium D-lines).

## 6. ELECTRONICS

Concept of current and voltage sources, p-n junction, Biasing of diode, V-A characteristics. Diode equation, Breakdown diodes: Zener breakdown and avalanche breakdown, Zener diode. Rectification: half wave, full wave rectifiers and bridge rectifiers, Qualitative analysis of Filter circuits (RC LC and  $\pi$  filters) Efficiency, Ripple factor, Voltage regulation. Voltage multiplier circuits.

Junction transistor: structure and working, relation between different currents in transistors, Sign conventions. Amplifying action, Different configurations of a transistor and their comparison, CB and CE characteristics.

Structure, Characteristics, operation of FET, JFET and MOSFET, Pinch off voltage, Enhancement and Depletion mode, Comparison of JFETs and MOSFETs, Difference in field effect transistor and junction type transistor.

Photo-conductive devices: Photo-conductive cell, Photodiode, Solar cell, LED, LCD.

Transistor biasing: Stabilization of operating point, Fixed bias, Collector to base bias, Bias circuit with emitter resistor, Voltage divider biasing circuit.

CE amplifier: Working and analysis using h-parameters, Equivalent circuits, Determination of current gain, Power gain, Input impedance, FET amplifier: Voltage, Current and Power gain

Feed back in amplifiers: Types & advantage of negative feedback. Emitter follower as negative feed back circuit.

## 7. CALCULUS

Basic properties of limit, continuity of functions and classification of discontinuities of one variable function . Differentiability, Successive differentiation, Asymptotes, Test for concavity and Convexity and Convexity. Beta – Gamma Functions.



Limits, continuity and differentiability of two variables. Partial derivatives and its Linearization, Chain rule, Partial derivative with constrained variable. Homogeneous functions, Euler theorem and its applications, Extreme value and saddle point, Lagrange multiplier, Taylor's theorem and its linear and quadratic approximation.

Improper Integral, Beta and gamma functions, Double integral in Cartesian and polar form, Change of order of integration in double integrals, Triple Integrals in Cartesian polar and spherical co-ordinates. Change of variables. Applications to evaluation of areas, Volume.

## 8. VECTOR CALCULUS

Scalar and vector fields, differentiation of vectors. Vector differential operators: Del, Gradient, Divergence and Curl, Line, surface and volume integrals, Greens Theorem, Stokes Theorem and the Divergence Theorem. Applications of Green's, Stoke's and Divergence theorem.

## 9. ANALYSIS

Sequence: Bounded and Monotonic sequences, Convergent sequence, Cauchy sequences, Subsequence, Sequential continuity.

Series: Comparison tests. Cauchy's integral test, Ratio, Raabe's, Logarithmic, Gauss, Root, Leibnitz's Test. Absolute and conditional convergence.

## 10. DIFFERENTIAL EQUATIONS

Order and degree of a differential equation, separable differential equations, Homogeneous differential equations, Exact differential equations. Linear homogeneous and non-homogeneous differential equations of higher order with constant coefficients and with variable coefficients. Method of Variation of Parameters. Differential operator method. Euler's Cauchy method.

Partial differential equation of first order, Lagrange's solution, Integral surfaces passing through a given curve, surfaces orthogonal to a given system of surfaces, Partial differential equation of first order but of any degree, Charpit's method. Partial differential equations of the second order and their classification into hyperbolic, elliptic and parabolic types, canonical forms.

## 11. ALGEBRA

Hermitian, Skew-Hermitian, Orthogonal and Unitary matrices, Elementary operation on matrices. Gauss Jordan Method. Linear independence-dependence, Row rank, Colum rank and their equivalence. Eigen values, Eigen vectors, Cayley-Hamilton theorem. Consistency of a system of linear equations.

## 12. GEOMETRY

Parabola: Pole and polar, pair of tangents from a point, chord of contact, equation of chord in terms of midpoints and diameter of conic, Subtangent and Subnormal and its geometrical properties.

Ellipse: Properties of ellipse, parametric representation of ellipse, tangents, normals, equation of chord joining two points on ellipse. Director circle of ellipse, chord of contact, conjugate lines and conjugate diameter, Conormal Points and its geometrical properties.

Hyperbola: Properties of hyperbola, fundamental rectangle, parametric representation of hyperbola, asymptotes of hyperbola, Conjugate hyperbola, rectangular hyperbola, tangents and normals.

Plane: General form, Normal form, Intercept form, Reduction of the general form to normal form, Equation of plane through three points, Angle between two planes, Parallel planes, Perpendicular distance of a point from the planes, Pair of the planes, Area of a triangle and Volume of a tetrahedron.

Straight line: Equation of a line in general form, Symmetric form, two point form, Reduction of the general equation to the symmetrical form, Straight line and the planes, Conditions of parallelism and perpendicularity of a line and a plane, Plane through a given line, Perpendicular

distance formula for the line, Projection of a line on a given plane containing them, Condition of intersection of two lines, Shortest distance between two lines, intersection of three planes.

Sphere: General equation of a sphere, Plane section of a sphere, Intersection of two spheres, Sphere through a given circle, Intersection of a straight line and a sphere, Equation of a tangent plane to sphere, Condition of tangency. Plane of contact, Orthogonal Spheres, Angle of intersection of two spheres, Length of tangent, Radical plane, Coaxial system of spheres.

Cone: Equation of a cone whose vertex is at origin, Equation of a cone with a given vertex and a given conic as base, Condition that general equation of second degree represent a cone, Equation of a tangent plane, Condition of tangency of a plane and a cone, Reciprocal cone, Right circular cone.

Cylinder: Enveloping Cylinder, Right circular cylinder

### 13. **ATOMIC STRUCTURE**

Idea of de Broglie matter waves, Heisenberg uncertainty principle, atomic orbitals, Schrodinger wave equation, quantum numbers, shapes of s, p, d orbitals. Aufbau and Pauli exclusion principles, Hund's multiplicity rule. Electronic configurations of the elements and ions.

### 14. **PERIODIC PROPERTIES**

Atomic and ionic radii, ionization energy, electronic affinity, electronegativity and their trends in periodic table.

s-block elements: Comparative study, diagonal relationships, salient features of hydrides, solvation and complexation tendencies. Biological significance of elements.

p-block elements: Comparative study (including diagonal relationship) of p-block elements, compounds like hydrides, oxides, oxyacids and halides of p-block elements.

d- & f-block elements: Characteristic properties of d- & f-block elements, their oxidation states, ionic radii, coordination number. lanthanoid and actinoid contraction.

### 15. **CHEMICAL BONDING**

Valence bond theory and its limitations, various types of hybridization and shapes of simple inorganic molecules and ions:  $\text{BeF}_2$ ,  $\text{BF}_3$ ,  $\text{CH}_4$ ,  $\text{PF}_5$ ,  $\text{SF}_6$ ,  $\text{IF}_7$ ,  $\text{SnCl}_2$ ,  $\text{XeF}_4$ ,  $\text{BF}_4^-$ ,  $\text{PF}_6^-$ ,  $\text{SnCl}_6^{2-}$ . Valence shell electron pair repulsion (VSEPR) theory to  $\text{NH}_3$ ,  $\text{H}_3\text{O}^+$ ,  $\text{SF}_4$ ,  $\text{ClF}_3$ ,  $\text{ICl}_2$ , and  $\text{H}_2\text{O}$ . Molecular Orbital theory of homonuclear and heteronuclear diatomic molecules.

### 16. **BASIC CONCEPTS OF ORGANIC CHEMISTRY**

Hybridization, Resonance, hyperconjugation, aromaticity, inductive and field effects, hydrogen bonding. Reactive intermediates-carbocations, carbanions, free radicals, carbenes, arynes and nitrenes. Methods of determination of reaction mechanism.

### 17. **ALKANES ALKENES AND ALKYNES**

Alkanes: Isomerism in alkanes, methods of preparation: Wurtz reaction, Kolbe reaction, Corey-House reaction.

Nomenclature, structure, methods of formation of alkenes and alkynes, dehydration of alcohols and dehydrohalogenation of alkyl halides regioselectivity in alcohol dehydration. The Saytzeff rule, Hofmann elimination. Chemical reactions of alkenes. Markownikoff's rule, hydroboration-oxidation, oxymercuration reduction. Epoxidation, ozonolysis, hydration, hydroxylation and oxidation with  $\text{KMnO}_4$ . Chemical reactions of alkynes, acidity of alkynes. electrophilic and nucleophilic addition reactions, hydroboration-oxidation.

### 18. **ALCOHOLS AND PHENOLS**

Nomenclature, Structure and methods of preparation of alcohols and phenols.

Alcohols: Hydrogen bonding, Acidic nature, Chemical reactions of alcohols and Pinacol-Pinacolone rearrangement.

Phenols: physical properties and acidic character. Reactions of phenols - electrophilic aromatic substitution, acylation and carboxylation. Fries rearrangement. Gatterman synthesis, Hauben-Hoesch reaction, and Reimer-Tiemann reaction.

**19. ALDEHYDES, KETONES AND CARBOXYLIC ACIDS DERIVATIVES**

Aldehydes and Ketones: Nomenclature, methods of preparation of aldehydes and ketones, Nucleophilic addition to carbonyl group, Wittig reaction, and Mannich reaction. Oxidation of aldehydes, Baeyer-Villiger oxidation of ketones, Cannizzaro reaction, MPV (Meerwein Ponderoff Vorley) reaction, Clemmensen, Wolff-Kishner,  $\text{LiAlH}_4$  and  $\text{NaBH}_4$  reductions. Michael addition.

Carboxylic Acids: Nomenclature, Acidity of carboxylic acids, Preparation of carboxylic acids, Chemical reactions of carboxylic acid.

Structure and nomenclature of acid chlorides, Esters, Amides and Acid anhydrides. General methods of preparations and their chemical reactions.

**20. SPECTROSCOPY**

Ultraviolet (UV) absorption spectroscopy: absorption laws- Beer-Lambert's law, Types of electronic transitions, Effect of conjugation. Chromophore and auxochrome. Bathochromic, hypsochromic, hyperchromic and hypochromic shifts.

Infrared (IR): Infrared (IR) absorption spectroscopy-molecular vibrations, Hooke's law, Characteristic absorption of various functional groups.

Nuclear magnetic resonance (NMR) spectroscopy: Proton magnetic resonance ( $^1\text{H}$  NMR) spectroscopy, nuclear shielding and deshielding, chemical shift, spin-spin splitting and coupling constants.

**21. SOLUTIONS**

Molarity, molality, mole fraction, percentage. Vapour pressure of solution and Raoult's law for ideal and non-ideal solutions, plots for ideal and non-ideal solutions, Colligative properties-relative lowering of vapour pressure, depression of freezing point, elevation of boiling point and osmotic pressure.

**22. STATES OF MATTER**

Gaseous state; Gas Laws- Boyle's law, Charles's law, Gay Lussac's law, Graham's law of diffusion, Avogadro's law, Dalton's law of partial pressure.

Solid state; Amorphous and crystalline solids, Bragg's law and its applications; Unit cell and lattices, packing efficiency, calculation of density of unit cell. Imperfection in solids.

**23. THERMODYNAMICS AND CHEMICAL KINETICS**

Types of systems, intensive and extensive properties. Laws of Thermodynamics. Rate of chemical reactions, factors affecting rates of reaction, order and molecularity of reactions, Rate law, Rate constant, Half-life, Arrhenius theory, activation energy and its calculations.

**Part B****General Knowledge, Logical Reasoning & Mental Ability****(1) General Knowledge and Current affairs of National and International****importance including:**

- (i) Economic issues.
- (ii) Polity issues.
- (iii) Environment issues
- (iv) Geography
- (v) Science and Technology.
- (vi) Any other current issues.
- (vii) (a) History of India with special reference to Indian freedom struggle movement  
(b) History of Punjab- 14th century onwards

## **(2) General Mental Ability , Logical Reasoning & Quantitative Aptitude**

- (i) Analytical Reasoning, Logical Reasoning and Mental Ability
- (ii) Basic numerical skills, numbers, magnitudes, percentage, numerical relation appreciation.
- (iii) Data analysis, Graphic presentation charts, tables, spreadsheets.