


**JAMMU AND KASHMIR PUBLIC SERVICE COMMISSION**
**Solina Srinagar, Kashmir -**
website: <http://jkpsc.nic.in>

Jammu: 0191-2566528 (I) 2566530

Srinagar: 0194-2312629 (I) 2312631

**Subject: Filling up of the posts of Assistant Engineers (Mechanical) in Public Works (R&B) Department**
**Reference: Public Works (R&B) Department's Letter No. PWD-Adm/122/2021-(Comp. No. 118431) dated 06.04.2022**
**Notification No. : 17 - PSC (DR-P) OF 2022**  
**Dated: 02- 08-2022**

Applications, through online mode, are invited from the domiciles of the Union Territory of Jammu & Kashmir, possessing the Academic/Professional qualification and prescribed age, for the posts details of which are given in the following paras, in terms of the Jammu and Kashmir Engineering (Gazetted) Service Recruitment Rules, 1978 notified vide SRO 297 of 2006 dated 14-09-2006 and "Jammu & Kashmir Probationer (Conduct of Service, Pay & Allowance) and Fixation of Tenure Rules, 2020" notified vide S.O. 192 of 2020 dated: 17.06.2020 and the Jammu and Kashmir Public Service Commission (Business and Procedure) Rules, 2021.

**MOST IMPORTANT**

- Candidates are advised to update their One Time Registration before filling the application Form.
- The Application Form together with instructions for filling up the Application Forms, will be available at the website of the Commission from **03.08.2022**.
- Candidates are advised to go through the instructions and ensure that they meet all the eligibility conditions prescribed for the post before filing the online Application Form.
- Last date for filing of online Application complete in all respects along with the requisite fee (online mode only) is **02.09.2022**.
- The last date for receipt of online applications provided in the notification shall be the cut-off date for determining the eligibility as regards acquisition of domicile certificates, educational or professional qualifications.
- The minimum and maximum age will however be reckoned with reference to **1<sup>st</sup> January, 2022**.
- Candidates can edit some of the fields in their online application form from **03.09.2022** to **05.09.2022** (upto 11:59 P.M.) Instructions in this regard will be separately made available on the website.
- Candidates are required to upload all the mandatory prescribed/requisite documents alongwith the online application form.
- In case the mandatory prescribed/requisite documents are not uploaded with the online applications form, the application form/candidature of the applicant is liable to be rejected without any further notice.
- Candidates are not required to submit hard copy of the online application form or any other documents to the Commission at the time of filling up of online application form.
- The candidates will however, be required to present/produce a down loaded copy of the online form alongwith original certificates at the time of documentary verification.
- Candidates are advised in their own interest to submit online applications much before the closing date and not to wait till the last date to avoid the possibility of disconnection/inability to pay fee or failure to login to the online application portal on account of heavy load on the website during the closing days.

**2. Details of post with category wise breakup is given below**

Name of the Post with pay scale	OM	RBA	SC	ST	EWS	LAC/IB	Social Cast	PSP	Total
Assistant Engineer (Mechanical) L-8A (50700-160600)	32	06	05	06	06	02	02	02	61

**3. Prescribed Qualification**

Designation	Qualification
Assistant Engineer (Mechanical)	Bachelor's Degree in the relevant branch of Engineering or AMIE Section (A&B) India in the appropriate branch of Engineering.

**4. Age as on 1st January 2022**

The requirement of age for candidates belonging to Open Merit (OM) & various Reserved Categories is as follows:

S.NO	Category	Age limit	Not born after	Not born before
1	OM	40	01.01.2004	01.01.1982
2	RBA, SC, ST, EWS, LAC/IB, Social Cast, PSP	43	01.01.2004	01.01.1979
3	In service candidate	40	01.01.2004	01.01.1982
4	PHC	42	01.01.2004	01.01.1980

Note: "One Time" age relaxation shall be granted to the over-aged candidates who had earlier applied for these posts and were within the age limit, as per the advertisement Notification issued at the time but have in the meantime crossed the upper age limit, if he/she applies for the said post(s) in preference to fresh notification and also need not to pay any fee afresh.

**5. Horizontal Reservation**

As per 4% Horizontal Reservation two vacancies (i.e. one vacancy for PHC candidate having Locomotor disability and one vacancy for PHC candidate having Low vision) are reserved, as per G.O. No.147-SW of 2014 dated 17.06.2014 of Social Welfare Department

**6. Reservation**

- i) A candidate seeking his/her consideration under Reserved Categories must ensure that he/she possesses a valid requisite Category certificate and on the cut-off date.
- ii) The candidate will be provisional till the genuineness of the reserved category certificate is verified by the Appointing Authority.
- iii) Candidates may note that in case a claim for reservation is made on the basis of false/fake/fraudulent certificate, he/she shall be debarred from the examination(s) conducted by the J&K Public Service Commission, in addition to any other penal action as may be deemed appropriate.

**7. Domicile**

The candidate should be a Domicile of the Union Territory of Jammu & Kashmir. The candidate must possess the Domicile Certificate issued by the Competent Authority in the prescribed format by or before the last date prescribed for submission of online application form.

**8. Centre of Examination**

- I. The examination will be held at Srinagar & Jammu centres. All the candidates shall choose anyone of the two places.
- II. The allotment of centres shall be at sole discretion of the Commission and once a centre is allotted to a candidate, request for a change of centre will not be entertained.

III. Information about the Examination indicating the time table and Centre of Examination for the candidates will be uploaded on the website of the Commission about two weeks before the date of examination. If any candidate does not find his/her Roll Number on the website of the Commission, one week before the date of examination, he/she must immediately contact the Commission's Office at Srinagar/Jammu, with proof of having submitted his/her application. Failure to do so will deprive him/her of any claim for consideration.

IV. Candidate must submit his/her online application form, Email ID and Mobile Number along with his/her Name, Date of Birth and Name of the Examination, while addressing any communication to the Commission. Communication from the candidates not furnishing these particulars shall not be entertained.

V. Admit Cards will be available for downloading about two weeks before the date of examination on the official website of the Commission i.e. [jkpsc.nic.in](http://jkpsc.nic.in). Candidate must bring printout of the Admit Card/Roll Number Slip to the Examination Hall.

VI. For securing entry into the centre of examination, in addition to the Admit Card/roll Number Slip, it is mandatory to carry at least two passport size recent color photographs (not taken earlier than 01.01.2022) and any of the original valid Photo-Id proof such as:

- i. Aadhar Card/ E-Aadhar,
- ii. Voter's ID Card,
- iii. Driving License,
- iv. PAN Card,
- v. Passport,
- vi. School/College/University I- Card
- vii. Employer ID Card.

**9. Scheme of Selection / Examination**

The pattern of Examination shall comprise the following:

A	Written Examination	68 points
B	Performance in the interview/Viva Voce test. The candidate shall be asked to deliver a 5 minute demonstration/lecture on a given topic from the relevant subject to demonstrate his/her domain knowledge/skills and will be assessed and evaluated by the subject experts and the Members of the Commission in the Selection Committee/interview Board	25 points
C	<b>Weightage for Higher Qualification</b>	
	(i) One year Post Graduate Diploma in the relevant subject (on pro rata basis)	02 points
	(ii) Masters'/Post Graduate Degree in the relevant subject (on pro rata basis)	04 points
D	<b>SPECIAL ATTRIBUTES</b>	
	Distinction in Sports (Certified by Secretary, J&K Sports Council to be an outstanding Sports Person in terms of J&K Appointment of (Outstanding Sports Persons) Rules, 2022)	01 point
	Distinction in NCC activities (Holder of Grade "C" Certificate)	01 point
	Gold Medal for overall first position in the prescribed qualification.	01 point

**Type/Pattern of written examination.**

- i. The written examination will be an objective type Multiple Choice Question (MCQ) paper of two hours duration and having minimum 100 questions.
- ii. There will be negative marking for incorrect answers (as detailed below) for all questions:
  - a) There are four alternatives for the answers to every question. For each question for which a wrong answer has been given by the candidate, one fourth (.25) of the marks assigned to that question will be deducted as penalty.
  - b) If a candidate gives more than one answers, it will be treated as a wrong answer even if one of the given answer happens to be correct and there will be same penalty as given herein above for that question.
  - c) If a question is left blank i.e. no answer is given by the candidate, there will be no penalty for that question.

**Interview/ Viva Voce**

On the basis of the marks obtained by the candidates in the written examination, an interview/viva voce test will be conducted. The number of candidates called for interview/ viva voce test shall be restricted, as far as practicable, to a minimum of three times the number of vacancies in order of merit. The interview/ viva-voce will have 25 points.

**Syllabus**
**MECHANICAL ENGINEERING**

PAPER-I

1. **Mechanics:**
  - 1.1 **Mechanics of Rigid Bodies:** Equations of equilibrium in space and its application; first and second moments of area; simple problems on friction; kinematics of particles for plane motion; elementary particle dynamics.
  - 1.2 **Mechanics of Deformable Bodies:** Generalized Hooke's law and its application; design problems on axial stress, shear stress and bearing stress; material properties for dynamic loading; bending shear and stresses in beams; determination of principal stresses-analytical and graphical; compound and combined stresses; bi-axial stresses-thin walled pressure vessel; material behaviour and design factors for dynamic load; design of circular shafts; for bending and torsional load only; deflection of beam for statically determinate problems; theories of failure.
2. **Engineering Materials:**
  - 2.1 **Manufacturing Process:** Machine tool engineering - Merchant's force analysis; Taylor's tool life equation; conventional machining; NC and CNC machining process; jigs and fixtures. Non-conventional machining-EDM, ECM, ultrasonic, water jet machining etc.; application of lasers and plasma; energy rate calculations. Forming and welding processes-standard processes. Metrology- concept of tolerances; tools and gauges; comparators; inspection of length; position; profile and surface finish.
  - 2.2 **Manufacturing Management:** System design; factory location—simple OR models; plant layout-methods based; applications of engineering economic analysis and break-even analysis for product selection, process selection and capacity planning; predetermined time standards. System planning; forecasting methods based on regression and decomposition; design and balancing of multi model and stochastic assembly lines; inventory management-probabilistic; inventory models for order time and order quantity determination; JIT systems; strategic sourcing; managing inter plant logistics. System operations and control: Scheduling algorithms for job shops; applications of statistical methods for product and process quality control applications of control charts for mean, range, percent defective, number of defects and defects per unit; quality cost systems; management of resources, organizations and risks in projects. System improvement: Implementation of systems, such as total quality management, developing and managing flexible, lean and agile Organizations.

**PAPER-II**

2. **Thermodynamics, Gas Dynamics Turbine**
  - 2.1 Basic concept of First-law and Second law of Thermodynamics; concept of entropy and reversibility; availability and unavailability and irreversibility.
  - 2.2 Classification and properties of fluids; incompressible and compressible fluids flows; effect of Mach number and compressibility; continuity momentum and energy equations; normal and oblique shocks; one dimensional isentropic flow; flow or fluids in duct with frictions that transfer.
  - 2.3 Flow through fans, blowers and compressors; axial and centrifugal flow configuration; design of fans and compressors; simple problems compresses and turbine cascade; open and closed cycle gas turbines; work done in the gas turbine; reheat and regenerators.
  - 2.4 Heat Transfer:
    - 2.1 Conduction heat transfer—general conduction equation-Laplace, Poisson and Fourier equations; Fourier law of conduction; one dimensional steady state heat conduction applied to simple wall, solid and hollow cylinder and spheres.
    - 2.2 Convection heat transfer—Newton's law of convection; free and forced convection; heat transfer during laminar and turbulent flow of an incompressible fluid over a flat plate; concepts of Nusselt number, hydrodynamic and thermal boundary layer their thickness; Prandtl number; analogy between heat and momentum transfer—Reynolds, Coloumb, Prandtl analogies; heat transfer during laminar and turbulent flow through horizontal tubes; convection from horizontal and vertical plates.
    - 2.3 Black body radiation—basic radiation laws such as Stefan-boltzman, Planck distribution, Wein's displacement etc.
    - 2.4 Basic heat exchanger analysis; classification of heat exchangers.
  - 2.5 Engines :
    - 2.1 Classification, thermodynamic cycles of operation; determination of break power, indicated power, mechanical efficiency, heat balance sheet, interpretation of performance characteristics, petrol, gas and diesel engines.
    - 2.2 Combustion in SI and CI engines, normal and abnormal combustion; effect of working parameters on knocking, reduction of knocking; Forms of combustion chamber for SI and CI engines; rating of fuels; additives; emission.
    - 2.3 Different systems of IC engines-fuels; lubricating; cooling and transmission systems. Alternate fuels in IC engines.
  - 2.6 Steam Engineering :
    - 2.1 Steam generation—modified Rankine cycle-Modern steam boilers; steam at critical and supercritical pressures; draught equipment; natural and artificial draught; boiler fuel solid, liquid and gaseous fuels. Steam turbines—Principle; types; compounding; impulse and reaction turbines; axial thrust.
    - 2.2 Steam nozzles—flow of steam in convergent and divergent nozzle pressure at throat for maximum discharge with different initial steam conditions; as well as saturated and superheated, effect of variation of back pressure; superheated pressure of steam in nozzles. Wilson line.
    - 2.3 Ranking cycle with internal and external irreversibility; reheat factor; reheating and regeneration, reheat factor; go back to back and pass out turbines. 4.4 Steam power plants—combined cycle power generation; heat recovery steam generators (HRSG) fired and unfired, co-generation plants.
  - 2.7 Refrigeration and Air-conditioning:
    - 2.1 Vapour compression refrigeration cycle—cycle on p-H & T-s diagrams; econofriendly refrigerants—R 134a, 123; Systems like evaporators, condensers, compressor, expansion devices. Simple vapour absorption systems.
    - 2.2 Psychometric—properties; processes; charts; sensible heating and cooling; humidification and dehumidification effective temperature; air-conditioning load calculation; simple duct design.

**10. Requisite Fee**

After successful submission of the online application form, candidate will be required to deposit requisite fee through online mode. The amount of fee to be paid is given below:

OM Category	Rs.1000.00
Reserved Categories	Rs.500.00

Note:

- i. The application Form submitted without deposition of the fee, which gets substantiated through reflection of the same on the application form, such application form shall be treated as incomplete and candidate shall be deemed to have been rejected without any notice. No representation against such rejection shall be entertained.
- ii. Submission of multiple applications by way of prefixing Mr./Ms or through generation of multiple User ID's or any other mode, followed by either non-payment of fee particulars or fee particulars (TID) of one application (RID) being mentioned against another application with a different RID will lead to rejection of the online application. The applicants who are submitting multiple applications should note that only the applications with higher Registration ID (RID) number shall be entertained by the Commission and fee paid against one RID shall not be adjusted against any other RID number. Beside a strict disciplinary action shall be taken including the cancellation of candidature and debarment for future examinations of J&K PSC will be taken against such applicants.

**11. Documents to be uploaded**

While filling the online application form the applicants are requested to upload the documents as per details given below:-

**Documents (Mandatory):-**

- 1) Date of birth certificate (secondary School/Matric Certificate)
- 2) Domicile Certificate of the UT of J&K.
- 3) Bachelor Degree alongwith consolidated Marks Card (s) upto 05 lvs.

**Documents (Mandatory if claiming benefit under that category):-**

- 1) Category Certificate, 01 leaf
- 2) Service certificate signed by HOD

**Any other document for which the candidate is claiming weight age as per J&K (Business**