

## ADVERTISEMENT FOR RECRUITMENT OF NON-EXECUTIVES IN OMC LTD.

No. 82/OMC

Date: 15/11/2023

OMC, a Gold category State PSU and being one of the largest State PSUs in Mining Sector in the Country, undertakes exploration, mining and trading of Iron, Chrome, Bauxite & Lime stone ores. Inspired by the vision to emerge as the market leader and to play a catalytic role in the growth of industrialization, OMC caters to the requirements of mineral based industries. The Corporation has registered annual turnover of Rs.14449.57 Crore in FY 2022-23 and is on a high growth trajectory.

The Corporation intends to fill up the Non-Executive posts in regular mode in different disciplines as under:

### 1. Vacancy :-

The vacancies are against the sanctioned regular posts. However, the candidates shall initially be appointed as Trainees for a period of 1 (one) year from the date of joining the post with consolidated stipend. On successful completion of training period, they shall be kept under probation for a period of one year during which the Trainees shall be allowed the regular pay scale & other allowances.

Sl. No.	Name of the Post & Grade	Scale of Pay	Total Vacancy	Category of Posts			
				UR	SEBC	SC	ST
1	<b>Jr. Engineer (Mech.)</b> (Class- III Grade)	Pay Level- 9 Rs.35,400/- to Rs.1,12,400/-	20 (W-07) (PwBD-02) (Ex-SM-01) (SP-01)	11 (W-04)	02 (W-01)	03 (W-01)	04 (W-01)
2	<b>Jr. Engineer (Elect.)</b> (Class- III Grade)	Pay Level- 9 Rs.35,400/- to Rs.1,12,400/-	14 (W-05) (PwBD-01)	07 (W-03)	01	02 (W-01)	04 (W-01)
3	<b>Jr. Engineer (Civil)</b> (Class- III Grade)	Pay Level- 9 Rs.35,400/- to Rs.1,12,400/-	16 (W-05) (PwBD-01)	05 (W-01)	02 (W-01)	04 (W-01)	05 (W-02)
4	<b>Jr. Nurse</b> (Class- III Grade)	Pay Level- 8 Rs. 29,200/- to Rs. 92,300/- (01 extra increment at the time of entry into regular post)	11 (W-04) (PwBD-01)	03 (W-01)	02 (W-01)	04 (W-01)	02 (W-01)
5	<b>Jr. Pharmacist</b> (Class- III Grade)	Pay Level- 8 Rs. 29,200/- to Rs. 92,300/-	09 (W-03) (PwBD-01)	01	02 (W-01)	03 (W-01)	03 (W-01)
6	<b>Electrician- III</b> (Class- III Grade)	Pay Level-5 Rs.21,700/- to Rs.69,100/- (02 extra increments at the time of entry into regular post)	30 (W-10) (PwBD-02) (Ex-SM-01) (SP-01)	15 (W-04)	05 (W-02)	05 (W-02)	05 (W-02)
<b>TOTAL</b>			<b>100</b> (W-34) (PwBD-08) (Ex-SM-02) (SP-02)	<b>42</b> (W-13)	<b>14</b> (W-06)	<b>21</b> (W-07)	<b>23</b> (W-08)

- The online application portal for online application by the interested eligible candidates shall be made Go-live from **02:00 PM of 17.11.2023 till 11:59 PM of 08.12.2023**, which will be available in OMC website <https://omcltd.in> .
- OMC Management reserves the right to cancel, amend or alter the above advertisement without assigning any reason thereof.
- Candidates are requested to visit Corporation website <https://omcltd.in/en/people/career/employment-opportunities> at regular intervals for any notification, news, updates etc. relating to this recruitment.

<b>Important Dates</b>	
- <b>Starting Date for Online Registration of Application</b>	<b>17.11.2023 at 02:00 PM</b>
- <b>Last Date of submission of Online Application</b>	<b>08.12.2023 at 11:59 PM</b>
- <b>Last Date of submission of Online Application Fee (if applicable) through Debit/Credit Card/Net Banking/UPI etc.</b>	<b>08.12.2023 at 11:59 PM</b>

Sd/-  
GENERAL MANAGER (P&A)

## 2. Eligibility Criteria: -

Sl.No.	Name of the Posts	Basic Qualification	Maximum Age as on 31.10.2023
1	Jr. Engineer (Mech.), Class- III Grade	Diploma in Mechanical Engineering from an AICTE recognized institute.	<p>Not below 18 years and above 38 years.</p> <p>1) Upper age limit in case of SC/ ST/ SEBC/ Women/ PwBD/Ex-Servicemen shall be relaxed as per norms of Govt. of Odisha.</p> <p>2) Upper age limit in case of departmental candidates fulfilling the eligibility criteria shall be relaxed up to maximum 10 years in accordance with the provisions of OMC R&amp;P Rules for Non-Executives, 2012 &amp; OMC R&amp;P Rules for Non-Executives, 1997.</p>
2	Jr. Engineer (Elect.), Class- III Grade	Diploma in Electrical Engineering from an AICTE recognized institute.	
3	Jr. Engineer (Civil), Class- III Grade	Diploma in Civil Engineering from an AICTE recognized institute.	
4	Jr. Nurse, Class- III Grade	+2 Science with Diploma in Nursing from an institute recognized by H&FW Department, Government of Odisha & approved by Odisha Nursing Council/ Indian Nursing Council.	
5	Jr. Pharmacist, Class- III Grade	+2 Science with Diploma in Pharmacy from recognized University/ Institute & approved by Indian Pharmacy Council.	
6	Electrician- III, Class- III Grade	HSC with ITI in Electrician, lineman/ wireman Trade from recognized institute with valid workman permits "A" certificate issued by the Competent Authority,  OR HSC with ITI in Electrician, lineman/ wireman Trade from recognized institute with minimum Lineman- MV (with Learner Permit for Workman- HT) issued by Electrical Licensing Board, Odisha (ELBO).	

➤ Relaxation for SC /ST/SEBC, Women, PwBD & Ex-Servicemen candidates:

- The upper age limit is relaxable by **05 (five) years** in case of **SC, ST and SEBC** candidates.
- The upper age limit is relaxable by **05 (five) years** in case of **Women** candidates.
- The upper age limit is relaxable by **10 (ten) years** in case of **PwBD** candidates.
- In case of Ex-Servicemen, relaxation of upper age limit shall be allowed as per provisions contained in GA Department, Govt of Odisha Notification No.: 22586/Gen, dated 16.10.1985 applicable to Class III posts.

Provided that a person who comes under more than one category as mentioned above, shall be eligible for only one benefit of upper age relaxation, which shall be considered most beneficial to him/her. However,

Persons with Benchmark Disabilities belonging to SC/ ST/ SEBC categories are eligible for age relaxation benefit up to 15 years.

➤ **Reservation/ Relaxation/ Concession shall be as under:**

- For SC/ST will be subject to submission of relevant valid Caste Certificate issued by the Competent Authority.
  - For SEBC will be subject to submission of a copy of the latest SEBC Certificate (on or after 09.12.2020) issued by the Competent Authority.
  - For Ex-Servicemen will be subject to submission of Discharge Certificate/NOC issued by the Competent Authority.
  - For Person with Benchmark Disability (PwBD), whose permanent disability is 40% or more, will be subject to submission of valid Disability Certificate/UDID Card (indicating percentage of permanent disability & type of disability) in support of benchmark disability issued by the Competent Authority.
- Date of Birth entered in the High School Certificate Examination or equivalent Certificate issued by the concerned Board/ Council shall only be accepted.

### 3. Initial Post & Stipend: -

Sl. No	Name of the Posts	Stipend per month	Conditions during the training period
1	Jr. Engineer (Mech.) Trainee	Rs.35400/-	1. Inter-se seniority of the selected candidates shall be maintained as per merit list. 2. The Trainee shall not be allowed any kind of leave except Casual Leave & Compensatory Leave (if posted to field office) during the training period. 3. The training period shall not be counted for calculation of leave allowed under the OMC Leave Rules, 1976 & sanction of increments. 4. The Trainee shall not be allowed any kind of allowances and loan except House Rent Allowance. 5. The Trainee shall be provided Corporation Quarter on availability & eligibility. In lieu of Corporation Quarter, the Trainee shall be allowed House Rent Allowance. The Starting Pay + Grade Pay in the corresponding pre-revised scale of pay (ORSP Rules, 2008) of the concerned post shall constitute the basis for sanction of House Rent Allowance. 6. The Trainee shall be allowed Medical facilities as extended to a regular employee.
2	Jr. Engineer (Elect.) Trainee	Rs.35400/-	
3	Jr. Engineer (Civil) Trainee	Rs.35400/-	
4	Jr. Nurse Trainee	Rs.29200/-	
5	Jr. Pharmacist Trainee	Rs.29200/-	
6	Electrician- III Trainee	Rs.21700/-	

### 4. Domicile Status of the candidate: -

Residents of the state of Odisha (candidates who are native to Odisha) only can apply for the above Non-Executive posts. Candidates belonging to other states are **not eligible** to apply for the posts.

## 5. How to apply:-

Candidates must go through “**General instructions**” & “**How to apply**” as detailed under carefully while filling up the Online Application. The “**General instructions**” & “**How to apply**” shall be useful for filling up the Online Application after it is made **Go-live**.

<b>General Instructions</b>							
I.	Before start of filling-up of application through on-line mode, the candidate should keep ready, the following details/ documents: a) Valid e-mail ID & Mobile Number. b) Scanned copy of the recent passport size color Photograph (not older than 3 weeks). Candidates should ensure that the same photograph is used throughout this recruitment process. c) Scanned signature. d) Required certificates and documents as mentioned in the Advertisement.						
II.	Category and Sub-category [General (UR)/SC/ST/SEBC/PwBD/Ex-Serviceman/Sports Person] once filled by candidate in the online application form will not be changed and no benefit of other category will be admissible.						
<b>How to apply</b>							
I.	Candidates should have a valid personal e-mail ID and mobile number. It should be kept active during the entire recruitment process. Registration number, password and all other important communication will be sent on the same registered e-mail ID & Mobile Number (please ensure that email sent to the mailbox is not redirected to your junk / spam folder).						
II.	Candidates should take utmost care to furnish the correct details while filling in the online application. <b>YOU CAN EDIT THE INFORMATION BEFORE SUBMISSION OF STEP-I and STEP-II.</b> Once the application form is submitted, it can't be edited.						
III.	The step by step process for submitting the application form is given below: <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;"><b>Step-I</b></td> <td style="width: 5%; text-align: center;">:</td> <td>Registration of Personal Details and Contact details. Login Id and password will be sent to you on registered e-Mail ID and Mobile Number.</td> </tr> <tr> <td><b>Step-II</b></td> <td style="text-align: center;">:</td> <td>Please go to the Application Form and fill up the Eligibility Details, Personal Details and Qualification Details. Then upload relevant documents and submit Fee (if applicable) online through net banking/debit card/credit card/UPI/etc.</td> </tr> </table>	<b>Step-I</b>	:	Registration of Personal Details and Contact details. Login Id and password will be sent to you on registered e-Mail ID and Mobile Number.	<b>Step-II</b>	:	Please go to the Application Form and fill up the Eligibility Details, Personal Details and Qualification Details. Then upload relevant documents and submit Fee (if applicable) online through net banking/debit card/credit card/UPI/etc.
<b>Step-I</b>	:	Registration of Personal Details and Contact details. Login Id and password will be sent to you on registered e-Mail ID and Mobile Number.					
<b>Step-II</b>	:	Please go to the Application Form and fill up the Eligibility Details, Personal Details and Qualification Details. Then upload relevant documents and submit Fee (if applicable) online through net banking/debit card/credit card/UPI/etc.					
IV.	<b>Application once submitted cannot be withdrawn and fee, if applicable once paid shall not be refunded in any case and shall not be held reserved for any other recruitment process in future.</b>						
<b>STEP-I Registration</b>							
I.	The candidates agreeing to the terms & conditions may proceed further by clicking the <b>Registration button</b> at <b>Welcome Index Page</b> of the online application form, which shall be made go-live from <b>2:00 PM of 17.11.2023 till 11:59 PM of 08.12.2023</b> .						
II.	The candidate should fill up all the desired information i.e. Personal Details, Contact Details, etc. correctly.						
III.	On completion of <b>Step-I</b> registration, the candidate will receive a message in the registered e-mail ID and Mobile Number conveying his/her <b>login ID</b> and <b>password</b> .						

**STEP-II Completion of Application form**

IV.	After registration, candidate may click on "Go to Application Form" icon at top right corner, select his/her category & other mandatory details, complete Personal Details, Qualification Details, Upload photo/signature/relevant documents and submit Fee (if applicable) Online through net banking/debit card/credit card/UPI/etc.
V.	<b>Instructions regarding scanning of Photograph, Signature and Certificates:</b> Candidate should upload the scanned (digital) image of his/her photograph and signature as per the process given below. The applicant should note that only JPG/JPEG/PDF format is acceptable: i. <b>Photograph Image:</b> <ul style="list-style-type: none"><li>• Photograph must be a recent passport size colour picture on light coloured background.</li><li>• The size of the scanned image should be between 50kb -100kb in JPG/JPEG format only.</li></ul> ii. <b>Signature image:</b> <ul style="list-style-type: none"><li>• The applicant has to sign on white paper with Black/Blue ball point pen.</li><li>• Size of file should be between 50kb– 100kb in JPG/JPEG format only.</li></ul> iii. <b>Certificate image:</b> <ul style="list-style-type: none"><li>• Please scan the relevant Certificates.</li><li>• Each Certificate should be in JPG/JPEG/PDF format only and Size of file should be between 100kb – 1024kb.</li></ul>
VI.	Once the application is submitted and the candidate agrees to the privacy notice, he/she will automatically be redirected to payment gateway to deposit the fee of INR 500/- + Bank charges (if applicable) online through Debit Card/Credit Card/Net Banking/UPI etc. After successful completion, please take a print out of the Application Form with transaction id (if applicable) and it may be retained for future reference.
VII.	<b>Guidelines for remittance of fee are as under:</b> <ul style="list-style-type: none"><li>• Post submission, the candidate will be re-directed to Payment gateway to make the online payment of application fees (if applicable) after agreeing to the privacy notice.</li><li>• Kindly verify the details and make the online payment for application fees (if applicable) via the different payment modes.</li><li>• Post successful payment of application fees, candidate will be redirected to his/her application form indicating successful submission of the online application.</li></ul>
VIII.	<ul style="list-style-type: none"><li>• For the purpose of all future references, the candidates are advised to keep a printout of their online application form along with transaction id (if applicable), after successful submission of the online application.</li><li>• In case of any difficulty, candidates may raise the technical queries relating to the filling up of ONLINE APPLICATION in the <b>Helpdesk Tab</b> available on the application portal after login or may contact the <b>Helpdesk</b> through Phone No <b>+91-9513437890</b> from <b>17.11.2023 to 08.12.2023 from 10.00AM to 5.30 PM on working days.</b></li></ul>

## 6. Position of Vacancies and Reservation thereof:-

The vacancy position along with reservation thereof is given below.

Sl. No.	Name of the Post/ Grade	Total No. of vacancies	No. of posts reserved for						Ex-SM	SP
			UR	SEBC	SC	ST	PwBD			
							Functional Requirements	Suitable category of Benchmark Disabilities		
1	2	3	4	5	6	7	8	9	10	11
(i)	Jr. Engineer (Mech.), Class- III Grade	20 (W-07) (PwBD-02)	11 (W-04)	02 (W-01)	03 (W-01)	04 (W-01)	S, ST, W, BN, KC, MF, RW, SE, H, C	a) LV b) D, HH c) OA, BA, OL, LC, Dw, AAV d) ASD (M), SLD, MI e) MD involving (a) to (d) above	01	01
(ii)	Jr. Engineer (Elect.), Class- III Grade	14 (W-05) (PwBD-01)	07 (W-03)	01	02 (W-01)	04 (W-01)	S, ST, W, BN, KC, PP, MF, RW, SE, C	a) D, HH b) OL, LC, Dw, AAV c) SLD, MI d) MD involving (a) to (c) above	-	-
(iii)	Jr. Engineer (Civil), Class- III Grade	16 (W-05) (PwBD-01)	05 (W-01)	02 (W-01)	04 (W-01)	05 (W-02)	S, ST, W, BN, MF, RW, SE, H, C	a) LV b) D, HH c) OA, BA, OL, BL, Dw, AAV d) SLD, MI e) MD involving (a) to (d) above	-	-
(iv)	Jr. Nurse, Class- III Grade	11 (W-04) (PwBD-01)	03 (W-01)	02 (W-01)	04 (W-01)	02 (W-01)	S, ST, W, MF, RW, SE, H, C	a) LV b) OL, CP, LC, Dw, AAV c) SLD, MI d) MD involving (a) to (c) above	-	-
(v)	Jr. Pharmacist, Class- III Grade	09 (W-03) (PwBD-01)	01	02 (W-01)	03 (W-01)	03 (W-01)	S, ST, W, BN, L, KC, PP, MF, RW, SE, H	a) D, HH b) OL, BL, CP, LC, Dw, AAV c) ASD (M), SLD, MI d) MD involving (a) to (c) above	-	-
(vi)	Electrician- III Class- III Grade	30 (W-10) (PwBD-02)	15 (W-04)	05 (W-02)	05 (W-02)	05 (W-02)	S, ST, W, L, MF, SE	a) D, HH b) OL, LC, Dw, AAV c) ASD (M), SLD, MI d) MD involving (a) to (c) above	01	01
<b>Total</b>		<b>100</b> (W-34) (PwBD-08)	<b>42</b> (W-13)	<b>14</b> (W-06)	<b>21</b> (W-07)	<b>23</b> (W-08)			<b>02</b>	<b>02</b>

**Note:**

1. "UR" denotes **Un-Reserved**
2. "SC" denotes **Scheduled Caste**
3. "ST" denotes **Scheduled Tribe**
4. "SEBC" denotes **Socially & Educationally Backward Class**
5. "W" denotes **Woman**
6. "PwBD" denotes **Person with Benchmark Disability**
7. "Ex-SM" denotes **Ex-Servicemen**
8. "SP" denotes **Sports Person**

**CLASSIFICATION OF PHYSICAL & FUNCTIONAL REQUIREMENTS FOR PwBD :****i. FUNCTIONAL REQUIREMENT ABBREVIATIONS USED:**

S=Sitting, ST=Standing, W=Walking, BN=Bending, KC= Kneeling & Crouching, MF=Manipulation by Fingers, RW=Reading & Writing, SE=Seeing, H=Hearing, C=Communication, PP=Pulling & Pushing, L=Lifting.

LV=Low Vision, D=Deaf, HH= Hard of Hearing, OA=One Arm, OL=One Leg, BA=Both Arms, LC=Leprosy Cured, Dw=Dwarfism, AAV=Acid Attack Victims, ASD= Autism Spectrum Disorder (M= Mild), SLD= Specific Learning Disability, MI= Mental Illness, MD=Multiple Disabilities, B=Blind, CP=Cerebral Palsy, BL=Both Leg, OAL=One Arm and One Leg.

A. Variations in number of vacancies against categories is due to adjustment of backlog, no. of posts already filled up and no. of posts to be filled up in respective cadres/sub-cadres/ posts.

**B. Reservation for PwBD Candidates :**

- i. Out of total vacancies mentioned above, 8 (eight) posts are reserved for the Persons with Benchmark Disabilities (PwBD) category as detailed under :

Sl. No.	Name of the Post	PwBD
1.	Jr. Engineer (Mech.)	02 (W-01)
2.	Jr. Engineer (Elect.)	01
3.	Jr. Engineer (Civil)	01
4.	Jr. Nurse	01
5.	Jr. Pharmacist	01
6.	Electrician- III	02 (W-01)
<b>Total</b>		<b>08 (W-02)</b>

Eligible candidates with any of the above specified PwBD categories, as detailed against each post above, can apply against PwBD category.

- ii. In accordance with Clause No.13(4)(a) of Resolution No. 1843 dated 25.02.2021 of SSEPD Dept, Govt. of Odisha, the facility of Scribe or Reader shall be allowed to any person with benchmark disability as defined under Clause (r) of Section 2 of the Rights of Persons with Disabilities Act, 2016 (49 of 2016) and has limitation in writing including that of speed if so desired by him or her.



- iii. In case of Persons with Benchmark Disabilities (PwBD) in the category of locomotor disability (both arm affected) and cerebral palsy (as applicable), the facility of scribe/reader shall be allowed and such candidates shall bring scribe/ reader of their own to assist them in examination.
  - iv. In case of other category of persons with benchmark disabilities, the provision of scribe/reader can be allowed on production of a Certificate to the effect that the person concerned has physical limitation to write and scribe and it is essential to write in the examination on his/her behalf, from the Chief Medical Officer or Civil Surgeon or Medical Superintendent of a Government health care institution as per format at **Annexure-VII**.
  - v. The qualification of the scribe/reader should be one step below the qualification of the candidate taking examination and the persons with benchmark disabilities opting to bring their own scribe/reader in accordance with the Clause B (iii & iv) above, should submit details of the own scribe /reader.
  - vi. Candidates applying under PwBD category should ensure that they possess Unique Disability Identity (UDID) Card issued by concerned certifying Authority through UDID Card Portal <https://www.swavlambancard.gov.in>. Candidates, without having the UDID Card, must enroll/apply online for UDID card.
- C. Besides, the following posts are reserved for Ex-Servicemen and Sports Person as detailed under:

Sl. No.	Name of the Post	Ex-Servicemen	Sports Person
1.	Jr. Engineer (Mech.)	01	01
2.	Electrician-III	01	01

- D. The selection of the candidates in PwBD category shall be made on merit basis, based on the CBT score (in descending order of merit) and with specific reference to any of the suitable categories of benchmark disability. A candidate belonging to PwBD, Ex- Servicemen & Sports Person, when selected as per reservation provided for them, shall be adjusted against the categories to which they belong, which means that the PwBD/ Ex- Servicemen/ Sports Person, if belonging to Scheduled Caste (SC) will claim the vacancy reserved for SC, if belonging to Scheduled Tribe (ST) will claim the vacancy reserved for ST and so on. Thus, the PwBD/ Ex- Servicemen/ Sports Person, who do not belong to either any of the reserved categories i.e., SC/ ST/ SEBC, would claim the unreserved vacancies.

E. **For Ex-servicemen :**

i. Every ex-serviceman, who has put in not less than six months continuous service in Armed Forces (Indian Army/ Indian Navy / Indian Airforce) of the Union shall be allowed to deduct the period of such service from his actual age and if the resultant age does not exceed the maximum age-limit prescribed shall be deemed to satisfy the conditions regarding age-limit.

ii. Once an ex-serviceman has joined the Govt. Service in civil side after availing the benefit as an ex-serviceman for his/her re-employment, his/her ex-serviceman status for the purpose of re-employment in Govt. jobs shall cease to exist. He/She can avail the benefit of age relaxation only as admissible for ex-servicemen. However as per clause-4 of the Office Memorandum No. 36034/2014-Estt. (Res) dt. 14 August 2014 of Ministry of Personnel, Public Grievances and Pensions, Department of Personnel & Training, Government of India, if an ex-serviceman applies for various posts before joining any civil employment, he/she can avail of the benefit of reservation as ex-serviceman for any subsequent employment, provided the applicant as soon as joins any civil employment, should give self-declaration/undertaking to the concerned employer about the date-wise details of application for various posts for which he/she had applied for before joining. The applicant should furnish the copy of above declaration duly endorsed by the employer on the date of Document Verification for consideration of the claim under Ex-Serviceman category.

**(NOTE: Border Security Force, Indian Coast Guard, CRPF and other Para Military Forces are not within the definition of Ex-serviceman)**

iii. The persons in Defence Forces, who are to retire within 06 (Six) months from the last date of submission of online application form, are eligible to apply on obtaining NOC from the Appropriate Authority indicating there in the date of enrolment/joining and expected date of discharge/retirement and year of service rendered in Defence Forces. Such persons have to submit the NOC in original at the time Document Verification, if called for. Further, they need to submit the Discharge Certificate at the time of joining, if selected.

F. Candidates claiming reservation under Sports Person category must submit Sports Certificate issued in their favour by the Competent Authority.

G. In case of non-availability of eligible/ suitable woman candidate (s) belonging to the respective category, the unfilled vacancies of that category shall be filled up by eligible & suitable male candidate (s) of the same category.

H. The exchange of reservation between SC & ST and vice-versa shall not be considered.

I. Community (caste/class status) once mentioned by the candidate in the application form shall not be changed under any circumstances.

J. The candidates belonging to the transgender community and meeting the eligibility criteria are also eligible to apply.

K. **For candidates working in OMC :**

The Non-Executives recruited under OMC R & P Rules for Non-Executives, 2012 and subsequently acquiring requisite qualification for any higher post of the same sub-cadre may attend the direct recruitment process whenever recruitment for such higher post is undertaken. In such case, upper age limit may be relaxed **up to 10 years**. However, the Non-Executives recruited prior to implementation of OMC R & P Rules for Non-Executives, 2012 and possessing qualification & experience for any post under these Rules, may also attend the direct recruitment process whenever recruitment to any post as per these Rules is undertaken. In such case, upper age limit may be relaxed **up to 10 years** and after appointment they will be governed under the R&P Rules for Non-Executives, 2012.

- L. The number of vacancies to be filled up on the basis of this recruitment is subject to change by OMC Ltd. without notice, depending upon the exigencies of public service at the discretion of OMC Ltd.
- M. The candidates belonging to SC/ST/SEBC Category are required to upload the valid caste/class certificate, issued by the Competent Authority while applying.
- N. The candidates are required to upload the residence certificate, issued by the Competent Authority while applying.
- O. The candidates, if called for document verification by OMC Ltd, need to produce the valid Resident Certificate issued by the Competent Authority at that stage of document verification. Further, the candidates belonging to SC/ST/SEBC category are required to produce the valid caste certificate issued by the Competent Authority at the time of document verification stage, if called for the same by OMC Ltd. SEBC certificate issued **on or after 09.12.2020** shall be considered valid for the purpose of candidature. **OBC certificate in place of SEBC certificate shall not be accepted.**
- P. Women candidates belonging to SC / ST/ SEBC are required to submit Caste Certificate by birth showing **“daughter of .....”** at the time of document verification. Caste Certificates obtained by virtue of marriage (i.e. **showing wife of .....”**) is not acceptable.
- Q. The candidates shall submit the Resident Certificate, issued by the Competent Authority **on or after 09.12.2018.**

## 7. Selection Methodology :-

➤ Selection for the above posts will be made in two stages.

### 1. STAGE ONE : (Computer Based Test)

i. Eligible candidates will be called for Computer Based Test (CBT), comprising 120 (One Hundred Twenty) number of Multiple Choice Questions (MCQs) as under:

SI No.	Post	Subjects	Allocation of Marks
1	Jr. Engineer (Mech.)	Core Subject	60
		General Awareness	15
		Reasoning & Mental Ability	15
		Quantitative Aptitude	15
		English	15
		<b>Total</b>	<b>120</b>
2	Jr. Engineer (Elect.)	Core Subject	60
		General Awareness	15
		Reasoning & Mental Ability	15
		Quantitative Aptitude	15
		English	15
		<b>Total</b>	<b>120</b>
3	Jr. Engineer (Civil.)	Core Subject	60
		General Awareness	15
		Reasoning & Mental Ability	15
		Quantitative Aptitude	15
		English	15
		<b>Total</b>	<b>120</b>
4	Jr. Nurse	Core Subject	60
		General Awareness	15
		Reasoning & Mental Ability	15
		Quantitative Aptitude	15
		English	15
		<b>Total</b>	<b>120</b>
5	Jr. Pharmacist	Core Subject	60
		General Awareness	15
		Reasoning & Mental Ability	15
		Quantitative Aptitude	15
		English	15
		<b>Total</b>	<b>120</b>
6	Electrician-III	Core Subject	60
		General Awareness	15
		Reasoning & Mental Ability	15
		Quantitative Aptitude	15
		English	15
		<b>Total</b>	<b>120</b>

- ii. The Computer Based Test (CBT) will be of **02 (Two)** hours duration.
- iii. The eligible PwBD candidates with Benchmark Disability of 40% or more shall be allowed compensatory time of **20 minutes per hour** of Computer Based Test (CBT).
- iv. The Syllabus for the posts of Jr. Engineer (Mech.), Jr. Engineer (Elect.), Jr. Engineer (Civil), Jr. Nurse, Jr. Pharmacist & Electrician- III are detailed at **Annexure-I, Annexure-II, Annexure-III, Annexure-IV, Annexure-V & Annexure-VI** respectively.
- vii. **For every correct answer, one mark shall be awarded. For every wrong answer attempted by the candidates, negative marking of ¼ marks (i.e., 0.25 marks) will be deducted. No marks will be awarded/deducted for un-attempted questions.**
- viii. In case of requirement, the Computer Based Test (CBT) for a particular post may be conducted in multiple shifts. In such case, advance notice will be issued for conducting the Computer Based Test (CBT) in multiple shifts for any particular post and for adopting/ applying the appropriate Score Normalization Formula for normalization of Computer Based Test (CBT) Scores.

**2. STAGE TWO: (Document Verification)**

- i. There shall be no viva-voice test. Merit on descending order (category- wise) shall be the basis for recruitment.
- ii. After the Computer Based Test (CBT), the candidates shall be called for verification of documents in the ratio of 1:5 (category-wise) in the descending order of merit in the Computer Based Test (CBT).
- iii. The candidates to be called for Document Verification will have to produce original mark- sheets, certificates, documents from (HSC/ 10<sup>th</sup> onwards) towards proof of age, qualification as per advertisement, caste/class & residence etc.
- iv. The candidates called for Document Verification in PwBD, Ex-Servicemen & Sports Person category, shall have to produce the **valid Disability Certificate along with UDID Card or UDID enrolment number, Discharge Certificate or NOC and Sports Certificate** respectively in addition to the certificates as at Point No.7(2)(iii) above.
- v. Wherever CGPA/OGPA is awarded, the candidates will have to produce document indicating equivalent percentage of marks as per norms adopted by the Board/ University/ Institute at the time of document verification.
- vi. The candidate, called for document verification, shall have to produce all the relevant documents in original, which have been uploaded in the online application portal at the time of his/her online application.
- vii. In case of shortfall of eligible candidates due to rejection/ non-availability of candidates at Document Verification stage, candidates next in merit shall be called for Document Verification to

- maintain the ratio of 1:5 for getting valid number of candidates for drawing the final selection list.
- viii. The candidates already employed in Government/ Semi- Government/ Central PSU/ State PSU shall submit “**No Objection Certificate**” issued by their present employer at the stage of document verification.
  - ix. The candidature of the candidates, not producing the required original documents at the time of document verification, shall be cancelled/ rejected.
  - x. Filling-up of vacancies is solely at the discretion of the Management based on suitability of candidates and hence, no claim shall arise for appointment, if vacancies are not filled up due to non-suitability / insufficient number of candidates.

### **8. General Conditions:-**

- i. **The Candidates who are awaiting for final result of prescribed base educational qualification for the posts of Jr. Engineer (Mech.), Jr. Engineer (Elect.), Jr. Engineer (Civil), Jr. Nurse, Jr. Pharmacist & Electrician- III are not eligible to apply.**
- ii. Before applying, the candidate should ensure that he/she fulfils the eligibility criteria and other norms mentioned in this advertisement.
- iii. Candidates must apply online through the concerned website <https://omcltd.in/en/people/career/employment-opportunities> The Candidates are advised to submit the online application form well in advance without waiting for the closing date to avoid the last hour rush.
- iv. The candidate (except SC/ST/PwBD & Departmental candidate) is required to pay a non-refundable and non-adjustable amount of **Rs. 500/- (Rupees Five Hundred) only+ Bank Charges as applicable** for each post towards Application fee in **Online Mode** (As mentioned at “Instruction Sheet”). Candidates belonging to SC/ST category, PwBD candidates and Departmental candidates **are exempted from payment of examination fee.**
- v. The candidates are advised to submit only one Application for each post. In case a candidate submits multiple applications against a particular category of post, then the latest application submitted by the candidate shall be considered. In such case of multiple applications, the applicant has to submit the application fee against his/her latest application. No request for adjustment of application fee paid for the earlier applications, if any, shall be allowed.
- vi. The CBT shall be conducted at any of the cities in Odisha, as per the discretion of OMCL. The candidate, while applying online, has to choose any three test cities as per preference. However, OMCL Management reserves the right to decide the test city/centre for the candidates at its discretion. Any request by the candidate for change of test city/centre will not be allowed. Further, OMCL may conduct the Test in a single city or expand the number of Test cities to Two or more. The decision of OMCL on Test cities shall be final & binding.

- vii. Candidates are requested to visit Corporation website <https://omcltd.in/en/people/career/employment-opportunities> at regular intervals for any notification, news, updates, results etc. relating to this recruitment.
- viii. Candidates after recruitment shall be posted in any establishment of OMC.
- ix. A candidate, who has more than one spouse living, will not be eligible for appointment unless the State Government has exempted his/her case from operation of this limitation for any good and sufficient reasons.
- x. The decision of OMC Management will be final & binding on candidates in the matters relating to eligibility, acceptance or rejection of the application, selection of candidate, cancellation of the recruitment process, etc. No enquiry / correspondence will be entertained in this regard. OMC Management, at its discretion, may alter the terms & conditions of recruitment including the ratio in which the candidates are to be called for Document Verification and/or the ratio to be maintained for getting valid number of candidates for drawing the final selection list.
- xi. The number of posts to be filled up on the basis of this recruitment may undergo change without any prior notice, at the discretion of OMC Management.
- xii. If the online application submitted, found to be incomplete in any respect, then the candidature is also liable for rejection without any notice and hence, no correspondence in this regard shall be entertained.
- xiii. At any stage of recruitment process, if it is found that the candidate has furnished false or incorrect information, then the candidature /appointment of the candidate shall be cancelled.
- xiv. Canvassing in any form shall be viewed adversely & shall lead to disqualification.
- xv. The selected candidates shall produce the required documents at the time of joining at their place of posting as per the provisions of OMC R&P Rules for Non-Executives 2012 (Visit Corporation website <https://omcltd.in>)
- xvi. OMC service is not pensionable.
- xvii. No T.A./ D.A. will be paid for appearing the CBT and Document Verification.
- xviii. Any dispute arising out of this recruitment process will be subject to jurisdiction of appropriate Courts in Bhubaneswar only.
- xix. Interested eligible candidates may visit OMC Website <https://omcltd.in> and apply online within the scheduled dates as prescribed in this advertisement. Applications received through any other mode would not be accepted and summarily rejected.

<b>Important Dates</b>	
- Starting Date for Online Registration of Application	17.11.2023 at 2:00 PM
- Last Date of submission of Online Application	08.12.2023 at 11:59 PM
- Last Date of submission of Online Application Fee (if applicable) through Debit/Credit Card/Net Banking/UPI etc.	08.12.2023 at 11:59 PM

**Sd/-  
GENERAL MANAGER (P&A)**



# ANNEXURES

<b>Sl. No.</b>	<b>Annexure</b>		<b>Content</b>
1	Annexure-I	-	Syllabus of Jr. Engineer (Mechanical)
2	Annexure-II	-	Syllabus of Jr. Engineer (Electrical)
3	Annexure-III	-	Syllabus of Jr. Engineer (Civil)
4	Annexure-IV	-	Syllabus of Jr. Nurse
5	Annexure-V	-	Syllabus of Jr. Pharmacist
6	Annexure-VI	-	Syllabus of Electrician-III
7	Annexure-VII	-	Certificate format for opting own scribe/reader by PwBD candidate with physical limitation

**SYLLABUS FOR JR. ENGINEER (MECHANICAL)**

**Duration of Written Test- 2 Hours**

**Total- 120 Marks**

**A. Core Subject**

(60 Marks)

- 1. Engineering Mechanics:** Static Mechanics, Resolution of Force, Moment, Equilibrium, Friction, Centroid and Moment of Inertia, Dynamics, Simple Machines.
- 2. Strength of Material:** Simple Stress & Strain, Thin Cylinder & Spherical Shell under internal pressure, Two dimensional stress systems, Bending moment & shear force, Theory of simple bending, combined direct & bending stresses, Torsion.
- 3. Engineering Material:** Engineering materials and their properties, Ferrous Materials and alloys, Iron-Carbon system, Crystal imperfections, Heat Treatment, Non-ferrous alloys, Bearing material, Spring materials, Polymers, Composites and Ceramics, Surface preparation and Industrial painting.
- 4. Thermal Engineering I:** Thermodynamics Concepts and terminology, Energy and Work Transfer, Laws of Thermodynamics, Working Substances, Properties of gases, Ideal Gases and real gases, IC engine, Gas power cycle, Fuels and combustions.
- 5. Production Technology:** Metal Forming Processes, Welding, Casting, Power Metallurgy, Press Work, Jigs and Fixtures.
- 6. Theory of Machine:** Simple mechanism, Friction, Power Transmission, Governors and Flywheel, Balancing of Machine, Vibration of machine parts.
- 7. Manufacturing Technology:** Tool Materials, Cutting Tools, Lathe Machine, Shaper, Planning Machine, Milling Machine, Slotter, Grinding, Internal Machining Operations (Drilling, Boring, Broaching), Surface finish, Lapping.
- 8. Thermal Engineering II:** Properties of Vapour and Vapour Power Cycles, Steam Generators, Steam Turbines, Gas Power Cycles, Fuels and Combustion, Heat Transfer, Refrigeration Cycles, Air Compressors.
- 9. Fluid Mechanics and Hydraulics Machines:** Properties of Fluid, Fluid Pressure and it's measurements, Hydrostatics, Fluid Flow, Flow through pipe, Impact of jets, Hydraulic turbines, Hydraulic Pumps.
- 10. Environmental Studies:** Renewable and non-renewable resources, ECO Systems, Biodiversity, Environmental Pollution, Disaster Management, Social Issues and the Environment, Sustainable development, Water conservation, Rain water harvesting.
- 11. Machine Design:** Design of Fastening elements, Design of Shafts and Keys, Design of belt drives and pulleys, Design of closed coil helical spring and leaf spring.

- 12. Industrial Engineering and Quality Control:** Plant location and Layout, Operations Research, Inventory Control, Plant maintenance, Inspection and Quality Control, Contemporary Quality Management concepts.
- 13. Automobile Engineering:** Automobiles Definition, need and classification, Layout of automobile chassis with major components, Transmission system, Braking system, Auto electric system, Suspension System, Cooling and Lubrication, Fuel and Ignition System.
- 14. Basic Electrical Technology:** Introduction to Electrical Power supply & transmission, Power Distribution & Utilization, AC & DC supply, Three phase supply, Measuring Instruments, DC Motor, AC Machines (Transformer, AC Motor, Alternator, Synchronous Motor), Industrial applications, Electric heating & welding.
- 15. Applied Thermodynamics:** Performance of I.C engine, Air Compressor, Refrigeration & Air Conditioning.
- 16. Advance Manufacturing & CAD/CAM:** Non –conventional machining process, Automation, Numerical Control, CAD/CAM and CIM.
- 17. Alternate Energy Sources and Management:** Non-conventional renewable energy source and potential of renewable energy source, Pollution aspects of conventional sources of energy, Global warming and Green House effects, Solar radiation, Solar energy collection, Solar energy storage, Solar energy application, Wind energy, Tidal energy, Bio-energy.
- 18. Industrial Fluid Power:** Fluid power Fundamental, Pumps, Actuators, Pressure Control, Direction Control Valve, Flow Control Valve, Hydraulic Circuit, Hydraulic Pumps.
- 19. Mechanical Measurements and Control:** Introduction to measurement, Linear measurement, Angular measurement, Limits, fits & tolerances, Transducers, Strain measurement, Measurement of Pressure, Temperature measurement.

<b>Sl. No</b>	<b><u>Descriptive</u></b>	<b>Marks</b>
<b>B.</b>	<b><u>General Awareness</u></b>	(15 Marks)
	a) Current national events and international events b) General Knowledge like History/ Polity/ Geography of Odisha & India c) Scientific Invention & use of Science in everyday life d) Issues of environment, Ecology, Bio-diversity & Climate Change e) Books and Authors	
<b>C.</b>	<b><u>Reasoning &amp; Mental Ability</u></b>	(15 Marks)
	<b>A. Verbal</b> I. Number Series II. Alphabet Series III. Test of Direction Sense IV. Coding-decoding V. Number Ranking VI. Arithmetic Reasoning VII. Algebraic equations VIII. Word problems IX. Problem of Age Calculation	
	<b>B. Non-verbal</b> I. Non-verbal Series II. Mirror Images III. Cubes & Dice IV. Grouping Identical Figures V. Embedded Figures etc	
<b>D.</b>	<b><u>Quantitative Aptitude</u></b>	(15 Marks)
	a) Ratio and Proportion b) Numbers c) Linear equations d) Surface area, volume e) Trigonometry application f) Word problem. g) Time and Work h) Speed and Distance i) Square roots j) Percentages and Averages k) Profit, Loss and Discount l) Probability, Statistics	
<b>E.</b>	<b><u>English</u></b>	(15 Marks)
	<b>Grammar</b>	
	I. Fill in the blanks with articles, voices, Nouns/Pronouns II. Verb III. Agreement of the verb with subject IV. Adverb V. Preposition VI. Tenses VII. Conjunction VIII. One word substitution IX. Synonyms & Antonyms X. Correct the sentence	

**SYLLABUS FOR JR. ENGINEER (ELECTRICAL)**

**Duration of Written Test- 2 Hours**

**Total- 120 Marks**

**A. Core Subject**

(60 Marks)

1. **Basic concepts:** Concepts of resistance, inductance, capacitance, and various factors affecting them. Concepts of current, voltage, power, energy and their units.
2. **Circuit law:** Kirchhoff's law, Simple Circuit solution using network theorems.
3. **Magnetic Circuit:** Concepts of flux, mmf, reluctance, Different kinds of magnetic materials, Magnetic calculations for conductors of different configuration e.g. straight, circular, solenoidal, etc. , Electromagnetic induction, self and mutual induction.
4. **AC Fundamentals:** Instantaneous, peak, R.M.S. and average values of alternating waves, Representation of sinusoidal wave form, simple series and parallel AC Circuits consisting of R.L. and C, Resonance, Tank Circuit. Poly Phase system — star and delta connection, 3 phase power, DC and sinusoidal response of R-L and R-C circuit.
5. **Measurement and measuring instruments:** Measurement of power (1 phase and 3 phases, both active and re-active) and energy, 2 wattmeter method of 3 phase power measurement, Measurement of frequency and phase angle, Ammeter and voltmeter (both moving oil and moving iron type), extension of range wattmeter, Multimeters, Megger, Energy meter AC Bridges, Use of CRO, Signal Generator, CT, PT and their uses, Earth Fault detection.
6. **Electrical Machines:**
  - (a) D.C. Machine — Construction, Basic Principles of D.C. motors and generators, their characteristics, speed control and starting of D.C. Motors. Method of braking motor, Losses and efficiency of D.C. Machines.
  - (b) 1 phase and 3 phase transformers — Construction, Principles of operation, equivalent circuit, voltage regulation, O.C. and S.C. Tests, Losses and efficiency. Effect of voltage, frequency and wave form on losses. Parallel operation of 1 phase /3 phase transformers. Auto transformers.
  - (c) 3 phase induction motors, rotating magnetic field, principle of operation, equivalent circuit, torque-speed characteristics, starting and speed control of 3 phase induction motors. Methods of braking, effect of voltage and frequency variation on torque speed characteristics.

Fractional Kilowatt Motors and Single Phase Induction Motors: Characteristics and applications.
7. **Synchronous Machines:** Generation of 3-phase e.m.f. armature reaction, voltage regulation, parallel operation of two alternators, synchronizing, control of active and reactive power, Starting and applications of synchronous motors.

8. **Generation, Transmission and Distribution:** Different types of power stations, Load factor, diversity factor, demand factor, cost of generation, interconnection of power stations. Power factor improvement, various types of tariffs, types of faults, short circuit current for symmetrical faults, Switchgears — rating of circuit breakers, Principles of arc extinction by oil, gas and air, H.R.C. Fuses,  
  
Protection against earth leakage/ over current, etc. Buchholtz relay, Merz-Price system of protection of generators & transformers, protection of feeders and bus bars., Lightning arresters, various transmission and distribution system, comparison of conductor materials, efficiency of different system. Cable — Different type of cables, cable rating and derating factor.
9. **Estimation and costing:** Estimation of lighting scheme, electric installation of machines and relevant IE rules, Earthing practices and IE Rules.
10. **Utilization of Electrical Energy:** Illumination, Electric heating, Electric welding, Electroplating, Electric drives and motors.
11. **Basic Electronics:** Working of various electronic devices e.g. P N Junction diodes, Transistors (NPN and PNP type), BJT and JFET., Simple circuits using these devices.
12. **Electrical Engineering Materials:** Conducting materials, semi conducting materials, Insulating materials, dielectric materials, materials for special purpose.
13. **Instrumentation And Control:** Sensor & transducer, oscilloscope, measurement on non-electric quantities, control system, servo mechanism, mathematical model of physical system, servo motor, block diagram of control system, stability of control system.
14. **Power Electronic & Drives:** Thyristor, Firing circuit of thyristor, Phase controlled rectifier, inverter, chopper, cycloconverter, power semiconductor devices, thyristor application, AC & DC drives

<b>Sl. No</b>	<b><u>Descriptive</u></b>	<b>Marks</b>
<b>B.</b>	<b><u>General Awareness</u></b>	(15 Marks)
	a) Current national events and international events b) General Knowledge like History/ Polity/ Geography of Odisha & India c) Scientific Invention & use of Science in everyday life d) Issues of environment, Ecology, Bio-diversity & Climate Change e) Books and Authors	
<b>C.</b>	<b><u>Reasoning &amp; Mental Ability</u></b>	(15 Marks)
	<b>A. Verbal</b> I. Number Series II. Alphabet Series III. Test of Direction Sense IV. Coding-decoding V. Number Ranking VI. Arithmetic Reasoning VII. Algebraic equations VIII. Word problems IX. Problem of Age Calculation	
	<b>B. Non-verbal</b> I. Non-verbal Series II. Mirror Images III. Cubes & Dice IV. Grouping Identical Figures V. Embedded Figures etc	
<b>D.</b>	<b><u>Quantitative Aptitude</u></b>	(15 Marks)
	a) Ratio and Proportion b) Numbers c) Linear equations d) Surface area, volume e) Trigonometry application f) Word problem. g) Time and Work h) Speed and Distance i) Square roots j) Percentages and Averages k) Profit, Loss and Discount l) Probability, Statistics	
<b>E.</b>	<b><u>English</u></b>	(15 Marks)
	<b>Grammar</b>	
	I. Fill in the blanks with articles, voices, Nouns/Pronouns II. Verb III. Agreement of the verb with subject IV. Adverb V. Preposition VI. Tenses VII. Conjunction VIII. One word substitution IX. Synonyms & Antonyms X. Correct the sentence	

**SYLLABUS FOR JR. ENGINEER (CIVIL)****Duration of Written Test- 2 Hours****Total- 120 Marks****A. Core Subject****(60 Marks)****1. BUILDING MATERIALS AND BUILDING CONSTRUCTION:-****(a) Building Materials:**

Cement : Components, different types, setting times, strength, Cement Mortar, Ingredients, proportions, water demand, mortars for plastering and masonry.

Concrete: Importance of W/C Ratio, Strength, ingredients including admixtures, workability, testing for strength, non-destructive testing, mix design methods.

Bricks: Types, Indian Standard classification, absorption, saturation factor, strength in masonry. This shall cover the KB Bricks, fly ash Bricks.

**(b) Building construction:** Types of Foundations, Frame structured building, Load bearing Wall, Fly ash brick, Brick masonry, Stone masonry, Floorings, Causes and prevention of cracks in buildings, Damp proofing, Special maintenance of buildings.

**2. ESTIMATING, COSTING AND VALUATION:** Estimate, glossary of technical terms, analysis of rates, methods and unit of measurement, Items of work – earthwork, Brick work (Modular & Traditional bricks), RCC work, Shuttering, Timber work, Painting, Flooring, Plastering, Boundary wall, Brick building, Water Tank, Septic tank, Bar bending schedule, Centre line method, Mid-section formula, Trapezoidal formula, Simpson's rule, Cost estimate of Septic tank, flexible pavements, Tube well, isolates and combined footings, Steel Truss, Piles and pile-caps. Valuation – Value and cost, scrap value, salvage value, assessed value, sinking fund, depreciation and obsolescence, methods of valuation.

**3. CONSTRUCTION PLANNING AND MANAGEMENT:** Preliminary estimate, Detailed estimate, Specifications and cost analysis, Bar chart, Linked bar chart, Work-breakdown structures, Activity-on arrow diagrams, Critical path, probabilistic activity durations, Event-based networks, PERT networks: Time-cost study, Resource allocation.



**4. SURVEYING:** Principles of surveying, measurement of distance, chain surveying, working of prismatic compass, compass traversing, bearings, local attraction, plane table surveying, theodolite traversing, adjustment of theodolite, Levelling, Definition of terms used in levelling, contouring, curvature and refraction corrections, temporary and permanent adjustments of dumpy level, methods of contouring, uses of contour map, tachometric survey, curve setting, earth work calculation, advanced surveying equipment.

**5. SOIL MECHANICS:** Origin of soil, phase diagram, Definitions-void ratio, porosity, degree of saturation, water content, specific gravity of soil grains, unit weights, density index and interrelationship of different parameters, Grain size distribution curves and their uses Index properties of soils, Atterberg's limits, ISI soil classification and plasticity chart Permeability of soil, coefficient of permeability, determination of coefficient of permeability, Unconfined and confined aquifers, effective stress, quick sand, consolidation of soils, Principles of consolidation, degree of consolidation, pre-consolidation pressure, normally consolidated soil, e-log p curve, computation of ultimate settlement, Shear strength of soils, direct shear test, Vane shear test, Triaxial shear test Soil compaction, Laboratory compaction test, Maximum dry density and optimum moisture content, earth pressure theories, active and passive earth pressures, Bearing capacity of soils, plate load test, standard penetration test.

#### **6. WATER RESOURCES AND HYDRAULIC ENGINEERING:**

(a) **Fluid Mechanics:** Fluid Properties, Pressure, Thrust, Buoyancy; Flow Kinematics; Integration of flow equations; Flow measurement; Relative motion; Moment of momentum; Viscosity, Boundary layer and Control, Dimensional Analysis, Flow development, losses in pipe flows, Pipe networks, Flow measuring equipment and structures.

(b) **Open Channel Flow:** Momentum and Energy principles in Open channel flow, Types of flow, Flow sections and properties; Normal flow, Gradually varied flow, Hydraulic jump.

#### **7. TRANSPORTATION ENGINEERING:**

(a) **Highway Engineering** – cross sectional elements, geometric design, types of pavements, pavement materials – aggregates and bitumen, different tests, Design of flexible and rigid pavements – Water Bound Macadam (WBM) and Wet Mix Macadam (WMM), Gravel Road, Bituminous construction, Rigid pavement joint, pavement maintenance, Highway drainage.

(b) **Traffic Engineering** : Traffic characteristics, theory of traffic flow, intersection design, traffic signs and signal design, highway capacity, traffic survey, road safety.

## **8. ENVIRONMENTAL ENGINEERING:**

(a) **Water Supply Engineering:-** Sources of supply, design of intakes, Estimation of demand; Water quality standards; Primary and secondary treatment, detailing and maintenance of treatment units; Conveyance of treatment units; distribution systems of treated water, leakages and control; Institutional and industrial Water supply.

(b) **Waste Water Engineering:-** Urban rain water disposal; Quantity and characteristics of waste water, Collection of waste water, Primary, Secondary and tertiary treatment of waste water, Sludge disposal, effluent discharge standards, Institutional and industrial sewage management.

(c) **Solid Waste Management:-** Characteristics, Generation, Collection and Transportation, Engineered systems of solid waste management (reuse, recycle, recovery, treatment and disposal), Design and Management of landfills.

## **9. STRUCTURAL ENGINEERING:**

### **(a) Simple Stresses and Strains:**

Introduction to stresses and strains mechanical properties of materials rigidity, elasticity, plasticity, compressibility, hardness, toughness, stiffness, brittleness, ductility, malleability, creep, fatigue, tenacity durability, types of stresses –tensile, compressive and shear stresses, types of strains: tensile, compressive and shear strains, complimentary shear stress – diagonal tensile / compressive stresses due to shear, elongation and contraction, longitudinal and lateral strains, poisson's ratio, volumetric strain, computation of stress, strain, poisson's ratio , change in dimensions and volume etc, Hooke's law of elastic constants, derivation of relationship between the elastic constants.

### **Application of simple stress and strain in engineering field:**

Behaviour of ductile and brittle materials under direct loads, stress strain curve of a ductile material, limit of proportionality, elastic limit, yield stress, ultimate stress, breaking stress, percentage elongation & percentage reduction in area, significance of percentage elongation and reduction in area of cross section, deformation of prismatic bars due to uni-axial load, deformation of prismatic bars due to its self weight.

**Stresses in beams due to bending :** Bending stress in beams- theory of simple bending assumptions moment of resistance – equation for flexure – flexural stress distribution – curvature of beam – position of n.a. (neutral axis) and centroidal axis – flexural rigidity – significance of section modulus.

**Shear stresses in beams :** Shear stress distribution in beams of rectangular, circular and standard sections, symmetrical about vertical axis.

**Combined direct and bending stresses:** Combination of stresses, combined direct and bending stresses, maximum and minimum stresses in sections, conditions for no tension, limit of eccentricity, middle third/fourth rule, core or kern for square, rectangular and circular sections, chimneys, dams and retaining walls.

**Columns and Struts:** Columns and struts, definition, short and long columns, end conditions, equivalent length, effective length, slenderness ratio, axially loaded short and long column, Euler's theory of long columns, critical load for columns with different end conditions.

### **Shear Force and Bending Moment :**

**Types of loads and beams :** Types of loads: Concentrated (or) point load, uniformly distributed load (udl), types of supports: simple support, roller support, hinged support, fixed support, types of reactions: vertical reaction, horizontal reaction, moment reaction, types of beams based on support conditions, calculation of support reactions using equations of static equilibrium.

### **Shear force and bending moment in beams**

**Shear Force and Bending Moment :** Signs convention for S.F. and B.M., S.F. and B.M. of general cases of beams with concentrated loads and udl, S.F. and B.M. diagrams for cantilevers, simply supported beams and over hanging beams, position of maximum B.M., point of contraflexure, relation between intensity of load, S.F. and B.M.

### **Slope and Deflection**

**Introduction :** Shape and nature of elastic curve (deflection curve); relationship between slope, deflection and curvature (no derivation), importance of slope and deflection.

Slope and deflection of cantilever and simply supported beams under concentrated and uniformly distributed load (by double integration method, Macaulay's method).

### **Indeterminate Beams**

Indeterminacy in beams, principle of consistent deformation/compatibility analysis of propped cantilever, fixed and two span continuous beams by principle of superposition, S.F. and B.M. diagram (point load and udl covering full span).

### **Trusses**

Introduction: Types of trusses, statically determinate and indeterminate trusses, degree of indeterminacy, stable and unstable trusses, advantages of trusses.

Analysis trusses: Analytical method (method of joints, method of section).

(b) **Theory of structures:** Elasticity constants, types of beams – determinate and indeterminate, bending moment and shear force diagrams of simply supported, cantilever and over hanging beams Moment of area and moment of inertia for rectangular & circular sections, bending

moment and shear stress for tee, channel and compound sections, chimneys, dams and retaining walls, eccentric loads, slope deflection of simply supported and cantilever beams, critical load and columns, Torsion of circular section

(c) **Concrete Technology:** Properties, Advantages and uses of concrete, cement aggregates, importance of water quality, water cement ratio, workability, mix design, storage, batching, mixing, placement, compaction, finishing and curing of concrete, quality control of concrete, hot weather and cold weather concreting, repair and maintenance of concrete structures

(d) **Steel Design:** Steel design and construction of steel columns, beams, roof trusses, plate girders.

## **10. GEOTECHNICAL ENGINEERING:**

(a) **Soil Mechanics:-** Fundamental definitions and interrelationships; Properties and Classification of soils, Permeability and seepage, Effective stress principles, Shear strength, Consolidation, Compaction, stress distribution in soils.

(b) **Foundation Engineering:-** Type of foundations, Foundation design requirements, Shallow foundations bearing capacity, settlement analysis in sands and clays, Deep foundation- pile types, dynamic and static formulae, load carrying capacity of piles in sands and clays, group action, negative skin friction, Earth pressure theories, effect of water table, layered soils, Stability of slopes, Sub-surface investigations: scope, drilling bore holes, sampling, penetration tests, plate load tests, geophysical tests.

## **11. CONSTRUCTION MANAGEMENT:**

- Objectives & functions of Construction Management
- Construction Planning, Construction scheduling by Bar chart, PERT and CPM Techniques
- Construction Site Management such as review of drawings, specification, layout of structures, equipment.
  - Construction Organization such as structures, responsibility, function, control authority, Relationship with different functionalities
  - Labour Management such as labour category, schedule, wages, incentives etc.
  - Equipment Management such as equipment schedule, deployment, maintenance, safety etc.

## **12. QUALITY CONTROL**

- Concept of quality in construction
- Quality Standards – during construction, after construction- destructive & non-destructive methods.

**13. MONITORING PROGRESS** with respect to schedule, project over run, physical & financial impact.

**14. SAFETY MANAGEMENT IN CONSTRUCTION:-**

- Safety SOP/ Modalities to be followed for excavation, scaffolding, formwork, fabrication and erection, demolition
- Development of safety consciousness

**15. MS PROJECT:-**

- Project Management -Definition & concept
- Features of Microsoft project
- MS project scheduling for engineering

<b>Sl. No</b>	<b><u>Descriptive</u></b>	<b>Marks</b>
<b>B.</b>	<b><u>General Awareness</u></b>	(15 Marks)
	a) Current national events and international events b) General Knowledge like History/ Polity/ Geography of Odisha & India c) Scientific Invention & use of Science in everyday life d) Issues of environment, Ecology, Bio-diversity & Climate Change e) Books and Authors	
<b>C.</b>	<b><u>Reasoning &amp; Mental Ability</u></b>	(15 Marks)
	<b>A. Verbal</b> I. Number Series II. Alphabet Series III. Test of Direction Sense IV. Coding-decoding V. Number Ranking VI. Arithmetic Reasoning VII. Algebraic equations VIII. Word problems IX. Problem of Age Calculation	
	<b>B. Non-verbal</b> I. Non-verbal Series II. Mirror Images III. Cubes & Dice IV. Grouping Identical Figures V. Embedded Figures etc	
<b>D.</b>	<b><u>Quantitative Aptitude</u></b>	(15 Marks)
	a) Ratio and Proportion b) Numbers c) Linear equations d) Surface area, volume e) Trigonometry application f) Word problem. g) Time and Work h) Speed and Distance i) Square roots j) Percentages and Averages k) Profit, Loss and Discount l) Probability, Statistics	
<b>E.</b>	<b><u>English</u></b>	(15 Marks)
	<b>Grammar</b>	
	I. Fill in the blanks with articles, voices, Nouns/Pronouns II. Verb III. Agreement of the verb with subject IV. Adverb V. Preposition VI. Tenses VII. Conjunction VIII. One word substitution IX. Synonyms & Antonyms X. Correct the sentence	

**SYLLABUS FOR JR. NURSE****Duration of Written Test- 2 Hours****Total- 120 Marks****A. Core Subject****(60 Marks)**

1. **Nursing Art:** Preparation of patient unit, Admission of patient, Observation, Personal hygiene, Nutrition, Comfort major, Elimination, Hot & Cold application, administration of medicine, Injection, Fetal skull and maternal pelvis, Antenatal care, Normal labour, Antepartum Hemorrhage, Gynaecology, Multiple pregnancy, Complication third stage of labour, Abnormal Puerperium, Operating obstetrics.
2. **Anatomy Physiology:** Cardiovascular system, lymphatic system, Nervous system, Endocrine system, Respiratory system, Digestive system, Urinary system, Skin, Immunity, Reproductive system, Muscular system.
3. **Microbiology:** Fungi, Bacteria, Virus, Parasites, Common parasitic diseases- Protozoal & Helminthic.
4. **Medical Surgical Nursing:** Common problems of adult patients, Respiratory nursing, Oncological nursing, Alimentary nursing, Gastrointestinal nursing, Hepatobiliary pancreatic nursing, Orthopedic nursing, Neurological nursing, Endocrinological nursing, Urological nursing, Renal Nursing, Dermatological nursing, Ophthalmic nursing, Cardiovascular resuscitation.
5. **Mental Health:** Principles and concept, Nurse patient relations, Schizophrenia Management, Psychotic disorder, Management of Mood disorder, Neurotic/ Stress related, Substance use, Personality/ Sexual/ Eating disorder, Organic brain disorder management, legal issue in mental health nursing, Community mental health nursing.
6. **Midwifery & Gynaecology:** Anatomy of female reproductive system, Fundamentals of reproduction, Diagnosis of pregnancy, Fetus in utero, The fetus.
7. **Paediatric Nursing:** Immunization, Nutrition, Newborn infant, Healthy child, Sick child, Congenital anomalies, Nutrition deficiency disorder.
8. **Community Health Nursing:** Health System in India, Health care delivery system, Health planning in India, Specialized community health services and Nurse's role, National health problem, National health programs, Demography and family welfare, Health Team, Health Information System, Health Agencies.

<b>Sl. No</b>	<b><u>Descriptive</u></b>	<b>Marks</b>
<b>B.</b>	<b><u>General Awareness</u></b>	(15 Marks)
	a) Current national events and international events b) General Knowledge like History/ Polity/ Geography of Odisha & India c) Scientific Invention & use of Science in everyday life d) Issues of environment, Ecology, Bio-diversity & Climate Change e) Books and Authors	
<b>C.</b>	<b><u>Reasoning &amp; Mental Ability</u></b>	(15 Marks)
	<b>A. Verbal</b> I. Number Series II. Alphabet Series III. Test of Direction Sense IV. Coding-decoding V. Number Ranking VI. Arithmetic Reasoning VII. Algebraic equations VIII. Word problems IX. Problem of Age Calculation	
	<b>B. Non-verbal</b> I. Non-verbal Series II. Mirror Images III. Cubes & Dice IV. Grouping Identical Figures V. Embedded Figures etc	
<b>D.</b>	<b><u>Quantitative Aptitude</u></b>	(15 Marks)
	a) Ratio and Proportion b) Numbers c) Linear equations d) Surface area, volume e) Trigonometry application f) Word problem. g) Time and Work h) Speed and Distance i) Square roots j) Percentages and Averages k) Profit, Loss and Discount l) Probability, Statistics	
<b>E.</b>	<b><u>English</u></b>	(15 Marks)
	<b>Grammar</b>	
	I. Fill in the blanks with articles, voices, Nouns/Pronouns II. Verb III. Agreement of the verb with subject IV. Adverb V. Preposition VI. Tenses VII. Conjunction VIII. One word substitution IX. Synonyms & Antonyms X. Correct the sentence	



**SYLLABUS FOR JR. PHARMACIST****Duration of Written Test- 2 Hours****Total- 120 Marks****A. Core Subject****(60 Marks)****1. Pharmaceutics-I**

- a) Metrology
- b) Sterilization
- c) Processing of Tablets
- d) Processing of Capsules

**2. Pharmaceutical Chemistry- I**

- a) Acids, Bases and Buffers, Boric Acid, Hydrochloric Acid, Strong Ammonium Hydroxide, Calcium Hydroxide, Sodium Hydroxide and official Buffers.
- b) Antioxidants, Hypophosphorous acid, Sulfur dioxide sodium bisulphate, Sodium metabisulfate, Sodium thiosulphate, Nitrogen and Sodium Nitrite.
- c) Gastrointestinal Agents, Topical Agents, Dental Products, Inhalants, Respiratory Stimulants Expectorants and Emetics, Antidotes.
- d) Electrolytes used for Replacement Therapy, Physiological Acid Base- Balance and Electrolytes used.

**3. Human Anatomy and Physiology**

- a) Structure and Functions of Various Parts of Heart, Respiratory Systems, Urinary Systems, Skeletal Muscle, Central Nervous System, Brain, Taste, Smell, Ear, Eye & Skin.
- b) Digestive System, Endocrine Glands and Hormones and Reproduction System.

**4. Pharmacognosy**

- a) Occurance, distribution Organoleptic, evaluation- Laxative, Cardiotonics, Carminatives and G. I regulations, Astringents, Drugs acting on Nervous System
- b) Anti Hypertensive, Antitussives, Anti rheumatics, Anti tumour, Antileptotics, Anti Diabetics, Antidysenterics, Anti septic and disinfectants, Anti malarials, Oxytocics, Vitamins, Enzymes, Perfumes and Flavouring Agents, Pharmaceutical Aids, Miscellaneous.
- c) Study of Source, Preparations & identification of Fibres used in sutures and surgical dressing.
- d) Gross anatomical Studies of Senna, Dhatura, Cinnamon, Clove, Ginger, Nux-vomica and Ipecacuanhe.

**5. Biochemistry and Clinical Pathology**

- a) Brief Chemistry and role of proteins, Polypeptides and Amino Acids, Carbohydrates, Vitamins and Co-enzymes.
- b) Brief Concepts of normal and abnormal metabolism of Proteins, Carbohydrates and Lipids.
- c) Introduction to pathology of Blood and Urine-Lymphocytes and Platelets, Erythrocytes, Abnormal Constituents of Urine and their Significance in disease.

**6. Health Education And Community Pharmacy**

- a) Concept of Nutrition and Health
- b) First Aid
- c) Communicable Diseases- Respiratory Infection, Intestinal Infections, Arthropod Bone Infections, Surface Infections, Sexually transmitted diseases.
- d) Non-communicable diseases

## 7. **Pharmaceutics-II**

- a) Dispensing Pharmacy- Prescription, Incompatibilities in prescriptions, Posology.
- b) Dispensing Medications- Powders, Liquid oral Dosage forms, Ointments, Pastes, Jellies, Suppositories and pessaries.
- c) Sterile dosage forms- Parenteral, Sterility testing, ophthalmic products.

8. **Pharmaceutical Chemistry- II:** Pharmaceutical Organic Chemistry- Antiseptics and Disinfectants, Sulfonamides, Antileprotic Drugs, Antitubercular drugs, Anti Amoebic & Anthelmintic Drugs, Antibiotics, Antifungal Agents, Antimalarials drugs, Hypnotics, General Anesthetics, Local Anesthetics, Anti Depressant Drugs, Diuretic Drugs, Cardiovascular Drugs, Hypoglycemic Agents, Coagulants & Anticoagulants, Histamine & Antihistamine Agents, Analgesics and Antipyretics, Non Steroidal & Inflammatory Agents, Thyroxine & Anti Thyroids, Diagnostic Agents, Anti Neoplastic drugs.

## 9. **Pharmacology & Toxicology**

- a) General Mechanism of Drugs Action
- b) Pharmacological Classification- Local Anaesthetics, Respiratory System, Cardiovascular, Hormones & Hormone Antagonists.
- c) Chemotherapy of Microbial Disease, Protozoal Diseases, Cancer.
- d) Disinfectants & Antiseptics

## 10. **Pharmaceutical Jurisprudence**

- a) Pharmacy act, 1948
- b) The Drugs & Cosmetics Act, 1940
- c) The Drugs & Magic remedies (Objectionable Advertisement) Act, 1954
- d) Narcotic Drugs & Psychotropic Substances Act, 1985
- e) Poisons Act, 1919
- f) Medicinal & Toilet preparations (excise duties) Act, 1955, Medical Termination of Pregnancy Act, 1971

11. **Drug Store and Business Management:** Forms of Business Organisation, Channels of Distribution, Drugs House Management, Cash Book, General Ledger and Trial Balance

## 12. **Hospital and Clinical Pharmacy**

- a) Drug distribution system in Hospitals- Out Patients service, inpatients service
- b) Manufacturing- Economical Considerations, Sterile Manufacture, Non- Sterile Manufacture, Procurement of stores and Testing Raw Materials
- c) Pharmacy Therapeutic Committee (PTC)
- d) Surgical Dressing, Application of Computers in Hospital Pharmacy
- e) Drugs Interactions, Drug-Drug Interaction, Drug Food interaction, Mechanism of drug interaction
- f) Adverse Drug reaction, Drugs in Clinical Toxicity
- g) Drug Dependence, Drug Abuse, Addictive Drugs & Treatment.

<b>Sl. No</b>	<b><u>Descriptive</u></b>	<b>Marks</b>
<b>B.</b>	<b><u>General Awareness</u></b>	(15 Marks)
	a) Current national events and international events b) General Knowledge like History/ Polity/ Geography of Odisha & India c) Scientific Invention & use of Science in everyday life d) Issues of environment, Ecology, Bio-diversity & Climate Change e) Books and Authors	
<b>C.</b>	<b><u>Reasoning &amp; Mental Ability</u></b>	(15 Marks)
	<b>A. Verbal</b> I. Number Series II. Alphabet Series III. Test of Direction Sense IV. Coding-decoding V. Number Ranking VI. Arithmetic Reasoning VII. Algebraic equations VIII. Word problems IX. Problem of Age Calculation	
	<b>B. Non-verbal</b> I. Non-verbal Series II. Mirror Images III. Cubes & Dice IV. Grouping Identical Figures V. Embedded Figures etc	
<b>D.</b>	<b><u>Quantitative Aptitude</u></b>	(15 Marks)
	a) Ratio and Proportion b) Numbers c) Linear equations d) Surface area, volume e) Trigonometry application f) Word problem. g) Time and Work h) Speed and Distance i) Square roots j) Percentages and Averages k) Profit, Loss and Discount l) Probability, Statistics	
<b>E.</b>	<b><u>English</u></b>	(15 Marks)
	<b>Grammar</b>	
	I. Fill in the blanks with articles, voices, Nouns/Pronouns II. Verb III. Agreement of the verb with subject IV. Adverb V. Preposition VI. Tenses VII. Conjunction VIII. One word substitution IX. Synonyms & Antonyms X. Correct the sentence	

## SYLLABUS FOR ELECTRICIAN-III

Duration of Written Test- 2 Hours

Total- 120 Marks

**A. Core Subject**

(60 Marks)

1. **Various safety measure involved in the industry:** Elementary first Aid, Concept of Standard Basic injury prevention, Basic first aid, Hazard identification and avoidance, Safety signs for Danger, warning, caution, personal safety message, Use of fire extinguisher, Personal Protective Equipment.
2. **Hand tools:** Specifications, Identification of simple type- screws, nuts & bolts, chassis, Clamps, Rivets etc., Use, care & maintenance of various hand tools, Familiarization with signs & symbols of electrical accessories.
3. **Fundamental of electricity:** Electron theory- free electron, Fundamental terms, definition, units & effects of electric current, Ohm's Law, Simple electrical Circuits and problems, Resistors — Law of Resistance, Series and parallel circuits., type of resistors, properties of resistors, Kirchhoff's Laws and applications, Effect of temperature on resistance, Different methods of measuring the values of resistance.
4. **Wires, joints & soldering:** Solders, flux and Soldering technique, Explanation, definition and properties of conductors, insulators, semi conductors, Voltage grading of different types of insulators, Temperature rise permissible, Type of wires and cables — insulations and voltage grade — Low, medium, high voltage, Precaution in using various types of cables, Insulating Materials- properties, common insulting materials, classifications.
5. **Chemical effect of Electric current:** Principle of electrolysis, Faraday's Law of Electrolysis, Basic Principle of electroplating and electrochemical equivalents, Explanation of anodes and cathodes, Rechargeable dry cells, Description, advantages & disadvantages, care and maintenance of cells, Grouping of cells of specified voltage and current, Lead acid cells, general defects and remedies, Nickel Alkali cells description charging, Power and capacity of cells, Efficiency of cell.
6. **Magnetism:** Classification of Magnets, Methods of Magnetizing, magnetic Materials, Properties, care & Maintenance, Para & Diamagnetism and Ferro magnetic materials, Principle of electro- magnetism, Maxwell's corkscrew rule, Fleming's left & right hand rules, Magnetic field of current carrying conductors, loop & solenoid, MMF, flux density,

- Reluctance, B.H. curve, Hysteresis, eddy current, Principle of electro-magnetic induction, Faraday's law, Lenz's law. Electrostatics- capacitor- different types, functions and uses.
7. **D.C. Generators:** Introduction to D.C. Generators, Working principle of D.C. Generator, Parts of D.C. Generator, Classification of generators - self excited and separately excited- their application in practical field, Brief description of series, shunt and compound generators, their application, Explanation of armature reaction, Interlopes, commutation & EMF equation of D.C. Generator.
  8. **D.C. Motors:** Working principle, Explanation of torque, speed, Back- EMF etc., Types, characteristic and practical application of D.C. motors, Related problems.
  9. **Earthing:** Principle of different methods of earthing i.e. pipe, plate etc., Importance of earthing, improving of earth resistance, Earth leakage circuit Breaker (ELCB), Measurement of earth resistance by earth tester.
  10. **Alternating Current:** Comparison & Advantages of D.C. & A.C., Alternating current & related terms-frequency, Instantaneous value, R.M.S. Value, Average value, Peak factor, form factor, Generation of sine wave, Phase and phase difference, Inductive & Capacitive reactance,  $X_L$  &  $X_C$ , Impedance (Z), power factor (P.f.), Vector diagram, Active and Reactive power, Simple problems on A.C. circuits, single phase & three-phase system etc., Problems on A.C. circuits, power consumption in series and parallel, Power factor etc., Concept of three — phase Star & Delta connection, Line and phase voltage, current & power in a 3 phase circuit with Balanced and Unbalanced load.
  11. **Transformers:** Its construction, working, performance, parallel operation of transformer & their connections, S.C and O.C. tests, Cooling of transformer, Regulation and efficiency, Specification, Problem on EMF equation, transformation ratio, Characteristics of Ideal transformer. Construction of core, winding shielding, Auxiliary parts. — Breather, Conservator, Buchholz's relay, other protective devices, Transformer oil testing and Tap changing OFF load and ON load, Transformer bushing and termination, Auto transformer- its construction, working, Vector Group's, performance and uses.
  12. **Alternator:** Parts of alternator, Principle of working, types of alternator, EMF equation, Various applications and power rating of alternators, General idea of loading and regulation of alternator, Parallel operation of alternator, Synchronizing methods.
  13. **Electrical Measuring Instruments:** Construction and working principle of- Ammeter, Voltmeter, Ohm-meter, Wattmeter, Energy meter, Power Factor meter, Frequency meter, Multi meter, Clamp meter, Insulation Tester, Earth Tester, Introduction of Digital

meters, CT & PT, Tong tester/clamp on meter.

14. **Illumination:** Laws of illumination, Illumination factors, intensity of light, Importance of light, colour temperature, Construction, working and application of incandescent lamp- neon sign, halogen, mercury vapour, sodium vapour, fluorescent tube, CFL, LED, Decoration lighting, drum switches, efficiency in lumens per watt, Thumb rule calculation of lumens.
15. **AC Motor:** Introduction to AC single phase motors & types, Capacitors start/ run- start & run, Flame Proof Motors & their uses, various application of AC single phase motor, Construction, principle of operation of three phase induction motor, Squirrel Cage Induction motor, Slip ring induction motor, Rotor slip, Rotor frequency & Rotor torque, Factor affecting torque, Effect of variation in applied voltage, Starting methods, speed control methods, Importance of phase sequence in three phase induction motor, Single phasing preventer, D.O.L. Starter, Star- Delta starter, Autotransformer starter.
16. **Basic Electronics:** Semiconductor energy level, atomic structure, 'P' & 'N' Type, Type of materials-P-N-junction, Classification of Diodes- Reverse Bias and Forward Bias, Heat sink, Specification of Diode, PIV voting, Explanation and importance of D.C. rectifier circuit. Half wave, Full wave & Bridge circuit. Filter circuits — passive filter, Principle of working of a transistor- types of transistors, Characters of a transistor, Specification and rating of transistors.
17. **Electrical Wiring:** Introduction and explanation of electrical wiring system, Cleat wiring, casing and capping, CTS, Conduit and concealed etc., IE Rules relating to wiring, National building code for house wiring, Specification and types, rating and material, Branching of circuits with respect to loads such as lighting and power, IE Rules regarding clip distance, fixing of screws, cable bending etc., Common Electrical Accessories, their specifications — Explanation of switches, lamp holders, plugs and sockets etc., Development of domestic circuits, using switches, fuse, MCB, Socket, lamp, fan, calling bell/buzzer — Two way switch, ICDP, ICTP, MCCB, ELCB, RCCB etc., Importance of Neutral, effect of opening of neutral wire.

<b>Sl. No</b>	<b><u>Descriptive</u></b>	<b>Marks</b>
<b>B.</b>	<b><u>General Awareness</u></b>	(15 Marks)
	a) Current national events and international events b) General Knowledge like History/ Polity/ Geography of Odisha & India c) Scientific Invention & use of Science in everyday life d) Issues of environment, Ecology, Bio-diversity & Climate Change e) Books and Authors	
<b>C.</b>	<b><u>Reasoning &amp; Mental Ability</u></b>	(15 Marks)
	<b>A. Verbal</b> I. Number Series II. Alphabet Series III. Test of Direction Sense IV. Coding-decoding V. Number Ranking VI. Arithmetic Reasoning VII. Algebraic equations VIII. Word problems IX. Problem of Age Calculation	
	<b>B. Non-verbal</b> I. Non-verbal Series II. Mirror Images III. Cubes & Dice IV. Grouping Identical Figures V. Embedded Figures etc	
<b>D.</b>	<b><u>Quantitative Aptitude</u></b>	(15 Marks)
	a) Ratio and Proportion b) Numbers c) Linear equations d) Surface area, volume e) Trigonometry application f) Word problem. g) Time and Work h) Speed and Distance i) Square roots j) Percentages and Averages k) Profit, Loss and Discount l) Probability, Statistics	
<b>E.</b>	<b><u>English Grammar</u></b>	(15 Marks)
	I. Fill in the blanks with articles, voices, Nouns/Pronouns II. Verb III. Agreement of the verb with subject IV. Adverb V. Preposition VI. Tenses VII. Conjunction VIII. One word substitution IX. Synonyms & Antonyms X. Correct the sentence	

**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

CDM & PHO/ 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 (eg. Visual impairment - Ophthalmologist, Locomotor disability - Orthopaedic specialist/PMR).