

H.P. Board of Departmental Examinations
Department Examination of Engineering Officers of HPSEB Ltd.
of Himachal Pradesh Session October, 2016.
PAPER-I (WORKS, STORE & COMMERCIAL ACCOUNTS/MANUALS)

Time Allowed: 3 (Three) Hours

Maximum Marks: 300

Note:-

- i) Attempt any five questions. Three from Part-I and Two each from Part-II or Part-III as applicable.
- ii) Part-I is Compulsory for all Engineering Officers.
- iii) Part-II is meant for Electrical Engineers.
- iv) Part-III is meant for Civil/Mechanical Engineers.
- v) Bare Acts/Codes/Rules/Manuals/Tariff Orders only are allowed.

PART-I (Works Accounts & Stores Manual)

- Q.I) a) What are the different records based on which accounts of works are prepared? Explain in detail. [20]
- b) What is Contract Work? How the Contract Document is prepared? [20]
- c) What are the different stages of execution of works? [20]
- Q.II) a) What is Audit Inspection? How Audit objections are communicated? [20]
- b) How the Accounts of Cash are examined? Explain in detail. [20]
- c) How the material is issued directly to Works? [20]
- Q.III) a) How the Debits/Credits are adjusted between Electrical Divisions? [20]
- b) What are different Measurement Books maintained in HPSEBL? How they are used and maintained? Explain in detail. [20]
- c) Explain the following:-
- | | |
|------------------------------|----------------------|
| i) Direct & Indirect receipt | ii) Book transfer |
| iii) Sub works | iv) Budget Estimates |
- [20]
- Q. IV) a) What are the different methods & conditions for purchase in HPSEBL?[20]
- b) How the purchase is made through DGS&D? What are the points considered while placing the order to the Agencies under running contract of DGS&D? [20]
- c) What are the different returns submitted by Sub Division offices for compilation of monthly Division Account? [20]

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- Q.V) a) What are the sources from where material is received on stock? For what purpose they are issued? [20]
- b) What are the different Clauses of "Payment Terms" and "Price Adjustment"? [20]
- c) What is the procedure for obtaining material for maintenance works of Transmission lines and keeping the materials at site accounts? [20]

PART-II FOR ENGINEERING OFFICERS (ELECTRICAL)

- Q.I) a) What is the procedure of "Own your Connection Scheme."? [20]
- b) How the payments of bills by cheques are accepted in HPSEBL? [20]
- c) How the Electric Connection is granted to the occupier in the absence of consent from the Landlord? [20]
- Q.II) a) How the Generic Levellised Tariff of Hydro Generating Stations is determined? [20]
- b) How the Consumer's Bills are prepared and dealt in HPSEBL? [20]
- c) How the Financial Justification is done for different categories of connections in HPSEBL? [20]
- Q. III) a) What are the different Cash Books maintained in the Sub division offices?[20]
- b) How the payment of Arrears not Originally Billed are dealt in HPSEBL? [20]
- c) Define the following:-
- | | | |
|-----------------------|--------------------|----------------------|
| i) Demand Factor. | ii) Service Line | iii) Demand Charges |
| iv) 24x7 Power Supply | v) Open Access | vi) Resale of Energy |
| vii) SCADA | viii) GIS Mapping. | |
- [20]
- Q:IV a) How the record related to Consumers accounts is Audited? [20]
- b) Explain in detail, under what circumstances a Consumer is billed when Electric Meter is not working properly? [20]
- c) What are the instructions for availing Concession of free electricity by the employees of HPSEBL? [20]

PART-III FOR ENGINEERING OFFICERS (CIVIL/MECHANICAL)

Q.I) a) (Objective Type)

(i) Which turbines is used in case of low heads and comparatively large discharges

- a. Kaplan Turbine
- b. Francis Turbine
- c. Pelton Turbine
- d. Bulb Turbine.

(ii) The function of draft tube is to.

- a. Increase the kinetic energy of existing fluid
- b. Allow the turbine to be set show tail water level.
- c. Increase the pressure of the existing fluid.
- d. Keep pressure at runner outlet above the atmospheric pressure.

(iii) In a hydro plant, if the discharge is $200 \text{ m}^3/\text{sec}$ and the head of the water is 100m. if the efficiency of the Turbine Generator is 0.85, the power developed is.

- a. 66.67 MW
- b. 166.7MW
- c. 667.8MW
- d. 176.52MW

(iv) The location of the surge shaft is close to

- a. TRT
- b. Barrage
- c. Penstock
- d. Spillway

(v) The selection of the tunnel cross section is influenced by:-

- a. The clearance specified in the view of the vehicles and materials transported in the tunnel.
- b. Geological conditions.
- c. The method of driving the tunnel.
- d. The material and strength of tunnel lining.
- e. All of the above

(vi) Governing of a turbine means

- a. The head is kept constant under all conditions
- b. The speed is kept constant under all conditions
- c. The discharge is kept constant under all conditions
- d. None of the above.

- (vii) As per IS code 456:2000(plain and reinforced concrete: code of practise), the minimum grade of concrete specified to be used in RCC is
- M25
 - M20
 - M30
 - M15
- (viii) The latest hydro power potential of Himachal Pradesh is assessed approximately to the tune of :
- 21000MW
 - 15000MW
 - 10000MW
 - 26000MW
- (ix) The thickness of shotcrete may vary from
- 30mm to 100mm
 - 15mm to 25mm
 - 500 to 600mm
 - None of the above.
- (x) As per the Hydro Power Policy of GoHP, the provision for LADF has been kept as..... % of the Project cost for projects above 5MW capacity.
- 5%
 - 1%
 - 1.5%
 - 2%
- [10x3]
- b) Explain in detail the design of lined canals. [30]
- Q.II) a) Write a note on challenges in development of Small Hydro Power Projects in Himachal Pradesh. [40]
- b) What are the obstacles faced in harnessing of small hydro power resources in Himachal Pradesh? [20]
- Q.III a) Explain the purpose of Geological investigations. How much this help during construction stage of Hydro Power projects. [25]
- b) Explain the need of grouting in tunnels. What are different types of grouting carried out in tunnels. [25]
- c) Why surge shaft is very important component of Hydro Power Plant. Explain in detail [10]
- Q.IV a) Why Trench weirs are preferred in mountainous regions. [20]
- b) Explain the points to be considered while selecting a Barrage/Weir. [15]
- c) What are the main causes of failure of weirs on permeable foundations and what remedies would you suggest to prevent them. [25]