

Ref No. Ex/PE/HC/B/T/411/2024 (S)

Bachelor of Power Engineering Final Year 1st Semester Supplementary
Examination 2024

Subject: **Energy Planning, Management, Audit and Acts**

Time 3 Hour

Full Marks 100

Q1. CO1 (Answer any Seven)

7x2 = 14

- A). How Energy Pricing at the Distribution Level is made?
- B). What is Frequency based Mechanism for Energy Pricing?
- C). What is ToD Tariff?
- D). What are SDG7 and SDG13?
- E). What is Grid Code Technical Requirement for Active Power Supply?
- F). How Grid Code Compliance Management is made for Renewable Integrated Grid?
- G). What is Grid Code Technical Requirement for 'Ride Through' during Short Interruptions?
- H). What is Demand Side Management?
- I). What are the different Types of Prosumers?
- J). What is OTC in Energy Trading?
- K). What is PPA?
- L). What is Cooperative Energy Bidding?

Q2. CO2 (Answer Any Seven)

7x3 = 21

- 1. What are Penalties under PAT?
- 2. What are the Statements of IEA 2006?
- 3. What is Specific Energy Consumption (SEC)?
- 4. How Trading of REC is done?
- 5. How Green Energy Open Access is made?
- 6. What is Trigeneneration?
- 7. What is ESCOs?
- 8. What is SECF?
- 9. What is Section 27 of EC Act
- 10. How Energy Efficiency and Performance Assessment for Turbines are done?
- 11. How Fuel Economy Measures in Furnace are done?
- 12. Name two Different Software for Assessment of T and D Losses?
- 13. How Star Labelling of Energy Efficient Motors are done?

Q3. CO3 (Answer Any Seven)

7x2 = 14

- i). What are the Different ways of Energy Conservation?
- ii). What is LED??
- iii). How Near-term Changes of Radiative Forcing is ascertained?

[Turn over

- iv). What is Eutrophication?
- v). What is “The Conference of the Parties (COP)”?
- vi). Define Green House Gases?
- vii). What is the Importance of BEE Star Ratings?
- viii). What is SEER?
- ix). What is CFB Boiler?
- x). What is Energy Efficiency Ratio?
- xi). What are the Three parts of Energy Management?
- xii). What are the Four Components of Energy Management Plan?

Q4. CO4 (Answer any Seven)

7x3 =21

- 1. How Grid Code Compliance is done in ABT Mechanism?
- 2. What is Unscheduled Power Interchange (UI)?
- 3. What is Standard Order Book (SOB)?
- 4. What is Capacity Management Module (CMM)?
- 5. What are the Energy Audit Instruments?
- 6. What are the Main components of ABT?
- 8. How ABT in Renewable Source based generation is accomplished?
- 10. What are the Penalties for Grid Indiscipline in ABT Regime?
- 11. What are the Post Energy Audit Phase Activities?
- 12. What are ECBCs?

Q5. CO5 (Answer any Three)

10x3 = 30

- 1. A purchase of an Electrical Item requires an initial investment of Rs 5000 and it is expected to generate a cash flow of Rs 800 for 3 years plus Rs 25500 in the third year. The target rate of return of the project is 12% per annum. Calculate the Net Present Value of the Item.
- 2. Compute Cash Flow from Operating Activities from the following information of a Energy Business:
 - i). Net Profit after Provision for Tax and Proposed Dividend 1,750,00/-
 - ii) Provision for Tax 75000/=
 - iii) Proposed Dividend 40, 000/’
 - iv) Depreciation 60, 000/-
 - v) Goodwill written Off 15, 000/-

vi)	Loss on Sale of Plant	5,000/-
vii)	Gain on Sale of Land	15,000/-
viii)	Income Tax Paid	60,000/-
ix)	Income Tax Refund	10,000/-
x)	Dividend Paid	45,000/-
xi)	Interest on Bank Overdraft	10,000/-
xii)	Interest on Term Deposit for Capital Expenditure	35,000/-

3. Mr. Sunando bought a Induction Motor for Rs.750000 and sells it a year later for Rs.990000, after deducting any realtor's fees and taxes. Calculate net present value, if the rate of return is 5%.
4. An investment of Rs 160000 in an Induction Machine is expected to produce CFAT of Rs 20000 for 10 years. Calculate the payback period.
5. Calculate the Average Rate of Return From the Following:

Year	Investment	PAT
1	190000	120000
2	180000	122000
3	170000	124000
4	160000	126000
5	150000	128000