Name: Enrolment No:	

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, December 2023

Course: Power Generation and Power Station Management **Semester: I**
Program: MBA (Power Management) **Time: 03 hrs.**
Course Code: PIPM 7001 **Max. Marks: 100**

Section – A (2 marks * 10 = 20 Marks)

Fill in the blanks with the most suitable option. The options are given in front of each question. (CO1)

1. Electricity Act 2003 aimed to create a _____ regime in the Indian Power Sector. (Monopoly, Market Based, Strictly Regulated, Highly Governed)
2. _____ power technology generate DC power that need to be converted into AC through an inverter. (Solar thermal, Solar PV, Wind, Biomass)
3. Large scale integration of renewables to the grid would necessitate adoption of _____ . (Electricity storage mechanisms, Electric vehicles, Inverters)
4. AT&C loss of Indian power sector is around _____. (15%, 25%, 35%)
5. _____ power plants are used for peak load management. (Coal, Nuclear, Gas)
6. Due to lower _____, the share of renewables in India's actual power generation is significantly lower than its share in India's installed capacity. (PLF, Availability, CUF)
7. _____ power plant is not suitable for base load operations. (Nuclear, Coal, Solar, Storage based Hydro)
8. _____ power plant is capable of absorbing load fluctuations. (Storage based Hydro, Nuclear, Coal, Biomass)
9. Of all types of power plants, _____ has the highest efficiency. (Coal, Nuclear, Hydro, Wind)
10. _____ power generation technology doesn't work on Faraday's Law of Electromagnetic Induction. (Coal, Hydro, Wind, Solar PV, Solar Thermal)

Section – B (5 marks * 4 = 20 Marks)

Answer all questions from this section: (CO1)

11. Briefly explain the following along with their impact on the economics of power generation:
    a) PLF
    b) Availability
    c) CUF
    d) AT&C Losses

Section – C (10 marks * 3 = 30 Marks)

Answer any three questions from this section: (CO2)

12. Discuss the merits and demerits of nuclear power plants.
13. From the perspective of satisfying the electricity needs of a country like India, it is unfair to compare 1 MW of thermal power (coal or gas based) capacity with 1 MW of renewable power (solar or wind) capacity. Justify.
14. Operation and maintenance of a hydro power plant is much simpler as compared to that of a coal fired power station. Justify.
15. Discuss the following data on cost of power supply and revenue realization in India and explain its impact on power sector:

Year	Average cost of supply(ACS) (paise/unit)	Average Revenue Realization(paise/unit)	Gap ACS-ARR (on subsidy received basis) paise/unit
2013-14	519.03	441.31	77.72
2014-15	520.57	462.11	58.46
2015-16	530.57	482.55	48.02
2016-17	538.01	500.78	37.23
2017-18	550.06	519.81	30.26
2018-19	600.00	553.00	47.00
2019-20	614.00	585.00	29.00
2020-21	619.00	562.00	57.00
2021-22	Under Process		
2022-23			

Section – D (30 marks * 1 = 30 Marks)

Answer any one question from this section: (CO3)

16. Explain the challenges faced by India's power sector and suggest remedial measures.

OR

17. Renewables, electricity storage mechanisms and electric vehicles are changing the landscape of power sector like never before. In light of these technology interventions, discuss the future of Indian power sector.