



MAHATMA GANDHI INSTITUTE OF TECHNOLOGY
(Autonomous)
M.Tech. III Semester End Examinations
(Model Question Paper)

MR-21

Course Title: HVDC Transmission
Time: 3 hours

Course Code: EE313PE
Max. Marks : 70

Note: Answer ALL Questions
Part-A (10 x 2 = 20 Marks)

Q. No.	Stem of the Question	M	L	CO	PO
Unit-I					
1. a)	State the economic advantages in DC transmission?	2	1	1	1
1. b)	What is choice of converter configuration?	2	2	2	2
Unit-II					
1. c)	Briefly discuss about combined characteristics of HVDC converter.	2	1	1	3
1. d)	Discuss in detail the effect of source inductance on HVDC system.	2	4	2	1
Unit-III					
1. e)	What is arc through faults in converters?	2	3	1	1
1. f)	Write a short note on transient over voltages.	2	2	1	1
Unit-IV					
1. g)	List out different types of AC/DC power flow	2	1	1	2
1. h)	Draw the DC system model?	2	5	2	1
Unit-V					
1. i)	Compare series and parallel MTDC system.	2	3	2	2
1. j)	Define single tuned filter?	2	2	1	1

Part-B (5 x 10=50 Marks)

Q. No.	Stem of the Question	M	L	CO	PO
Unit-I					
2. a)	With the help of a neat schematic diagram of a typical HVDC converter station explain the functions of various components available.	5	2	1	3
2. b)	Explain in detail the principle of DC Link control. With a neat sketch explain different types of DC link control.	5	3	2	4
OR					
2. c)	Explain the major components of HVDC transmission in converter station unit with a neat sketch.	5	1	1	1
2. d)	Explain the process of starting and stopping of DC link in HVDC system.	5	2	2	5
Unit-II					
3. a)	Discuss in detail about the converter control characteristics of HVDC system.	5	4	2	2
3. b)	Explain the individual characteristics of a rectifier and an inverter with sketches.	5	2	2	3
OR					
3. c)	What are functions of converter unit control and value unit control of HVDC transmission system?	5	3	1	6
3. d)	Explain the constant alpha control, inverse cosine control and individual phase control with suitable diagrams.	5	4	2	5
Unit-III					
4. a)	Why are converter faults caused? Discuss various types of faults against which protection has to be provided.	5	2	1	3
4. b)	Explain the protection against over currents in terms of selectivity, reliability and back up.	5	1	2	4
OR					
4. c)	Explain the commutation failure. What are the factors that depend on recovery of commutation failure?	5	3	1	2
4. d)	Explain the protection scheme against faults in voltage source converter in detail.	5	2	2	4
Unit-IV					
5. a)	What are the additional constraints needed to include for ac-dc power flow? Explain about per unit system for DC quantities.	5	3	1	3
5. b)	Explain the variable elimination method of DC power flow.	5	2	2	5
OR					

5. c)	Explain the sequential method of DC power flow?	5	1	2	4
5. d)	Compare sequential and simultaneous methods of ac-dc power flow	5	2	2	5
Unit-V					
6. a)	Discuss the various sources of harmonic generation in HVDC system and suggest methods to eliminate them.	5	5	1	1
6. b)	Derive an equation for harmonic voltage and current for single tuned filter.	5	5	2	3
OR					
6. c)	Explain the control and protection of MTDC system?	5	3	2	4
6. d)	What are the major steps in the power flow analysis of MTDC-AC Systems?	5	2	2	5

M: Marks; L: Bloom's Taxonomy Level; CO: Course Outcome; PO: Programme Outcome



Note: Answer ALL Questions

Part-A (10 x 2 = 20 Marks)

Q. No.	Stem of the Question	M	L	CO	PO
Unit-I					
1. a)	What are the elements of Entrepreneurship?	2	1	1	6
1. b)	What are the different types of business ownership?	2	1	1	7
Unit-II					
1. c)	What do you mean by Patent & Trademark?	2	1	2	8
1. d)	Define Promotion. What are the examples of Promotion?	2	2	2	7
Unit-III					
1. e)	What is equity financing?	2	2	3	11
1. f)	What's the Difference Between a Grant & Subsidy?	2	3	3	8
Unit-IV					
1. g)	What is New Entry & Newness?	2	2	4	11
1. h)	What are the different sources for New Entry Opportunity?	2	2	4	11
Unit-V					
1. i)	What are the different contributions of Women Entrepreneurs in economic development?	2	2	5	11
1. j)	What are the different roles played by NGO's?	2	2	5	11

Part-B (5 x 10=50 Marks)

Q. No.	Stem of the Question	M	L	CO	PO
Unit-I					
2. a)	Summarize the role of government in promotion of an entrepreneur?	5	4	1	6
2. b)	Distinguish between Entrepreneur and Manager?	5	3	1	6
OR					
2. c)	Explain the Role of an Entrepreneur in the economic development of country.	5	2	1	7
2. d)	Mention the different types of Ownership & Explain in detail?	5	2	1	9
Unit-II					
3. a)	Explain the major steps in Project Management Life Cycle?	5	2	2	11
3. b)	Describe SWOT analysis with an example?	5	3	2	4
OR					
3. c)	Explain the sources of Opportunity analysis in detail.	5	3	2	12
3. d)	What is a feasibility study? Explain TELOS model in detail.	5	3	2	4
Unit-III					
4. a)	List out the ten sources of Capital?	5	2	3	11
4. b)	Explain the different types of investors in detail.	5	2	3	9
OR					
4. c)	What do you meant by Cost Benefit Analysis and explain its process in detail.	5	3	3	11
4. d)	Compare Debt & Equity method of financing?	5	4	3	11
Unit-IV					
5. a)	What do you meant by environmental instability and explain its first mover advantages & disadvantages	5	4	4	7
5. b)	Explain the different market Scope Strategies?	5	5	4	10
OR					
5. c)	What is Entrepreneurial Strategy & What are the elements of Entrepreneurial Strategy?	5	3	4	7
5. d)	What are the Objectives of Generating & Exploiting New Entries?	5	5	4	10
Unit-V					
6. a)	What are the different Phases of EDP's?	5	4	5	10
6. b)	State & Explain various Government Schemes to develop Women Entrepreneurs?	5	4	5	11
OR					
6. c)	What are the Needs & Objectives of EDP's?	5	3	5	11
6. d)	Explain the Characteristics & Functions of Women Entrepreneur?	5	2	5	11