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

MR-21

Course Title: Autotronics & Vehicle Intelligence **Course Code: MT312PE**
Time: 3 hours 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)	List out the various electrical system in automobiles.	2	1	1	1
1. b)	How do you differentiate between two stroke and four stroke engines	2	1	1	1,2
	Unit-II				
1. c)	Write short notes on applications of electromagnetism in Automobile.	2	1	2	1,3
1. d)	What is the importance of sensor in Automobile field? Write down name of different sensors and its function.	2	1	2	2
	Unit-III				
1. e)	Write down the requirements of ignition system	2	1	3	1,2
1. f)	Write importance of ignition timing	2	1	3	2
	Unit-IV				
1. g)	Explain the fuel cell electric vehicle	2	2	4	1
1. h)	Explain about the system layout in an electric vehicle development	2	2	4	2
	Unit-V				
1. i)	Explain about vision based autonomous road vehicles	2	2	5	1
1. j)	Give an application of mobile robot vision to a vehicle information system	2	2	5	2

Part-B (5 x 10=50 Marks)

Q. No.	Stem of the Question	M	L	CO	PO
	Unit-I				
2. a)	State the function of ABS. With a neat sketch describes the working of ABS	5	1	1	2,3
2. b)	Describe the role of electronics in automobiles.	5	2	1	4,6
	OR				
2. c)	Write Short Note on Knock Sensor and Wheel Speed sensor	5	1	1	2
2. d)	Explain with a neat sketch the working of exhaust gas oxygen sensor	5	5	1	3
	Unit-II				
3. a)	Name two different types of principles on which pressure sensor works	4	1	2	4
3. b)	Describe working of an air flow measurement sensor	6	2	2	6
	OR				
3. c)	Explain with a neat sketch the working of exhaust gas oxygen sensor	5	4	2	5
3. d)	Explain the working principle of Hall – effect sensor with neat sketch.	5	4	2	5
	Unit-III				
4. a)	What are MPFI and TPFC systems	3	1	3	2
4. b)	Describe the use of semiconductor diode used in voltage regulation of charging system	7	2	3	7
	OR				
4. c)	State the merits of MPFI system over a single point injection system	5	1	3	3
4. d)	Classify electronic fuel injection system in petrol engines based on position of Injectors	5	4	3	8
	Unit-IV				
5. a)	Differentiate between electric battery and solar cell battery	5	4	4	2
5. b)	Differentiate between series and parallel hybrid vehicles.	5	4	4	2
	OR				
5. c)	What are the basic system components of Electric vehicles.	4	1	4	3
5. d)	Explain about the CNG Electric hybrid vehicle	6	2	4	4
	Unit-V				
6. a)	Justify a visual control system using image processing and fuzzy theory	6	6	5	2
6. b)	Describe about the low tyre pressure warning systems	4	2	5	3
	OR				
6. c)	Draw the architecture for dynamics vision system. Explain its features and the applications	6	1	5	5
6. d)	Explain about the collision warning and avoidance system	4	4	5	4

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

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

MR-21

Course Title: Energy from Waste **Course Code: EE321OE**

Time : 3 hours 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)	What are the different conversion devices for MSW ?	2	1	1	1
1. b)	Explain the composition of MSW ?	2	2	1	1
	Unit-II				
1. c)	What are the types of pyrolysis?	2	1	2	2
1. d)	Identify the yields in pyrolysis plant?	2	3	2	1
	Unit-III				
1. e)	What are the different types of gasifiers?	2	1	3	1
1. f)	Write the equilibrium and kinetic considerations in gasifier operation?	2	2	3	3
	Unit-IV				
1. g)	Which factors will affect combustion process?	2	1	4	1
1. h)	compare the difference between pyrolysis and combustion?	2	4	4	2
	Unit-V				
1. i)	What is anaerobic digestion process?	2	1	5	1
1. j)	Write the equations for alcohol production from biomass?	2	2	5	2

Part-B (5 x 10=50 Marks)

Q. No.	Stem of the Question	M	L	CO	PO
	Unit-I				
2. a)	Classify the thermochemical energy conversion technologies for MSW?	7	4	1	1
2. b)	How the waste is classified for energy generation?	3	2	1	1
	OR				
2. c)	What is the importance of solid waste management?	4	1	1	1
2. d)	Examine about biomass resources and their classification?	6	4	1	1
	Unit-II				
3. a)	Explain biomass pyrolysis process ?	6	1	2	1
3. b)	What are the pyrolytic oils and gases yields of pyrolysis?	4	1	2	1
	OR				
3. c)	Describe the preparation of charcoal from pyrolysis process?	5	1	2	1
3. d)	Compare different pyrolysis types?	5	4	2	2
	Unit-III				
4. a)	How to utilize the gasifier engine arrangement for electrical power generation?	5	3	3	1
4. b)	Analyse about the different designs of gasifiers?	5	2	3	2
	OR				
4. c)	Explain the design and construction of fixed bed gasifier with neat diagram?	5	2	3	1
4. d)	Write about Gasifier burner arrangement for thermal heating	5	1	3	4
	Unit-IV				
5. a)	Examine the working principle and operation of circulating fluidized bed combustor with neat diagram	6	4	4	3
5. b)	What are the considerations for the biomass stove?	4	3	4	1
	OR				
5. c)	Discuss different grate type combustor?	4	1	4	2
5. d)	Explain about the improved challahs with traditional stoves.	6	5	4	1
	Unit-V				
6. a)	Analyse the process of extraction of bio diesel from biomass and give the applications?	5	2	5	3
6. b)	Compare gasification and combustion process?	5	5	5	2
	OR				
6. c)	Explain the floating drum type bio gas plant in detail.	6	2	5	3
6. d)	List the properties of bio gas?	4	2	5	2

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