QP Code: SN23BTECH239 | Reg. No | | | | | | | | | | | AY 23

Gandhi Institute of Engineering and Technology University, Odisha, Gunupur (GIET University)

B. Tech (Fifth Semester - Regular) Examinations, November 2025

23BMEPE35001 - AUTOMOBILE ENGINEERING

(Mechanical Engineering)

Time: 3 hrs | Maximum: 70 Marks

Answer ALL questions

(The figures in the right-hand margin indicate marks)

PART – A **(2 x 5 = 10 Marks)**

Q.1. Answer ***ALL*** questions

		CO #	Blooms Level
a.	Classify brake.	CO1	K2
b.	Draw the road performance curve and write its effects.	CO2	K2
c.	Compare semi floating, three quarter floating and full floating types rear axles.	CO3	K3
d.	Explain the term camber.	CO4	K2
e.	Write the definition of electrical vehicle and its operational advantages.	CO6	K1

PART – B **(10 x 5 = 50 Marks)**

Answer ***ALL*** the questions

		Marks	CO #	Blooms Level
2. a.	The co-efficient of rolling resistance for a truck weighing 6350 kg is 0.018 and co-efficient of air resistance is 0.00281 in the formula R=krW + Ka AV^2 kg where A is in m^2 and V is in km/hr. The frontal area is 5.574 m^2. If the truck has to have a max speed of 88km/hr in top gear Calculate i) The engine b.h.p. required ii) The maximum drawbar pull available in second gear.	10	CO1	K3
	(OR)			
b.	Describe Motor Vehicle Act	10	CO1	K2
3.a.	Illustrate the working principle of hydraulic braking system of an automobile?	10	CO2	K3
	(OR)			
b.	Illustrate wheel cylinder operated Mechanical Drum Brake.	10	CO2	K3
4.a.	Explain the working and constructional Constant mesh gear box with a neat sketch for 3-speeed gear box.	10	CO3	K3
	(OR)			
b.	Explain the working of stator in torque converter.	5	CO3	K3
c.	With a neat sketch explain fully automatic transmission (Planetary)	5	CO3	K2
5.a.	Illustrate the construction and working of Magneto Ignition	10	CO4	K3
	(OR)			
b.	Illustrate the semi floating rear axle	5	CO5	K3
c.	Explain Differential Gear Box	5	CO5	K3
6.a.	Explain starting system with a neat sketch.	5	CO5	K3
b.	Explain the advantages of hybrid vehicle at various conditions.	5	CO6	K2
	(OR)			
c.	Explain the treatment of exhaust gases by using catalytic converters.	5	CO5	K3
d.	Describe fuel Cell	5	CO6	K2

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