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Code No. : 15157 (E) N

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS), HYDERABAD

Accredited by NAAC with A++ Grade

B.E. V-Semester Main Examinations, Jan./Feb.-2024**Introduction to Automobile Engineering (OE-III)**

Time: 3 hours

Max. Marks: 60

Note: Answer all questions from Part-A and any FIVE from Part-B

Part-A (10 × 2 = 20 Marks)

Q. No.	Stem of the question	M	L	CO	PO
1.	Define: a) TDC b) BDC c) Volumetric Efficiency d) Stroke Length.	2	1	1	1
2.	What are the different piston rings on a piston in an IC engine and their functions?	2	1	1	1
3.	Where do you find throttle valve and choke valve in an automobile? Why are they required?	2	2	2	1
4.	List down the parts of an IC engine where lubrication is required.	2	2	2	1
5.	What are the different elements of a suspension system?	2	1	3	1
6.	Classify the vehicles based on the drive.	2	2	3	1
7.	Draw the layout of a transmission system and label the parts.	2	1	4	1
8.	“A hundred percent brake efficiency is not desirable”. Why? What is the desirable maximum brake efficiency?	2	4	4	1
9.	What is the main difference between the wheels of a sports car and a passenger car?	2	2	5	1
10.	What is meant by BS norm? What is the main reason for the slow upgradation of BS norms by automobile manufacturers?	2	3	5	7
Part-B (5 × 8 = 40 Marks)					
11. a)	Enumerate the differences between SI and CI engines.	4	2	1	1
b)	Explain the working of a hybrid vehicle briefly and mention its advantages over conventional automobile.	4	2	1	1
12. a)	Explain the working of battery ignition system with a neat diagram.	5	1	2	1
b)	Out of thermosyphon and pump circulation systems of water cooling, which is better and why?	3	2	2	1
13. a)	“A vehicle with good suspension system gives a comfortable ride.” What does “good” suspension mean?	4	3	3	1,2
b)	Explain Ackermann’s Steering Mechanism with a neat sketch.	4	1	3	1

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14. a)	Describe the working of a sliding mesh gear box and how are different gears applied?	5	2	4	1
b)	Define: a) Traction b) Minimum Stopping Distance c) Braking Force.	3	1	4	1
15. a)	Classify the different types of wheels. What is meant by offset in a wheel?	4	2	5	1
b)	Explain the working of positive crankcase ventilation (PCV) with a neat sketch.	4	1	5	7
16. a)	Write short notes about an IC Engine Block.	4	2	1	1
b)	What is the function of fins on an IC engine body? Two engine blocks A and B of same bore diameter have two different sizes and number of fins on their bodies. Engine A has 4 fins of thickness 4 mm and Engine B has 9 fins of 1.5 mm thickness. Which engine should be preferred and why? Assume the material and other variables of the engines are similar.	4	4	2	1,2
17.	Answer any <i>two</i> of the following:				
a)	Explain the working of an air suspension system with a neat figure.	4	2	3	1
b)	Differentiate between Drum brakes and Disc Brakes.	4	2	4	1
c)	What are the different sources of pollution in an automobile? List down the different emission control techniques.	4	3	5	7

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

i)	Blooms Taxonomy Level – 1	40%
ii)	Blooms Taxonomy Level – 2	35%
iii)	Blooms Taxonomy Level – 3 & 4	25%

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