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Enrolment No: 40001419



**UNIVERSITY OF PETROLEUM AND ENERGY STUDIES**

**End Semester Examination, December 2018**

**Course: Transportation Design & Development**

**Semester: 6<sup>th</sup> Semester**

**Programme: B.Tech.Automotive Design Engineering**

**Time: 03 hrs.**

**Max. Marks: 100**

**Instructions:**

**SECTION A**

S. No.	Attempt all questions	Marks	CO
Q 1	Explain Transportation Design Development process. Describe different steps involved in transportation design and explain advantages of each step.	4	CO1
Q 2	Explain Trend Analysis. Describe how it can help in vehicle design.	4	CO2
Q 3	Explain Design Research. Explain how it can help in vehicle development.	4	CO3
Q 4	Illustrate Clay modeling. Explain about its benefits in new model development.	4	CO4
Q 5	Define 3D printing. Explain how it helps in vehicle design.	4	CO5

**SECTION B**

Q 6	Define Drag. Explain the role of drag in vehicle design. Illustrate with an example.	8	CO4
Q 7	Explain Ergonomics. Describe role of ergonomics in Transportation Design. Illustrate with an example.	8	CO1
Q 8	Explain 3D CAD Modeling. Define role of it in Transportation Design. Illustrate with example how it is different from 3D Clay modeling.	8	CO4
Q 9	Explain Bio mimicry. Illustrate with example how it make differences in car design. Or <b>Analyze</b> role of 'vehicle Styling' in Transportation Design. Describe how it is different from, Vehicle Design'. Illustrate with an example.	8	CO3
Q 10	<b>Analyze</b> Ethnographic data with reference to Transportation design. Explain how it is important for vehicle design. Illustrate with an example. Or <b>Analyze</b> role of explicit and latent needs in User Survey. Illustrate with example the role play of explicit and latent needs.	8	CO5

**SECTION-C**

Q 11	Describe 3D printing process. Describe why it is called 3D printing. Explain with example the benefits of 3D printing. <b>Estimate</b> cost saving done by using it in car production.	20	CO5
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Q12	<p>Describe the role of transportation designers in futuristic transportation. Illustrate personal transportation after 20 years. <b>Interpret</b> with the help of sketch the features and advantages.</p> <p style="text-align: center;">Or</p> <p>Recall the 5 transportation designers in India and abroad. <b>Derive</b> the design features with help of sketches in their designs. <b>Apply</b> role technology in transportation design and illustrate with example the benefits of that.</p>	<b>20</b>	<b>CO5</b>
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SECTION A

S. No.	Attempt all questions	Marks	CO
Q 1	Describe vehicle integration. Explain differences with vehicle design.	4	CO1
Q 2	Describe Ergonomics. Illustrate its use with examples.	4	CO2
Q 3	Describe difference between automotive design engineering and Transportation design.	4	CO3
Q 4	Describe Market Research. Explain it's utility for Transportation Design.	4	CO4
Q 5	Explain perspective. Illustrate different types of perspective. Illustrate how it will helps in vehicle design.	4	CO5

SECTION B

Q 6	Define 3D printing. Explain the role of 3D printing in vehicle design. Illustrate with an example.	8	CO4
Q 7	Explain the role of Clay Modeling in vehicle design. Illustrate with example the benefit of Clay Modeling in Transportation Design.	8	CO1
Q 8	Explain 3D CAD Modeling. Define role of it in Transportation Design. Illustrate with example how it is different from 3D Clay modeling.	8	CO4
Q 9	Analyze Design process for Transportation Design. Recall with example how it is used in the infotainment in modern car design. Or <b>Analyze</b> role of 'vehicle Styling' in Transportation Design. Describe how it is different from, 'Vehicle Design'. Illustrate with an example.	8	CO3
Q 10	<b>Analyze</b> Ethnographic data with reference to Transportation design. Explain how it is important for vehicle design. Illustrate with an example. Or <b>Analyze</b> role of explicit and latent needs in User Survey. Illustrate with example the role play of explicit and latent needs.	8	CO5

SECTION-C

Q 11	Describe an aerodynamic form. Analyze its importance in automobile design. Describe drag and its role for automobile design. Derive measurement of drag	20	CO5
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	Apply it's effect on speed of a vehicle.		
Q12	<p>Describe Exterior design of an automobile. Describe importance of good exterior design. Draw a process of arriving at a good exterior design. Draw an existing exterior design of a car. Redraw modifications to improve the existing design with bio mimicry.</p> <p style="text-align: center;">Or</p> <p>Name one well known good design of a car model. Describe 5 characteristics of good exterior design and 5 aspects of good interior design. Redesign with sketches one exterior element &amp; one interior element to make it better.</p>	<b>20</b>	<b>CO5</b>