Name:

Enrolment No:

UPES
UNIVERSITY WITH A PURPOSE

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, December 2019

Course: BBA (AO) **Semester: V**
Programme: Aviation Demand Forecasting **Time: 03 hrs.**
Max. Marks: 100 **Course Code- TRAV2007**
Instructions: All questions are compulsory

SECTION A **(10 * 2 Marks Each - 20 Marks)**

		Marks	CO
Q 1	What is the relationship between forecasting and infrastructure planning?	2	1
Q 2	What do you understand by model fit in aviation forecasting?	2	1
Q 3	Describe your understanding of cross sectional data in aviation field.	2	1
Q 4	When we need to use delphi opinion method in aviation domain.	2	1
Q 5	What is your understanding about seasonality for aviation forecast?	2	1
Q 6	Describe the difference between long term & medium term forecast.	2	1
Q 7	How moving average method can be used for passengers forecast?	2	1
Q 8	Define time series forecasting with suitable example from aviation field.	2	1
Q 9	Cite example of irregular variation from aviation domain.	2	1
Q 10	What is expert opinion method for forecasting? Describe with suitable example.	2	1

SECTION B **(4* 5 Marks Each -20 Marks)**

Q 1	As an aviation specialist, comment on what is the relationship between forecasting and resource planning?	5	3
Q 2	Suppose Govt. of India has approved green field airport at location X; as an aviation expert suggest what factors need to be considered while making aviation forecast?	5	2
Q 3	Suppose airline operator is forecasting long-term passengers demand based on time series. Do you think it is appropriate method or else you recommend which factors operator need to include while passengers forecast.	5	3
Q 4	Use this data to develop a regression model to predict cost by number of passengers. Interpretate the regression coefficient. The data is showing the costs and associated number of passengers for twelve 500-mile commercial airline flights using Boeing 737s during the same season of the year. $\sum xy = 93.78, \sum x^2 = 1897, \bar{X} = 73.5, \bar{Y} = 5.73$	5	2

SECTION-C **(3* 10 Marks Each- 30 Marks)**

<table>
<tr><td>Q 1</td><td>ATMs data (in thousands) of Delhi airport is given below- Estimates the next quarter forecast using 4th order moving average.
<table>
<tr><th>Year</th><th>Quarter 1</th><th>Quarter 2</th><th>Quarter 3</th><th>Quarter 4</th></tr>
<tr><td>2015</td><td>320</td><td>185</td><td>215</td><td>395</td></tr>
<tr><td>2016</td><td>345</td><td>200</td><td>230</td><td>420</td></tr>
<tr><td>2017</td><td>365</td><td>210</td><td>240</td><td>440</td></tr>
<tr><td>2018</td><td>375</td><td>215</td><td>245</td><td>445</td></tr>
</table></td><td>10</td><td>4</td></tr>
<tr><td>Q 2</td><td>Fit a trend line for this data using regression model (Results value upto three places of decimals). Forecast for 2025.
<table>
<tr><th>Year</th><th>Passengers (thousands)</th></tr>
<tr><td>2009</td><td>99</td></tr>
<tr><td>2010</td><td>98</td></tr>
<tr><td>2011</td><td>103</td></tr>
<tr><td>2012</td><td>107</td></tr>
<tr><td>2013</td><td>116</td></tr>
<tr><td>2014</td><td>136</td></tr>
<tr><td>2015</td><td>163</td></tr>
<tr><td>2016</td><td>190</td></tr>
<tr><td>2017</td><td>215</td></tr>
<tr><td>2018</td><td>248</td></tr>
</table></td><td>10</td><td>4</td></tr>
<tr><td>Q 3</td><td>Suppose Govt. of India want to develop new airports. Suggest how qualitative approach of demand forecasting can be helpful for forecasting. Also specify which qualitative approach is more suitable in demand forecasting of new airports in Indian aviation business</td><td>10</td><td>3</td></tr>
<tr><td colspan="4">SECTION D (3* 10 Marks Each- 30 Marks)</td></tr>
<tr><td></td><td>Can number of passengers be predicted using regression analysis? Given table represents Passengers (In millions) and GDP of India. Establish linear regression model and determine these followings (Results upto three places of decimals)-
<table>
<tr><th>Passengers (In millions)</th><th>GDP</th></tr>
<tr><td>323</td><td>56</td></tr>
<tr><td>356</td><td>61</td></tr>
<tr><td>376</td><td>73</td></tr>
<tr><td>387</td><td>89</td></tr>
<tr><td>391</td><td>93</td></tr>
<tr><td>411</td><td>101</td></tr>
<tr><td>432</td><td>112</td></tr>
<tr><td>443</td><td>123</td></tr>
<tr><td>459</td><td>130</td></tr>
<tr><td>467</td><td>139</td></tr>
<tr><td>487</td><td>145</td></tr>
</table></td><td></td><td></td></tr>
</table>

		499	154			
		512	164			
		526	173			
Q 1	Fit Simple Linear regression model				10	4
Q 2	Determine model fit by calculating R^2				10	4
Q 3	Predict number of passengers when GDP is 250.				10	4