UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
Online End Semester Examination, December 2021

Course   : Aviation Demand Forecasting   Semester: V
Programme : BBA (AVM)   Time: 03 hrs.
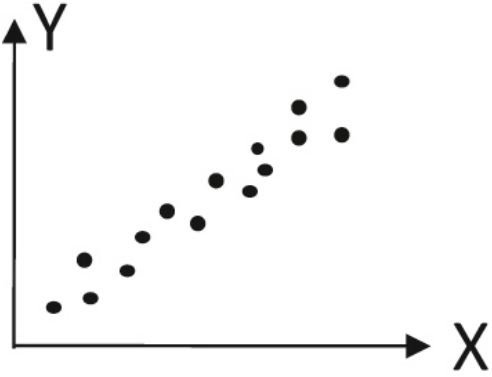Course Code: TRAV 2007   Max. Marks: 100

Instructions: All questions are compulsory

SECTION A (20 Marks)

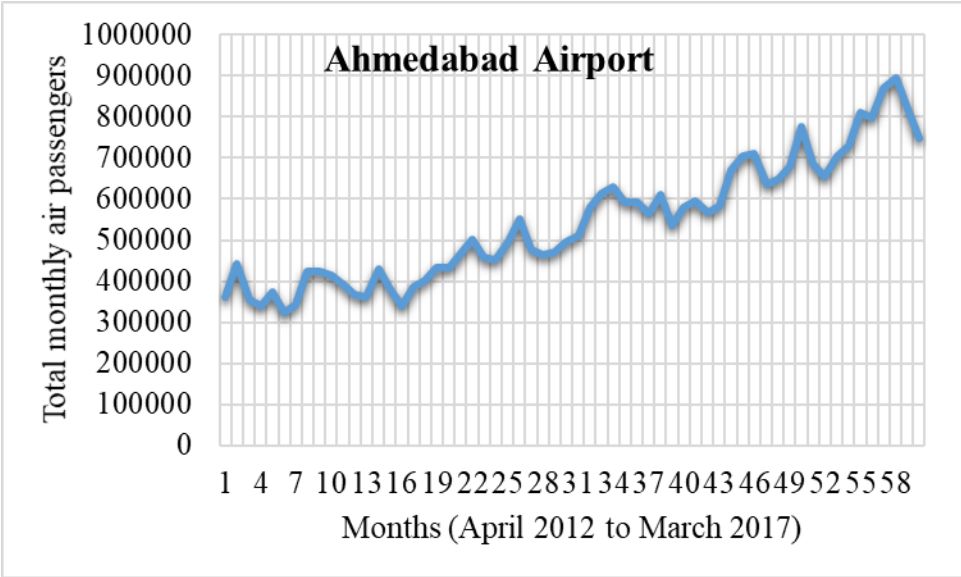**1. Each Question will carry 2 Marks**
2. Choose the correct answer.

S. No.	Questions	Marks	CO
Q 1	Name the two types of moving averages methods.	2	CO2
Q 2	Artificial Neural Networks is a machine learning technique. True/False	2	CO1
Q 3	Give one quality desired in an expert empaneled for Delphi forecasting.	2	CO3
Q 4	What is the independent variable is time series forecasting?	2	CO1
Q 5	Can 'production of manufacturing industry' be an explanatory variable for multiple regression equation for forecasting the 'air cargo' demand at an airport? Yes/No	2	CO3
Q 6	Scenario writing is a qualitative or quantitative method of forecasting?	2	CO2
Q 7	What percent of consensus between experts in a Delphi technique considered as 'strong consensus'?	2	CO4
Q 8	Are 'lifestyle habits' a driver for 'air transport' demand? Yes/No	2	CO3

Q 9	
	
	What type of correlation does the figure above depict? Choose the correct answer.
	
	   a) Strong negative correlation
	   b) Moderate positive correlation
	   c) Strong positive correlation
	   d) Perfect positive correlation
		2	**CO4**

Q 10	What do you mean by transport demand? Answer in one sentence.	**2**	**CO1**

SECTION B (20 Marks)		
1. Each question will carry 5 marks **2. Instruction: Answer precisely, write legibly and stepwise.**		

Q 11	What are the subsets of transport demand? Explain them briefly.	**5**	**CO2**
Q 12	Give any two examples of elasticity in transportation?	**5**	**CO3**
Q 13	What are residuals in linear regression?	**5**	**CO2**
Q 14	How are weights given in a weighted moving average? Write in the equation form.	**5**	**CO3**

SECTION-C (30 marks)		
1. Each question will carry 10 marks **2. Instruction: Answer precisely, write legibly and stepwise.**		

Q 15	What do you mean by coupling and decoupling of demand?	**10**	**CO2**
Q 16	What is the difference between numerical and categorical variables? Give suitable examples from transport systems.	**10**	**CO1**

Q 17	What are the advantages of using expert judgement in qualitative forecasting of transport demand? **OR** What is the meaning of R-squared in linear regression? What is its relevance in using regression for forecasting transport demand?	10	CO4

SECTION-D (30 marks)

1. Each question will carry 15 marks
2. Instruction: Answer precisely, write legibly and stepwise.

Q 18	Illustrate the various components of a time series diagrammatically. Which components can be identified in the air passenger traffic data given in the graph below? **Ahmedabad Airport** Total monthly air passengers vs Months (April 2012 to March 2017)	15	CO4
Q 19	Illustrate through diagram the analogy between a biological neuron and an artificial neuron used in the Artificial Neural Network. What are the properties of biological neurons that are imitated in artificial neuron? **OR** What are membership functions in fuzzy analysis? Give suitable values of the membership function in a fuzzy analysis of the following alternative statements of a traveler when choosing between two alternative transport modes (e.g., the choice of a	15	CO3

traveler between a low-cost airline and a high-speed rail company). What is the shape of the resulting membership function from the values you have given?

    a) for sure yes
    b) usually
    c) quite possible
    d) maybe
    e) in some cases (or sometimes)
    f) for sure not