Name:

Enrolment No:

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

Course: MBA Business Analytics | **Semester: I**
Programme: Business Modeling with Spreadsheets | **Time: 03 hrs.**
Sub Code: DSBA 7001 | **Max. Marks: 100**

Instructions:

SECTION A

S. No.	Describe in Short	Marks
Q 1	Blue Ridge Hot Tubs manufactures and sells two models of hot tubs: the Aqua-Spa and the Hydro-Lux. Howie Jones, the owner and manager of the company, needs to decide how many of each type of hot tub to produce during his next production cycle. Howie buys prefabricated fiberglass hot tub shells from a local supplier and adds the pump and tubing to the shells to create his hot tubs. (This supplier has the capacity to deliver as many hot tub shells as Howie needs.) Howie installs the same type of pump into both hot tubs. He will have only 200 pumps available during his next production cycle. From a manufacturing standpoint, the main difference between the two models of hot tubs is the amount of tubing and labor required. Each Aqua-Spa requires 9 hours of labor and 12 feet of tubing. Each Hydro-Lux requires 6 hours of labor and 16 feet of tubing. Howie expects to have 1,566 production labor hours and 2,880 feet of tubing available during the next production cycle. Howie earns a profit of $350 on each Aqua-Spa he sells and $300 on each Hydro-Lux he sells. He is confident that he can sell all the hot tubs he produces. The question is, how many Aqua-Spas and Hydro-Luxes should Howie produce if he wants to maximize his profits during the next production cycle?	**CO1** **20**
Q 2	In a college, students get points based on their participation level and their role and event/activity. Following is the reference grid for the points: Participation, Organizing & Awards are the Roles. Class, Department, College, University & External are the various levels of participation. Suggest an excel formula/expression to get the points, if the Role and Level of any student in an activity is known.	**CO2** **10**
Q 3	A motorist buys a new car for £12,000 and intends to keep it for six years. If the resale value at the end of that time is expected to be £4000, and the annual running costs (apart from depreciation) are 2000, what is the NPV of the car's costs over the six-year period? Take interest as 7%.	**CO3** **10**

	Participation	Organizing	Awards
Class	10	15	20
Department	15	22.5	30
College	20	30	40
University	25	37.5	50
External	30	45	60

Q 4

Customer	Seller Agent	Selling Price	Loan Term	Interest Rate	Down Payment	Amount to be Financed	Commission	Bonus
Sterfield	Allan	$258,900	30					
Sceria	John	$328,950	15					
Subensklee	Allan	$198,000	15					
Sritzen	John	$178,350	30					
Sango	Allan	$333,000	30					
Satt	John	$768,650	20					
Sro	Allan	$358,000	15					
Sweitzer	John	$458,000	20					
Ster	Allan	$168,900	30					

*Chart 1

Loan Term	Interest Rate	% Required Down Pmt
15	4.50%	15%
20	5.00%	20%
30	5.25%	25%

**Chart 2

CO4

a. Using Chart 2, Get the correct Interest Rate and Down Payment in respective columns . **5**

b. Calculate the amount to be financed (Selling price – down payment). **5**

c. Fill out the commission to be paid out for each sale. It should be calculated as follows. They get paid only on the amount to be financed. They actually get paid:
2.5% if that amount is over or equal to $200,000
1.5% if it is lower than $200,000 **5**

d. Calculate the total commission for each seller. **5**

e. Calculate the number of sells and sale made by each agent. **5**

f. The branch has an extra bonus where the bank manager will receive $10,000 for any loan that is over $250,000 with a loan term (amount to be financed) of 20 years or more, AND an interest rate of 5% or more. Calculate the bonus amount for each loan in the table. **5**

Q 5

A company is considering an investment in a project for which the estimated cash flows (in £'000s) are as shown in the table below. Calculate the project's NPV, given that the discount rate is 10%. Is the project acceptable?

CO4

Project cash flows for year	***0***	***1***	***2***	***3***	***4***
(in £'000s)	**–60**	**20**	**17**	**22**	**25**

10

Q 6

Names	Age	Marks
Manav	25	34
Rahul	27	42
Jatin	23	62
Harshit	23	34
Rakesh	28	66
Ramesh	22	49
Suresh	24	59
Jignesh	24	38
Lokesh	26	84

Using COUNTIF function:

- Count the number of students with marks above 50 **2**
- Count the number of students who have "Failed" **2**

Using COUNTIFS & SUMIFS functions Find the average age of students who have "Passed", and have marks <=60 **10**

Using VLOOKUP function find the "Age" & "Marks" of ‘Ramesh’ and ‘Suresh’ **3**

Using INDEX and MATCH functions, find the “Age” & “Marks” of ‘Ramesh’ and ‘Suresh’. **3**