UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, December 2018

Course: MBA Business Analytics   **Semester: I**
Programme: Business Modeling with Spreadsheets

Time: 03 hrs.   **Max. Marks: 100**
Instructions:

SECTION A

S. No.	Describe in Short	Marks	CO
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?	20	3
Q 2	The Svelte Glove Company manufactures and sells two kinds of products, both gloves. The company makes a profit of $12 for each unit of Work Glove sold and a profit of $4 for each unit of Driving Glove sold. The amount of time it takes to make the products in each of the three Production Departments is shown in the table: | Production Department	Work Gloves	Driving Gloves
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Cutting	1	2
Sewing	3	3

Finishing	2	3 |
		
		Before it's complete and ready for sale each product must be processed by each of the three departments. The Respective Department supervisors have estimated the following number of labor hours available during the next month: Cutting - 800 hours, Sewing - 1,800 hours, and Finishing - 2,000 hours.
		For each Work Glove, 2 Driving Gloves are to be made.
		
		Build an Excel worksheet to:
		   a. Specify the number of each kind of glove to manufacture in the next month.
		   b. Determine the total number of hours required in each of the three departments to produce these amounts (so we can make sure we don't exceed the labor hour constraints stated in the problem).
			3
			
			10
			
			10	

c.	Compute the total profit that would result.							10	

Q 3

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

15	4.50%	15%
20	5.00%	20%
30	5.25%	25%

**Chart 2

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**

3

Q 4	Names	Age	Marks			2
	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**