



Prifysgol Cymru
Y Drindod Dewi Sant
University of Wales
Trinity Saint David

LOCATION: SWANSEA

LLEOLIAD: ABERTAWE

LEVEL 5

LEFEL 5

**EXAMINATION PERIOD
MAY 2017**

**CYFNOD ARHOLIADAU
2017**

**MODULE CODE:
M5X01176**

MANAGEMENT, INNOVATION & SUSTAINABILITY

TIME: 2 HOURS

ALL CANDIDATES TO ANSWER QUESTION 1 IN SECTION A

**ALL BENG MECHANICAL, MECHANICAL & MANUFACTURING
AND EXTREME SPORTS CANDIDATES TO ANSWER ANY TWO
QUESTIONS FROM SECTION B (ANDREW THORN)**

**ALL BENG MOTORSPORT, MOTORCYCLE, AND AUTOMOTIVE
ENGINEERING CANDIDATES TO ANSWER ANY TWO QUESTIONS
FORM SECTION C (MARK SANDFORD)**

*Equipment or materials required – Calculators may be used
Adnoddau neu ddefnyddiau sydd eu hangen - Dim*

Section A

Question 1

Drivers Ltd has decided to replace one of its old centrifuges for a more energy efficient model in order to reduce energy costs and improve process efficiency. An initial capital investment proposal of £200,000 has been allocated and the financial controller has calculated that the following cash flows can be expected from the following options over the next five years.

	Supernatant	Fuge 41	Centre 4
	£	£	£
Year			
0	(200,000)	(200,000)	(200,000)
1	20,000	80,000	60,000
2	40,000	60,000	60,000
3	60,000	60,000	60,000
4	60,000	40,000	60,000
5	60,000	40,000	60,000

- a) Calculate the payback for each option in years and months.

(8 marks)

- b) Calculate the net present value for each project using a discount factor of 10%.

Discount factors at 10%

Year	Discount factor
0	1.000
1	0.9091
2	0.8264
3	0.7513
4	0.6830
5	0.6210

(8 marks)

- c) Evaluate which project is the best option for the company to follow.

(4 marks)

- d) When making capital investment decisions evaluate two factors that should be considered as part of the decision-making process.

(5 marks)

SECTION B

ANSWER any Two QUESTIONS

Question 2

Change management is the discipline that guides how we prepare, develop and support individuals to successfully adopt change in order to drive organisational success.

- a) Explain what factors can lead to an organisation needing to make changes to how its business operates.
(8 marks)
- b) Discuss the reasons why change often fails, using examples to support your answer.
(9 marks)
- c) One of the major factors that prevents change happening is resistance. Analyse what steps can be taken to turn resistance into support.
(8 marks)

Question 3

Beggs and Reid Engineering Ltd have just received an enquiry for the fabrication of 8 small pressure vessels. It is estimated that each vessel will take 30 hours of direct labour and require £800 of materials per vessel.

The business expects to incur the following costs during production.

Indirect labour costs	£36,000
Direct labour time	12,000 hours
Depreciation of equipment	£14,000
Rent and rates	£10,000
Direct labour costs	£180,000
Heating and electricity	£8,000
Indirect materials	£1,800

Determine the following:

- a) The full cost of making the pressure vessels.
(12 marks)
- b) The company wishes to make 30% profit on the order. Using the answer from (a) calculate the price the company should quote for the job.
(4 marks)
- c) Explain what is meant by the term profit centres along with the advantages and disadvantages of using profit centres.
(9 marks)

Question 4

New product development is a costly process that can result in failure before a product even reaches the market place. There are a variety of reasons as to why this happens, but lack of planning and thorough research is often attributed as major reasons for these failures.

Prepare a detailed report that clearly explains what should be considered as part of the new product development process.

(25 marks)

SECTION C

ANSWER any Two QUESTIONS

Question 5

You are joining a recently started upmarket clothing company. They specialise in expensive outdoor performance jackets, trousers and accessories.

They have advertised in outdoor magazines and attend trade shows. They believe that they have established a reasonable market share in this area.

They have employed a new designer that has developed a more urban chic designer range that should appeal to the younger affluent buyer. (under 40 years old).

They are considering sponsoring some events.

- a) Evaluate three types of sponsorship and what an organisation could hope to achieve by investing in sponsorship. **(7 marks)**
- b) Perform an analysis of possible areas of sponsorship that would be attractive to the organisation and explain the potential advantages that could be gained. **(7 marks)**
- c) Develop a strategy as part of the wider marketing mix. It would be appropriate to apply the SOSTAC model. **(11 marks)**

Question 6

An existing racecar manufacturer specialising in club racing and sports 2000 (MCR) have recently developed a new product, a turbocharged 2 litre sports car . . The vehicle is designed to be a road going race/sports prototype performance vehicle suitable for the trackday market..

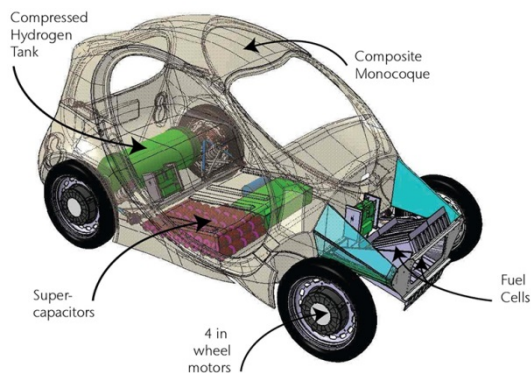
- a) Explain the possible range of types of contract that MCR could employ with its range of suppliers of components and engineering services. Use a graphic model as appropriate **(7 marks)**

MCR is to place contracts with tier 1 suppliers for the design, development and supply of various components. For the following components evaluate the most

appropriate contract type, explain your justification and outline the contract terms you would think appropriate.

- b) The design and development of a steel tube chassis and suspension system
(7 marks)
- c) Ford duratec 2 litre engine supplied with turbo charger from an external tuning company.
(7 marks)
- d) Complete brake system, from master cylinder to the discs
(4 marks)

Question 7



Riversimple from Llandridod Wells have recently launched a hydrogen fuel cell powered vehicle. The vehicle is small and light.. Riversimple currently lease vehicles to a variety of users, both private and commercial. Interest is currently strong, especially to green minded individuals, local government and fleet operators. The management at River Simple wish to analyse their current and potential future market position.

There are currently limited places where compressed hydrogen is available.

- a) Describe the Porters Five Forces – Analysis of competitive position.
(5 marks)
- b) Apply the model to the Riversimple vehicle.
(10 marks)
- c) Select four issues effecting the competitive position and suggest and describe possible changes that could improve the competitive position of the Riversimple vehicle.
(10 marks)