



FACULTY OF : APPLIED DESIGN AND ENGINEERING

Question 1

Sponsorship is an important income stream for the arts and sport. In many cases it is the only effective income stream.

- a) Outline some types of sponsorship and what an organisation could hope to achieve by spending money on sponsorship.
(8 marks)
- b) You are joining a new Swansea based team about to enter the British Motorcycle Motorcross Championship. You have been asked to develop a strategy in order to gain sponsorship to fund the team in the next season. Describe your process and strategy to the team principal.
(12 marks)

Question 2

The Race Tyre Company, a small start up company is deciding whether or not to start a new business offering a mobile and circuit side tyre fitting service. The company is preparing a business plan that he will eventually present to a national bank in order to apply for a business loan. The company has identified some capital expenditure that he will need to make to establish the business. The company is envisaging that the equipment will be used for three years after which he will be able to sell it for 25% of the original purchase price.

3x High top long wheelbase transit van	£66,000
Portable petrol compressors	£ 6,000
Portable electrical generators	£ 3,000
Tyre fitting machines	£ 10,500
Trolley jacks, racking etc	£ 1,500
Vehicle fitment, awning etc	£ 3,000
Total	£90,000

Calculate the depreciation using:

- a) Straight line method **(2 marks)**
- b) Reducing balance method **(8 marks)**
- c) Comment on your findings **(3 marks)**
- d) Critique the advantages and disadvantages of using the straight line and reducing balance methods. Which method of calculating the depreciation is likely to be most appropriate for use in the Race Tyre Company's business case preparation, and why.
(7 marks)

Question 3

Sketty sportscars currently produce vehicles for the UK sports 2000 regulations. Recent technical changes in the regulations allow for the use of external carbon fibre body work panels.

The team have decided to produce the panels in house and are obtaining quotes for an Autoclave (a large pressure cooker for curing panels in their moulds). In order to compare competitive quotations from different potential suppliers from different countries, Sketty Sportscars require a request for quotation (RFQ) document.

- a) Generate an RFQ for the autoclave. Briefly explain the reasoning behind the inclusion of each of your criteria. **(10 marks)**
Sketty sportscars are concerned about the initial purchase price and operating costs for the autoclave.
- b) Explain the concept of life style costing. **(2 marks)**
- c) Critically evaluate the factors that should be considered to generate a life cycle cost for the Autoclave. **(8 marks)**

Question 4

The governing body of the World Touring Car Championship are considering some significant rule changes to the technical regulations in order to attract more entrants, TV/media coverage and increase the relevance to potential sponsors amidst the current economic and environmental climate.. Possible changes being considered is to allow/encourage the adoption of technologies to reduce the environmental impact of race vehicles. Technologies such as KERS, Hybridisation, emissions criteria etc should be considered.

- i) Briefly discuss possible reasons for the governing body to consider these changes.
(3 marks)
- ii) Analyze the driving forces affecting the governing body to incorporate environmental changes to the technical regulations by using the PEST/STEP analysis framework.
(12 marks)
- iii) Following the results of your analysis; what advice would you offer the governing body and the teams on the potential adoption of environmental changes to the technical regulations?
(5 marks)

Model Answers

Q1

Sponsorship

a) The student should outline types of sponsorship:

- ☐ Programme sponsorship - TV, films, product placement
- ☐ Arts sponsorship - Venues, events/exhibitions, competitions, commissions,
- ☐ Sports sponsorship - Teams
- ☐ Sponsorship of events - Single, series
- ☐ Sponsorship of individuals - David Beckham, Michael Jackson
- ☐ Social sponsorship - Promoting ethical credentials

b) The student should outline some potential benefits, these include:

Increased awareness of products and services

Build an image

Improve or maintain relationships

Increase sales and open closed markets

Attract distributors or agents

Promotional opportunities

Cost effective for reaching a large audience

Impact of sponsorship programme can be measured

c) The student should use the **S.O.S.T.A.C.** model and discuss the steps

S - situation analysis (where are we now)

How much money have we got, what can we offer

.O - objectives (where do we want to go?)

How much money do we need to run the team

Who can we target

.S - strategy (how do we get there?)

Develop sponsorship plan, costings/benefits

Size of target audience, TV/press coverage etc

.T - tactics (the details of the strategy)

Review potential sponsors and their history

Contacting routes, direct or through agency

.A - action (putting the plans to work)

Approaches, explaining potential benefits

.C - control (monitoring and review)

Success of gaining sponsorship

Working with the sponsor to monitor the impact of the sponsorship

Extra marks will be awarded when problems of sponsorship are identified and discussed with potential sponsors.

Q2

Q2 Model Answer (x3)

a) Straight line method

Using $D = (C - R) / L$

D = annual depreciation

C = original cost

R = residual value

L = asset life in years (2marks)

$D = (90,000 - 22,500) / 3$ (2marks)

D = 22,500 per annum (1mark)

b) Reducing balance method

$D = 1 - \sqrt[3]{R/C} \times 100$ (2marks)

$D = 1 - \sqrt[3]{22,500/90,000} = 0.6299$

$D = 1 - 0.6299 \times 100$ (2marks)

D = 37.01% (1mark)

Cost year 1	90,000	
Less 37%	33,300	
Value year 1	56,700	
Less 37%	20,979	
Value year 2	35,721	
Less 37%	13,217	
Value year 3	22,504	(5marks)

- c) Credit will be given for relevant discussion including reducing balance loses most in the first year, where the straight line method gives a standard amount each year
- d) Candidates should identify that the straight line method is easier to calculate and simple to use, however the method assumes that assets depreciate at a constant rate. The reducing balance method is more complicated but does recognise that a new fixed asset tends to lose more value in the early years than in the latter years.
- For a motor vehicle the reducing balance method would be the most appropriate for a business plan as it reflects the depreciation profile regularly seen.

(5marks)

Q3

- a) Generate an RFQ for the autoclave. Briefly explain the reasoning behind the inclusion of each of your criteria. **(8 marks)**

Physical internal size – to ensure the biggest panel can fit or batches of panels can be accommodated

External dimensions and weight for shipping

Ex works and delivery charge

Warranty terms and conditions

Operational software

Software maintenance and support facilities

Power consumption/efficiency

Pressure&heat up/ depressurize times

Additional service equipment supplied or required

Service contract conditions.

Sketty sportcars are concerned about the initial purchase price and operating costs for the autoclave.

- b) Explain the concept of life style costing. **(2 marks)**

The student should define/discuss life cycle costing

- ☐ The practice of obtaining over their lifetime the best use of the physical assets at the lowest cost to the organisation. This is achieved through a combination of management, financial, engineering and other disciplines.
- ☐ Discuss the advantages
 - Accurate comparison of competing options (broad options buy v lease days)
 - Good awareness of total costs (ref total cost of project)
 - Accurate forecasting of cost patterns (cash flow esp, running costs)
 - Allows assessment of performance trade off against cost
- ☐ Outline the main disadvantage of not really knowing what will happen in the future.

- c) Critically evaluate the factors that should be considered to generate a life style cost for the Autoclave. **(10 marks)**

The students should analyse important factors, which could include:

- ☐ LCC gives two main costs
- ☐ Acquisition costs
 - Initial cost
 - Transports costs (i.e. ex works)
 - Installation / commissioning costs,
 - ☐ esp building changes, floor strengthening etc
 - ☐ provision of electrical power
 - Cost of necessary peripherals
 - ☐ Cooling towers
 - ☐ Special freezers for material storage etc
 - Spares packages
 - Training costs
 - The time cost of money
- ☐ Running costs
 - Operation, fill time, cycletime.
 - Energy costs
 - Material/consumable costs
 - Insurance – pressure vessel
 - Servicing
 - Raw material availability.
 - Maintenance and inspection costs,

- Lifetime prediction, depreciation.
- Disposal – residual value (depreciation factors) or costs of removal and scrapping.

Q4 PEST

The candidate should discuss the potential adoption these technologies:

The governing body – automotive relevance, interest from VM's, greenification of motorsport.

The business - advantages to teams, publicity, costs, potential sponsorship

The technology – size, relevance, safety complexity.

(3marks)

The candidate should perform a PEST analysis on the marco environment. The list bellows is not exhaustive but provides examples.

Political

Supporting the political agenda

Seen to be green

Supporting government agendas

Green pressure groups

Emissions legislation CO₂, noxious gasses

(3 marks)

Economic

Expensive to design and develop

Extra spares required

Potential new sponsorship avenues.

Additional staff & facilities required.

(3marks)

Social

Consumer buying patterns

Satisfying consumers green agenda

Fashion for performance upgrades

Fashion for vehicle downsizing

Increased use of KERS / hybridisation again for marketing and sales

(3 marks)

Technological

Effect brake stability

Effect on vehicle mass

Effect on servicing requirements and safety

Ease of installation

OEM's offering more base vehicles with hybrid capability – technology transfer

OEM's providing more 'niche' vehicles

Competing technologies such as flywheels batteries, supercaps.

Improving vehicle stage performance (especially for restricted engines)

Possibilities to 'down size' IC engine.

Ever more complex donor vehicle engine management systems making KERS/hybrid integration more complex

(4 marks)

Suggestions for the governing body

An open question for the candidate, suggestions could include:

Improve the green credentials

Target for smaller engines, promote concept of downsizing

More potential sponsorship

Probably need market survey, sound out VM's etc

Technical and cost impact on teams – study required

Safety considerations – study required.

Diversify within technology and equipment

What other markets could be addressed with similar technology?

What spin offs into road vehicle technology?

Consider maintaining entertainment spectral.

(4marks)