

BIG TEST ★ GROOT TOETS 2

MODULE CODE/KODE	ITRW 213	DURATION/DUUR	1h 40min
EXAMINER/EKSAMINATOR	Imelda Smit	MARKS/PUNTE	50
MODERATOR	Prof Roelien Goede	DATE/DATUM	20-05-2014
		TIME/TYD	17:00

MEMORANDUM

Answer all the questions. ★ Beantwoord al die vrae.

Question | Vraag 1 [Chapter | Hoofstuk 6]

[10]

Study the following case study:

Bestudeer die volgende gevallestudie:

A new client in the Vaal Triangle obtained land on the river and wants to start a boat club. The land will be developed to include a club house with offices, a kitchen and an entertainment area. A tuck shop will sell sweets, cool drinks and reads during busy times. Braai areas close to the river and fishing spots are some of the features planned. Swimming pools, a play area and trampolines will be built to entertain children. Launching pads and jetties will be made available for boating. Tent stands, caravan stands, dwellings (three bedrooms, two bedrooms and single bedroom), boat lockers (small and big) and caravan shades will be made available for rental. The stands will be available per night at a rate and will be booked on a calendar. Electricity (from solar panels) and water (from a bore hole) will be made available per stand and ablution facilities with a laundry and washing-up facilities will be accessible to the stands. Rates will be dependent on the season. All other rentals will be over a minimum period of a year and each category are rented on a per m² rental amount. It will be necessary to appoint a team of people to run this boat club – including a financial specialist, an admin person, handymen, gardeners, cleaners, a mechanic and a person who can maintain the power and water systems. Club members are screened by the developer (initially) and a committee of members. After completing an application form, approved members pay a once-off fee and then a yearly fee. Daytime visits are free and members get access through access control. Members may invite friends, who may visit the boat club with them. Friends need to pay a day fee or an overnight fee (whichever is applicable) and also needs to complete a basic information sheet. The staff's time will be spend on marketing the boat club, making sure moneys to be paid, are. A budget needs to be compiled and the necessary stock needs to be ordered and paid. The maintenance of the premises and the cleaning of buildings are also important. A maintenance schedule will be applicable to ensure everything is maintained during off-time and in tip-top condition during peak time.

1.1 Draw a fishbone diagram to explore and depict the identified maintenance problem and the causes and effects of this problem.

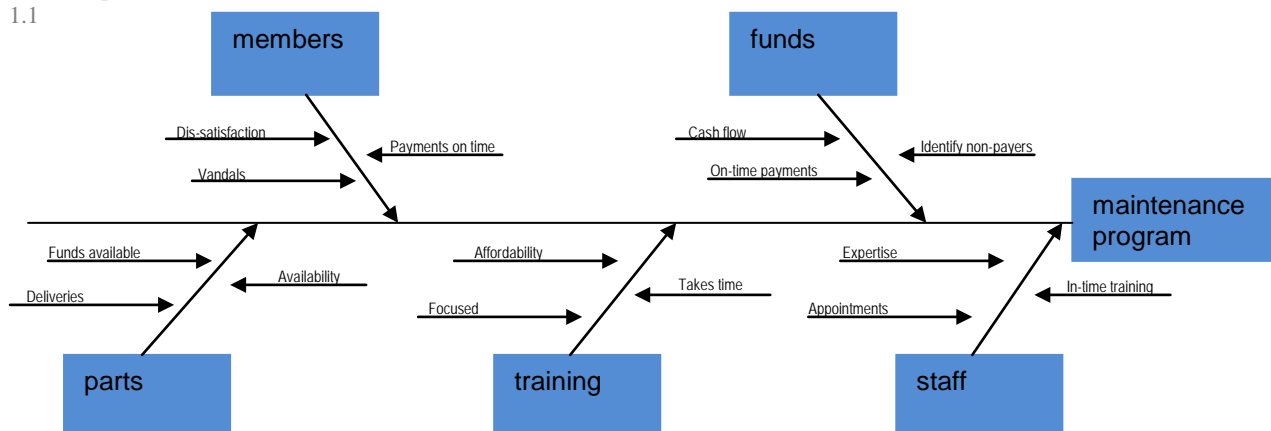
1.1 Teken 'n visgraatdiagram om die geïdentifiseerde onderhoudsprobleem te ondersoek en voor te stel – met die oorsake en effek van die probleem.

1.2 State another name for a fishbone diagram.

1.2 Gee 'n ander naam vir 'n visgraatdiagram

Answer: p 211

1.1



1.2 Cause-and-effect or Ishikawa ✓

Mark allocation:

Fish's head (given) with backbone; shape of fish bone – ✓

Bones – ✓ to a maximum of 4 marks (four M's: materials, machines, manpower, methods)

Additional categories – ✓ to a maximum of 4 marks (four P's: places, procedures, policies, people | four S's: surroundings, suppliers, systems, skills)

Draw a Use Case diagram of the maintenance sub-system in the case study given in question 1. State and follow the steps followed when modelling user requirements with Use-Cases. TIP: For the last step you may supply ONE SUMMARISED narrative.

Teken 'n gebruikgevaldiagram van die onderhoudsubstelsel in die gevallestudie gegee in vraag 1. Noem en volg die stappe vereis wanneer gebruikersvereistes met gebruikgevalle gemodelleer word. WENK: Vir die laaste stap mag jy EEN OPGESOMDE narratief verskaf.

Answer: c 7 p 251-260

STEP 1 – Identify business actors ½✓: People (staff, committee members, members) ½✓

STEP 2 – Identify business requirements Use-Cases ½✓: maintenance schedule, order goods (parts, paint, etc.) ½✓

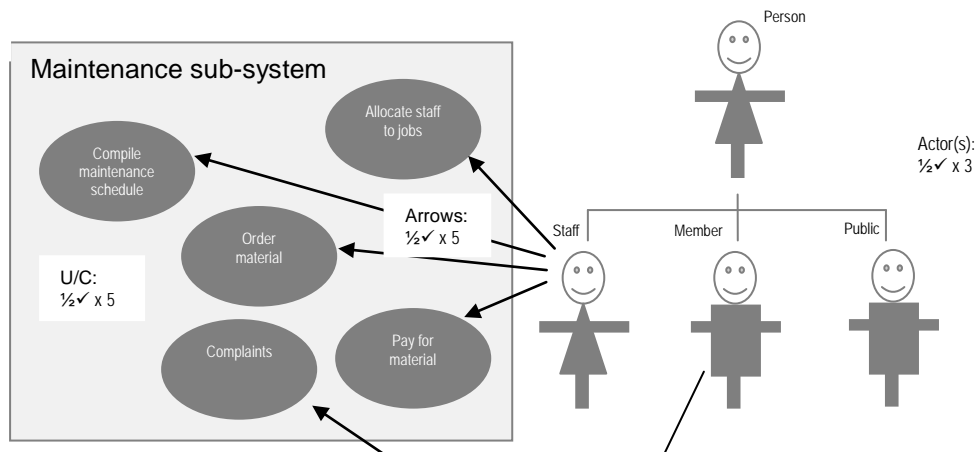
STEP 3 – Construct the Use-Case model diagram ½✓:

MAX: 1 mark

MAX: 1 mark

Sub-system:

½✓ x 1



MAX: 7 marks

STEP 4 – Document business requirements Use-Case narratives ½✓:

Boat Club Maintenance System		
Author(s): _____		Date: ____/____/20____ Version: _____
Use Case name ½✓	Order material ½✓	Use Case type Business requirements: <input checked="" type="checkbox"/> ½✓
Use Case ID ½✓	MAIN-BC003 ½✓	
Priority ½✓	High ½✓	
Source ½✓	MAIN-BC002 ½✓	
Primary Business Actor ½✓	Club Staff (Admin) ½✓	
Other participating actors ½✓	Committee Member Club Staff (Maintenance) ½✓	
Other interested stakeholders ½✓	½✓	
Description ½✓	The Use Case describes how a club member's complain is incorporated into a maintenance schedule, staff is allocated to jobs, material is ordered and paid for. ½✓	

MAX: 5 marks

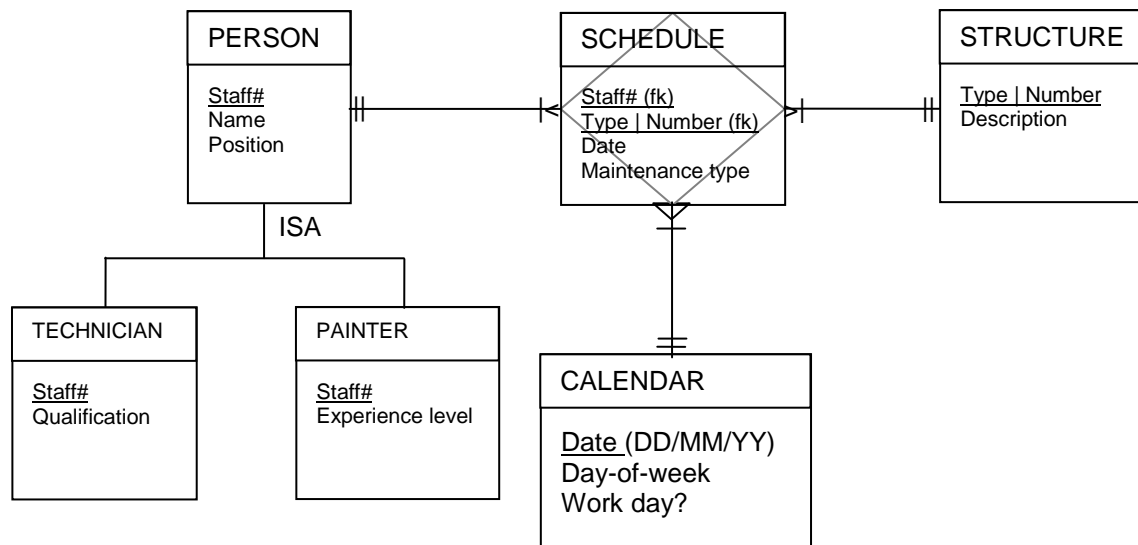
Mark allocation:

See allocated marks

Draw only the ERD with all attributes of the maintenance subsystem.

Teken slegs die EVD met alle attribute van die onderhoudsubstelsel.

Answer c 8



Mark allocation:

½✓ for each entity; ½✓ for each key; ½✓ for each relationship; ½✓ per group of non-key attributes; ½✓ per cardinality. Maximum: 8 marks.

Question | Vraag 4 [Chapter | Hoofstuk 9]

[9]

Name and motivate the NINE (9) steps in the event-driven process modelling strategy.

Noem en motiveer die NEGE (9) stappe in die gebeurtenisgedrewe prosesmodelleringstrategie.

Answer: p 335-336 (fig 9.13)

STEPS

1. Draw context DFD $\frac{1}{2}\checkmark$
2. Draw functional decomposition diagram $\frac{1}{2}\checkmark$
3. Create event-response or use-case list $\frac{1}{2}\checkmark$
4. Add one process, called the event handler to the decomposition diagram $\frac{1}{2}\checkmark$
5. OPTIONALLY: Draw an event DFD (or event handler) for each event $\frac{1}{2}\checkmark$
6. Merge event DFDs into a system diagram (or, for larger systems, subsystem diagrams) $\frac{1}{2}\checkmark$
7. Draw detailed, primitive DFDs $\frac{1}{2}\checkmark$
8. Use Structured English $\frac{1}{2}\checkmark$ & Decision Tables $\frac{1}{2}\checkmark$
9. Represent data structures $\frac{1}{2}\checkmark$

MOTIVATION

establish initial project scope. $\frac{1}{2}\checkmark$
 partition the system into subsystems. $\frac{1}{2}\checkmark$
 for the system to define events for which the system must have a response. $\frac{1}{2}\checkmark$
 focus on only inputs and outputs $\frac{1}{2}\checkmark$

this may be useful when different teams will design and code the programs (bigger systems) $\frac{1}{2}\checkmark$
 obtain a bird's eye view of the system $\frac{1}{2}\checkmark$

represent the more complex event handlers $\frac{1}{2}\checkmark$
 represent the logic of each elementary process $\frac{1}{2}\checkmark$
 link to the data that would be needed $\frac{1}{2}\checkmark$

Mark allocation: See allocated marks. Maximum: 9 marks.

Question | Vraag 5 [Chapter | Hoofstuk 11]

[9]

We studied three Cost-Benefit Analysis (CBA) techniques, namely:

- a) Payback Analysis
- b) Return-on-Investment Analysis
- c) Net Present Value

Explain the main focus of each with the value each brings to a project, and how you will use them in the CBA of your project.

Ons het drie Koste-voordele Analise (KVA) tegnieke bestudeer, naamlik:

- a) Terugbetaal Analise
- b) Opbrengs-op-Belegging Analise
- c) Netto Huidige Waarde

Verduidelik die hoofokus van elk met die waarde wat elkeen tot 'n projek bydra, en hoe jy hulle sal gebruik in die KVA van jou projek.

Answer: p 419-426

Technique's main focus

NOTE: We use the "time value of money" to estimate the current value of money spent in the future.

	Value to a project	Complementing one another
Payback Analysis (PBA) Determining if and when a project will pay for itself; how much time will elapse (payback period) before estimated accrued benefits overtake accrued and continuing costs. Return-on-Investment (ROI) Analysis Determines the lifetime profitability of alternative solutions. Final answer is a percentage yield per alternative solution. This can be calculated yearly or over the system's lifetime. Net Present Value (NPV) Compares the annual discounted costs and benefits of alternative solutions. A positive answer indicates a good investment.	Determine how long a system needs to be used to pay for itself. Can compare different solutions. The alternative with the highest yield may be the best. Can compare different solutions. Throw out the ones that give a negative answer.	<ol style="list-style-type: none"> 1. I will start with NPV to ensure I work with a good investment. 2. I will apply ROI analysis to all alternatives to enable me to compare apples to apples. It is possible that a package buy-in have a longer lifetime because of improved software support? This may mean that the NPV result may be override. 3. PBA allows the focus to move to the chosen alternative. It helps to focus on all the costs and benefits. Possibly some decisions made because of this may influence the systems "profit" (eg buy a more expensive printer with less expensive running costs?)

Mark allocation: One mark per cell (columns 1 & 2). A mark per technique in strategy (column 3).