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VAALDRIEHOEKKAMPUS

Benodigdhede vir hierdie vraestel / Requirements for this paper:				Oopboek eksamen / Open book examination:	
Multikeusekaarte / Multi choice cards:		Nie-programmeerbare sakrekenaar / Non-programmable calculator:			
Grafiekpapier / Graphic paper:		Draagbare rekenaar / Laptop:			

EKSAMEN / EXAMINATION:	**Eerste Geleentheid / First Opportunity June 2016**	KWALIFIKASIE / QUALIFICATION:	**B.Sc.(IT)**
MODULEKODE / MODULE CODE:	**ITRW213**	DUUR / DURATION:	**3 Ure / Hours**
MODULE BESKRYWING / SUBJECT:	**Systems Analysis & Design I / Stelselontleding & -ontwerp I**	MAKS / MAX:	**100**
EKSAMINATOR(E) / EXAMINER(S):	**Imelda Smit**	DATUM / DATE:	**18/06/2016**
MODERATOR(E) / MODERATOR(S):	**Prof Roelien Goede**	TYD / TIME:	**09:00**

Answer all the questions. ★ *Beantwoord al die vrae.*

Question | Vraag 1 [CONTEXT | KONTEKS] [17]

1.1 Where do systems development projects come from? Focus on the origination of *unplanned* projects.	4	1.1 Waar kom stelselontwikkelingsprojekte vandaan? Fokus op die oorsprong van *onbeplande* projekte.
1.2 Which two business initiatives will result in *planned* projects? Explain both.	2	1.2 Watter twee besigheidsinitiatiewe het *beplande* projekte tot gevolg? Verduidelik beide.
1.3 Which **two information system stakeholders** stand central to the initiation of most projects?	1	1.3 Watter twee **inligtingstelselbelanghebbendes** staan sentraal tot die aanvoring van die meeste projekte?
1.4 **Mention a tool that acts as a framework for classifying problems** – to structure the development of system projects. Explain the tool you mentioned.	4	1.4 **Noem 'n hulpmiddel wat as raamwerk vir die klassifikasie van probleme gebruik kan word** – om die ontwikkeling van stelselprojekte te struktureer. Verduidelik die hulpmiddel wat jy noem.
1.5 **Compile a strategy** for managing planned and unplanned systems development projects in a company to ensure transparency and promote the distribution of information.	6	1.5 **Stel 'n strategie saam** vir die bestuur van beplande en onbeplande stelselontwikkelingsprojekte in 'n maatskappy om deursigtigheid te verseker en die verspreiding van inligting te verseker.

Question | Vraag 2 [PROJECT MANAGEMENT | PROJEKBESTUUR] [12]

PMBOK includes tools and techniques to support project managers. Two such tools are PERT and Gantt charts.

PMBOK sluit hulpmiddels en tegnieke in om projekbestuurders te ondersteun. Twee sulke hulpmiddels is PERT- en Gantt-kaarte

2.1 Explain the **two tools**. You may use drawings to illustrate your explanation.	6	2.1 Verduidelik die **twee hulpmiddels**. Jy mag tekeninge gebruik om jou verduideliking te illustreer.
2.2 **Distinguish between the two tools** by focussing on the strength(s) each has.	3	2.2 **Onderskei tussen die twee hulpmiddels** deur te fokus op die impak wat elkeen het.
2.3 Also explain the **estimation of task durations**. State the classic technique's formula. HINT: It uses optimistic, pessimistic and expected durations.	3	2.3 Verduidelik ook die **skatting van take se duur**. Gee die klassieke tegniek se formule. WENK: Dit gebruik optimistiese, pessimistiese en verwagte duur.

Question | Vraag 3 [FACT-FINDING | FEITINSAMELING] [12]

3.1 During the final presentations of your projects we experienced a number of interruptions due to dying laptops. Draw a **fishbone diagram** and name a maximum of two fish bones for each of the causes listed below.

The problem is: Laptops run out of power.

The six causes that play a role is: People, Environment, Machines, Methods, Measurements and Materials.

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3.1 Gedurende die finale projekvoorleggings het ons 'n aantal onderbrekings gehad as gevolg van skootrekenaars wat doodgaan. Teken 'n **visgraatdiagram** en benoem 'n maksimum van twee visgrate vir elk van die oorsake wat onder gelys is.

Die probleem is: Skootrekenaars het nie meer krag nie.

Die ses oorsake vir hierdie probleem is: Mense, Omgewing, Masjiene, Metodes, Maatstawwe en Materiale.

3.2 When compiling **project requirements**, analysing requirements poses a number of problems that the systems analyst(s) should attempt to solve. Name 4 such expected problems.

2

3.2 Wanneer **projekvereistes** saamgestel word, sal die ontleding van vereistes 'n aantal probleme laat figureer wat die stelselontleder(s) moet probeer oplos. Noem 4 sulke verwagte probleme.

Question | Vraag 4 [USE CASE MODELLING | GEBRUIKSGEVALMODELLERING] [16]

4.1 Study the use-case diagram shown below. Use your own frame of reference regarding the use of ATMs to guide you in the compilation of a **use-case glossary** (apply reverse engineering). **Include use-case name, use-case description and participating actor in your glossary.**

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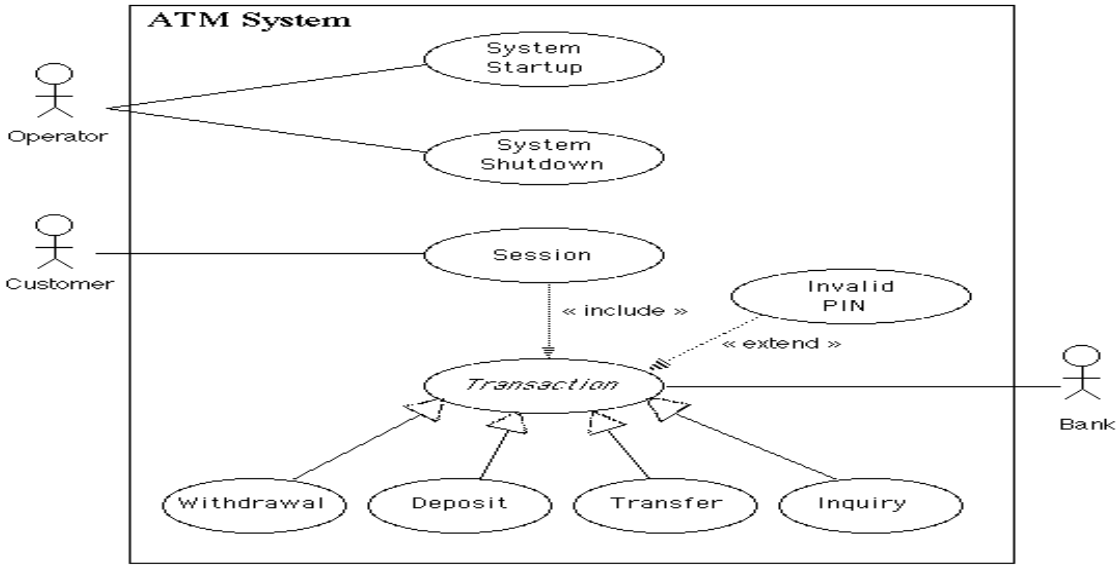
4.1 Bestudeer die gebruiksgevaldiagram hieronder. Gebruik jou eie verwysingsraamwerk betreffende die gebruik van OTMe om jou te lei in die samestelling van 'n **gebruiksgevalwoordelys** (pas omgekeerde ingenieurswese toe). **Sluit gebruiksgevalnaam, -beskrywing en deelnemende akteur in jou woordelys in.**



4.2 When documenting a use-case narrative, a particular use-case's typical course of events is described. A list of items that may be addressed in a typical course of events include:

- Open issues
- Post-condition
- Business rules
- Implementation constraints and specifications
- Assumptions
- Trigger

Explain the meaning of each one.

6

4.2 Wanneer 'n gebruiksgevalnarratief gedokumenteer word, word 'n spesifieke gebruiksgeval se tipiese verloop van gebeure beskryf. 'n Itemlys wat in 'n tipiese verloop van gebeure aangespreek kan word, sluit in:

- Oop kwessie
- Navereiste
- Besigheidsreëls
- Implementeringsbeperkings en –spesifikasies
- Aannames
- Sneller

Verduidelik die betekenis van elkeen.

Question | Vraag 5 [DATA & PROCESS MODELLING | DATA- & PROSESMODELLERING] [25]

The following is a description of a system idea one of your group members came up with:

Die volgende is 'n beskrywing van 'n stelselidee waarmee een van jou groeplede vorendag gekom het:

The purpose of the proposed system is to allow people to order a variety of foods from various local fast food restaurants through a single company which will pick up and deliver these orders to their door. The customers will be able to receive up-to-date information on their orders throughout the whole process via an app on their cell phones. The app is called Chow.

Anticipated base tables:

- CUSTOMER has attributes customer#, name, surname, contact#, address
- STAFF has attributes staff#, name, surname, contact#
- RESTAURANT has attributes restaurant#, name of restaurant, contact#, address
- RESTAURANT_MENU has attributes item#, item description, price, ingredient list
- ORDER has attributes order#, items ordered, status (no price is stored – it will be calculated)
- STATUS has attributes status#, status line

The following business rules apply:

A CUSTOMER may place one or many ORDERS, while an ORDER is placed by one and only one CUSTOMER.

An ORDER may include items from more than one RESTAURANT and a RESTAURANT may provide more than one item per ORDER.

A RESTAURANT has one and only one MENU and a MENU may have many items selected to be delivered through CHOW.

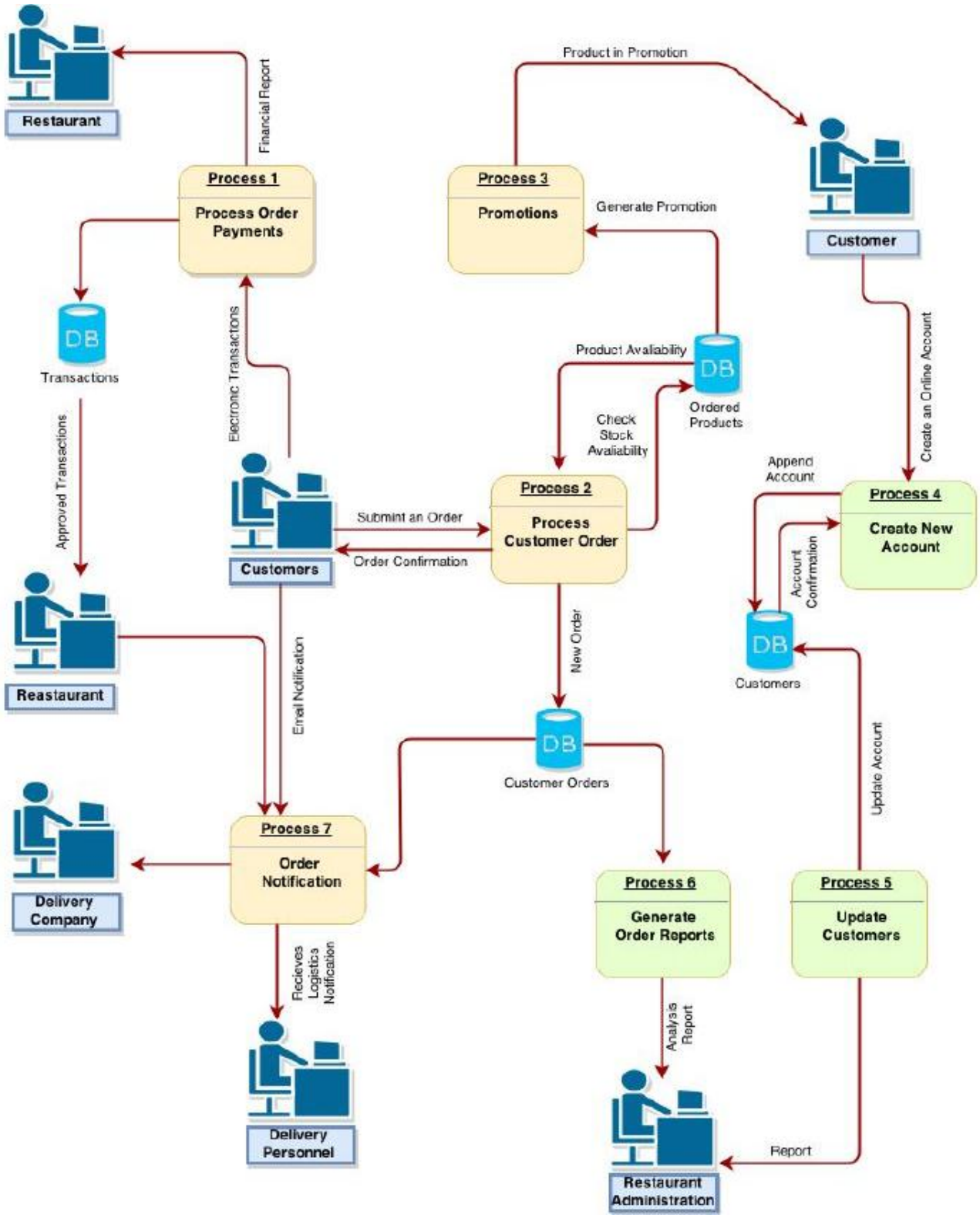
The STATUS is according to predetermined options and may be set by STAFF (delivery or administrative).

A STAFF member may take or deliver many ORDERS, while a particular order is delivered by one STAFF member.

5.1 **Draw the fully attributed ERD** for the case described above.	**10**	5.1 **Teken die volledige-atttribuut EVD** vir die geval hierbo beskryf.

The project's analysts have drawn the Chow system DFD, which is shown below.

Die projek se ontleders het die Chow steslel DVD, wat hieronder gewys word, geteken.



5.2.1 Keep in mind that you used Gane & Sarson's shape convention to draw DFDs (as prescribed by your text book). Indicate 3 *types of mistakes* made by the analysis team by **naming the type of the mistake, indicating an example, and explaining how to correct it**.	9	5.2.1 Hou in gedagte dat jy Gane & Sarson se vormkonvensie gebruik het om DVDe te teken (soos deur jou handboek voorgeskryf). Dui 3 tipe foute wat deur die ontledingspan gemaak is aan deur **die tipe fout te noem, 'n voorbeeld aan te dui, en te verduidelik hoe om dit reg te maak**.
5.2.2 **Draw a context diagram** of the proposed Chow app.	6	5.2.2 **Teken 'n konteksdiagram** van die voorgestelde Chow toep.

Question | Vraag 6 [FEASIBILITY ANALYSIS & THE SYSTEM PROPOSAL | UITVOERBAARHEIDSONTLEDING & DIE STELSELVOORSTEL] [18]

6.1.1 State the **formula** you will use to do **return-on-investment analysis**. **2**

6.1.1 Verskaf die **formule** wat jy sal gebruik om **opbrengs-op-beleggingontleding** te doen.

For a system Tshepo is analysing and designing, **three candidate solutions** have been identified. Their estimated lifetime benefits and estimated lifetime costs are shown below. All have been time-adjusted over the projected five-year lifetime of each alternative.

Drie kandidaatoplossings is vir 'n stelsel wat Tshepo ontleed en ontwerp, geïdentifiseer. Hul geskatte lewensduur voordele en kostes word hieronder getoon. Almal is aangepas vir die tydsverloop van 'n geprojekteerde vyfjaar lewensduur van elke alternatief.

Solution	Estimated Lifetime Benefits	Estimated Lifetime Costs
Candidate Solution #1:	R640,000	R372,000
Candidate Solution #2:	R640,000	R360,000
Candidate Solution #3:	R640,000	R385,000

6.1.2 According to **return-on-investment analysis**, which candidate solution offers the **highest ROI**? If the company sets a minimum lifetime ROI of 80%, which of these solutions is/are **economically feasible**? **7**

Show all calculations.

6.1.2 Volgens opbrengs-op-beleggingontleding, watter kandidaatoplossing bied die **hoogste OOB**? Indien die maatskappy 'n minimum lewensduur OOB van 80% stel, watter van die oplossings is **ekonomies haalbaar**?

Wys alle berekenings.

6.1.3 The percentages you obtained in question 6.1.2 are not annual percentages. **State the formula to calculate the annual ROI percentages** and **calculate it** for the three candidates. **3**

6.1.3 Die persentasies verkry uit vraag 6.1.2 is nie jaarlikse persentasies nie. **Gee die formule om die jaarlikse OOB persentasies te bereken** en **doen die berekeninge** vir die drie kandidate.

6.2 List at least 6 things Tshepo should *not* do when he is doing a **formal presentation** of this project system proposal to his team's system owners. The intention is that the presentation should be **informative, persuasive and well-received**. Each item listed should be listed as a sentence. **6**

6.2 Lys ten minste 6 dinge wat Tshepo *nie* moet doen wanneer hy 'n **formele voorlegging** van hierdie projekstelselvoorstel aan sy span se stelsel eienaars doen. Die bedoeling is dat die voorlegging **leersaam, oortuigend en goed ontvang** moet wees. Elke item moet as 'n sin uiteengesit word.