DESIGN: PAPER I

MARKING GUIDELINES

Time: 3 hours   150 marks

These marking guidelines are prepared for use by examiners and sub-examiners, all of whom are required to attend a standardisation meeting to ensure that the guidelines are consistently interpreted and applied in the marking of candidates' scripts.

The IEB will not enter into any discussions or correspondence about any marking guidelines. It is acknowledged that there may be different views about some matters of emphasis or detail in the guidelines. It is also recognised that, without the benefit of attendance at a standardisation meeting, there may be different interpretations of the application of the marking guidelines.

INSTRUCTIONS TO MARKERS

- Please mark clearly in RED pen. The Moderator will mark in GREEN.
- Place a tick **above each substantiated fact** (not in the margin). This will enable the Moderator to standardise effectively.
- Please indicate **marks per sub-question as an <u>underlined number</u>** in the right hand margin at the end of each sub-question.
- Indicate **total marks PER QUESTION** at the **end of the question** as a **circled total**.
- Where a script has been marked, but the information is either irrelevant/does not answer the question OR is over and above information required, please indicate that marking has occurred in the margin as a squiggled line. This is to prevent remarking of scripts – if a page is left totally blank, the checkers will presume it has not been marked.
- Enter marks/question/candidate on the data capture form prepared by the Examiner. No candidate numbers are to be recorded, only the marks.
- Please record relevant comments per centre as to specific problems/credits encountered PER CENTRE so as to enable constructive feedback to the centres.

SECTION A   DESIGN LITERACY

QUESTION 1   THE DESIGN PROCESS

Question 1.1 (2 marks)

QUESTION TYPE/COGNITIVE SKILLS: Analysis (1 mark), Synthesis (1 mark)

LEVEL: Middle (1), Higher (1)

The answer should clearly state exactly which model of the design process has been selected. Candidates can select any of the four models shown as they could all be used to effect a transdisciplinary design process. The selection of models may vary, dependant on the justification presented. All valid and reasonable justifications should be accepted. The substantiation should refer to the enabling of a cross-disciplinary and collaborative process. TWO justifications for the selection should be mentioned.

One mark to be awarded per valid substantiated point.

For instance – The model X would best suit because it involves considerations from multiple sources across multidisciplines.
The model suggests an ongoing dynamic collaboration between the product, user and contextual environment.

Total possible marks -2

Question 1.2 (2 marks)

QUESTION TYPE/COGNITIVE SKILLS: Knowledge (1 mark), Application (1 mark)

LEVEL: Lower (1), Middle (1)

Answers to this question should clearly indicate an understanding that a constraint is a **limiting factor** in a design solution. Candidates should also communicate an understanding of the complexities inherent in a collaborative design model.

One mark to be awarded for any **substantiated valid** listing of a **possible constraint** that a collaborative or trans-design process might present to designers.

Possible constraints might be:
- That design solutions might take **much longer** to be effected, since more designers/ consideration are involved.
- The **project management** of a solution will have to be under clear direction.
- Often, working across continents, **global communication networks** are used as the platform for collaboration. If technology goes down, for whatever reason, the channels of communication are compromised.
- The various collaborators will need to agree on which **communication platform** they will use to communicate.
- Clear **roles** need to be defined, as do **timeframes**, by all collaborators.

Total possible marks -2

Question 1.3 (1 mark)

QUESTION TYPE/COGNITIVE SKILLS: Analysis (1 mark)

LEVEL: Higher (1)

One mark to be awarded for any **substantiated valid discussion point**. Use the following as guidelines.

Because we live in a globalized world, digital media enable us to converse **instantly** over **long distances** via Skype, etc. Furthermore **virtual reality software** like Rhino, 3-D Studio enable us to **experience design solutions** before they are actually realized. The **production process** is also becoming increasingly digitized with 3-d printing, laser cutting and other forms of CAD/CAM.

Total possible marks -1

ANALYSIS QUESTION 1 TOTAL

	COGNITIVE SKILLS			MARKS
	Lower : Knowledge recall	**Middle: Application**	**Higher: Analysis/Synthesis/ Evaluation**	
1.1		1	1	2
1.2	1	1		2
1.3			1	1
TOTAL	1	2	2	5
WEIGHTING	20%	40%	40%	

QUESTION 2   DESIGN COMMUNICATION

Question 2.1.1 (1 mark)

QUESTION TYPE/COGNITIVE SKILLS: Analysis (1 mark)

LEVEL: Higher (1)

The answer to this question should convey the understanding that the graphic illustration represents the idea that mining builds nations through education, farming, culture etc.

Total possible marks -1

Question 2.1.2 (2 marks)

QUESTION TYPE/COGNITIVE SKILLS: Analysis (2 marks)

LEVEL: Higher (2)

One mark to be awarded for the correct identification of any of the following symbols **and** what they communicate. Both the image must be identified and an approximate meaning identified.

Use the following as guidelines:

Hand writing = education, learning, literacy
Clay pot = culture
Cross = medicine, hospitals
Mielie = farming food
Houses = shelter
Birds = freedom

Total possible marks -2

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Question 2.2.1 (2 marks)

QUESTION TYPE/COGNITIVE SKILLS: Analysis (2 marks)

LEVEL: **Higher (2)**

</div>

Marks to be awarded for identifying any valid and reasonable interpretations of the gender stereotyping. Only one convincing relevant statement per image is necessary.

Use the following as guidelines.
- Men are shown as being sporty and indulging in extreme sport, playing games with their mates that are dangerous and irresponsible.
- Women are depicted as pretty, concerned with their appearance attending parties, manipulative and playing psychological games.

Total possible marks -2

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Question 2.2.2 (2 marks)

QUESTION TYPE/COGNITIVE SKILLS: Analysis (2 marks)

LEVEL: **Higher (2)**

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One mark per valid stylistic analysis to be awarded. Marks to be awarded for any credible explanation that is based on the following:

- The male advert uses a photographic medium in local colour, presenting the scene in a factual way, involving no apparent styling. Implication is that the scene represents fact.
- The female advert is rendered in a stylised illustrative technique suggesting fantasy and illusion. The colours used are tints and tones of pink with a harmonious chocolate brown shade for dramatic effect. Implication is that women live in a fairytale.

Total possible marks -2

ANALYSIS QUESTION 2 TOTAL				
a	**COGNITIVE SKILLS**			**MARKS**
	Lower: Knowledge recall	**Middle: Application**	**Higher: Analysis/Synthesis/ Evaluation**	
2.1.1			1	1
2.2.2	2			2
2.2.1			2	2
2.2.2			2	2
TOTAL	2		5	7
WEIGHTING	28%		72%	

QUESTION 3   VISUAL ANALYSIS

Question 3 (8 marks)

QUESTION TYPE/COGNITIVE SKILLS: Application (4 marks), Analysis (4 marks)

LEVEL: Middle (4), Higher (4)

This question requires that candidates analyse one of the products using the headings provided. The analysis must convey a clear sense that the candidate understands visual analysis. There cannot be any confusion between terms.

The use of design vocabulary is important in the answers to this question and a suitable level of design-speak should be evidenced in the answer. However, it is important that allowance be made for some variation in the analysis of the images.

One mark to be awarded per substantiated observation/analysis for each image. TWO marks total per heading.

Use the following as a guideline; allowing credit for any other credible observations, analysis and interpretations.

Nicola de Jager – Calavera Jesus-Ernesto embroidered skull

Line: The use of line is primarily as an outline and defined as a consequence of the embroidery technique. The line is decorative and controlled, rendering the shapes in a simplified and stylised way. The line is of a solid colour of thread, although certain lines appear slightly thicker, made with a greater thread count embroidery yarn.

Colour: The colours used are saturated and follow a triadic colour scheme.

Rhythm: Rhythm is created through the repetition of floral motifs and circular shapes.

Contrast: Contrast is created by the juxtaposition of saturated colour in the eyes and areas of pattern with areas of flat felt.

Peet Pienaar Peet Pienaar – Bruce Lee fanzine for MK

Line: line is solid and bold creating outline and decorative patterns of concentric radial and linear motifs.

Colour: The colours used are degraded tints of red, blue and yellow and follow a triadic colour scheme. There is a strong use of juxtaposing saturated colours for emphasis of the sponsor's logos.

Rhythm: rhythm is created through the repetition of linear patterns in a radial structure.

Contrast: there is a strong sense of tonal contrast and contrast between circular and rectilinear design elements. There is also contrast between masculine elements (blues and the gun) and female elements (pinks and flowers).

Hella Jongerius – Turtle Coffee table 2009, limited edition of eight numbered and signed ceramic pieces called Natura Design Magistra

Line: line is created by the horizontal layering of glazes to simulate natural granite and by the sharp geometric circular shape of the table and bowl.

Colour: the vibrant, acidic yellow is in a harmonious analogous relationship with the neutral browns.

Rhythm: rhythm is set up by the alternating layers of geometric circles and organic turtle form and by the horizontal progression of the neutral browns in the turtle.

Contrast: there is a contrast between organic and geometric forms and between flat acidic yellow colour and patterned areas.

Laboratory for Explorative Architecture & Design: Golden Moon Public Event Space 2012 Hong Kong

Line: line is created by the edges of the petal-like framework structures and by the sharp edges of each shape.
Colour: the gradation of yellows and oranges create an asian cultural identity and also create a warm atmosphere appropriate to the public events held there.
Rhythm: rhythm is created with the repetition of structural leaves in a spiralling structure.
Contrast: the contrast between solid and void describes the structural shape, and the reflection of the structure in its surrounding water location sets up a contrast.

Total possible marks - 8

ANALYSIS QUESTION 3 TOTAL				
	COGNITIVE SKILLS			MARKS
	Lower : Knowledge recall	**Middle: Application**	**Higher: Analysis/Synthesis/ Evaluation**	
3		4	4	8
TOTAL				
WEIGHTING		50%	50%	

QUESTION 4   TERMINOLOGY

Question 4 (8 marks)

QUESTION TYPE/COGNITIVE SKILLS: Knowledge (5 marks) Application (5 marks)

LEVEL: Lower (5), Middle (5)

The answers given by candidates to these definitions MUST be **framed within a design context** specifically. One mark is to be awarded per relevant point made in the definition, and another mark for the design exemplar. Any credible design examples must be awarded a mark. A maximum of two marks to be awarded per correct answer.

4.1   Haute Couture   (2)

French for 'high sewing' or 'high dressmaking' 'high fashion'/creation of exclusive custom-fitted <u>clothing</u>. *Haute couture* is fashion that is constructed by hand (without the use of sewing machines and sergers/overlockers) from start to finish, made from high quality, expensive, often unusual fabric and sewn with extreme attention to detail and finished by the most experienced and capable seamstresses, often using time-consuming, hand-executed techniques. Examples are Vivienne Westwood's grey jewel spider bow jacket – Vivienne Westwood – spring 2013.

4.2   D4S   (2)

D4S is design that meets the needs of the present generation without compromising that of future generations. It recognises the complex relationship between social, cultural, business and environmental contexts. D4S is attempting to link *environmental issues with the social and economic* factors related to quality of life and adopts a cyclical/closed loop production. Examples are any design that uses a cradle to cradle production model like Yves Behar's Clever Little Bag for Puma that uses recycled materials.

4.3   Bioplastics   (2)

Plastics derived from renewable biomass sources, such as vegetable oil or corn starch. Bioplastics are used in the creation of many modern products like tractors, water bottles, and takeaway cutlery. Examples are Tom Dixon's Ecoware, or Wasara tableware.

4.4   Critical Design   (2)

A critical design will often challenge its audience's preconceptions and expectations thereby provoking new ways of thinking about the object, its use, and the surrounding environment. Critical Designers generally believe design that provokes, inspires, makes us think, and questions fundamental assumptions can make a valuable contribution to debates about the role technology plays in everyday life. E.g. Benetton's print campaigns.

4.5   Ergonomics and Anthropometrics   (2)

Ergonomics, also known as human factors engineering, deals with the interface of humans and the designed environment. It is a multidisciplinary field devoted to optimizing human performance and reducing human error by designing grips, seating, comfort, counteracting repetitive strain injuries while ensuring comfort and efficiency. It incorporates the methods and principles of the behavioural and social sciences, engineering, and physiology. Anthropometrics involves the systematic

collection and correlation of measurements of the human body; pioneered by Henry Dreyfuss.

4.6   Heritage and conservation   (2)
        Conservation refers to the preservation of something that is valued. Heritage refers to objects and qualities such as cultural traditions, unspoiled countryside, and historic buildings that have been passed down from previous generations. An example of heritage and conservation could be Haldane Martin's Zulu Mama chair in that it preserves skill of Zulu weaving.

4.7   Urban acupuncture   (2)
        Urban acupuncture is a socio-environmental theory that combines contemporary urban design with the concept of traditional Chinese acupuncture by using small-scale interventions to transform the larger urban context. Sites are selected through analysis of aggregate social, economic and ecological factors, and are developed through a dialogue between designers and the community. Just as the practice of acupuncture is aimed at relieving stress in the human body, the goal of urban acupuncture is to relieve stress in the built environment. Urban acupuncture is intended to produce small-scale but socially catalytic interventions in the urban fabric. Examples could be Makeka's Cape Town Station.

4.8   Fair trade   (2)
        The Fair Trade Movement promotes a trading system that eliminates the middleman. It is a trading partnership promoting equitable trade in today's global marketplace. It is an alternative system of international trade in which workers receive living wages and employment opportunities for the goods they produce, instead of being exploited by multinational corporations. The Fair Trade producers partner with international organizations that help them build their skills to market and sell goods such as crafts, and agricultural products such as coffee and chocolate. For commodities, farmers receive a stable, minimum price. Examples could be Crop to Cup coffee range.

4.9   Guerrilla marketing   (2)
        A low-cost advertising strategy using innovative and unconventional ways of promoting a brand, idea or product for example sticker bombing, flash mobs or graffiti. Guerilla marketing is an advertising strategy using low-cost surprise or atypical tactics to promote an unconventional interaction with a product or idea. The concept of guerrilla marketing was invented as an unconventional system of promotions that relies on time, energy and imagination rather than a big marketing budget. It includes graffiti, sticker bombing, flash mobs, street giveaways of products, PR stunts, or any unconventional marketing intended to get maximum results from minimal resources. Examples are world cup flashmobbing.

4.10   Consumerism   (2)
        The attachment to materialistic values or possessions. The theory that a progressively greater consumption of goods is economically beneficial; seeking to protect and inform consumers by requiring such practices as honest packaging and advertising, product guarantees, and improved safety standards.
        Consumerism is a social and economic order that encourages the purchase of goods and services in ever-greater amounts. The term is often associated with criticisms of consumption and the negative effects of globalization. In this sense, consumerism is usually considered a part of media culture.

However, the term 'consumerism' is also used to refer to the consumerists movement, consumer protection or consumer activism, which seeks to protect and inform consumers by requiring such practices as honest packaging and advertising, product guarantees, and improved safety standards. In this sense it is a movement or a set of policies aimed at regulating the products, services, methods, and standards of manufacturers, sellers, and advertisers in the interests of the buyer.

$(2 \times 5 = 10)$ **[10]**

ANALYSIS QUESTION 4 TOTAL				
	COGNITIVE SKILLS			**MARKS**
	Lower : Knowledge recall	**Middle: Application**	**Higher: Analysis/Synthesis/ Evaluation**	
4	5	5		10
TOTAL				
WEIGHTING	50%	50%		

30 marks

SECTION B   DESIGN IN CONTEXT – HISTORICAL   30 marks

QUESTION 5

Question 5 (30 marks)
QUESTION TYPE/COGNITIVE SKILLS: Knowledge (10 facts & 3 terminology – 13 marks), Comprehension (context – 1 mark), Application (structure 2 & context 1 – 3 marks), Analysis (10 analysis – 10 marks) Synthesis (2 context – 2 marks) Evaluation (1 context – 1 mark)
LEVEL: Lower (14), Middle (3), Higher (13)

Analysis Question 5		
Q5	**WEIGHTING %**	**MARKS**
Higher order	43 %	13
Middle order	17 %	5
Lower order	40 %	12
	100%	30

This question is compulsory.

Marks awarded in this section must be clearly indicated and labelled according to the marking grid outlined in the examination paper.

Structure	Logical flow of intro, body, conclusion	3
Context	Appropriate contextual relevance to the answer	5
Facts	Depth of factual discussion and reference to designers and works that are pertinent to the answer	7
Analysis	Detailed discussion of strategic works	10
Terminology	Relevant use and level of 'design-speak'	5
	Total marks 30	

Assessment of the essays should take into account the following breakdown:

Section of essay	Marks	Criteria	Cognitive skills	Level	Marks
Structure	3	Introduction, body and conclusion	Application	Middle order	3
Context	5	Understanding of contextual background to the question	Application Synthesis Evaluation	Middle order Higher order Higher order	2 2 1
Facts	7	Depth of discussion, body of works, accuracy of information	Knowledge	Lower order	7
Visual analysis	10	Visual analysis, discussion of actual works	Analysis	Higher order	10
Terminology	5	Design –speak, terminology	Knowledge	Lower order	5
	30				30

MARKING PROCEDURE

- The marker should read through the essay, ticking relevant facts/terms/points.
- Markers should be very clear in their marking of the essays and should place their ticks **DIRECTLY ABOVE/ON the fact/term/concept being awarded** the mark and NOT in the margin. In this way, moderation can be accurate.
- Thereafter, each tick given must be categorised by writing an S for structure, C for context, F for facts, A for analysis and T for terminology next to the relevant tick. Use the detailed explanation that follows.
- The totals for S, C, F, V and T should be clearly noted at the end of the essay.
- It is possible that an essay has ONLY facts, but no context. This will result in a number of F ticks that amount to more than the maximum of 10 marks. This should be shown in the question total at the end of the essay as follows: If a candidate gets 13 ticks for Facts, write 13 – 3 (10)

Follow the detailed marking guideline that follows:

	Label	Criteria	Max marks
Structure	**S**	**Maximum of 2 marks to be awarded.** **Response – 1 mark** ONE STRUCTURE MARK to be awarded for an appropriate **introduction** appropriate and relevant **conclusion,** clearly responding to/addressing the issues being asked in the question. Students cannot merely write a rehearsed essay on a movement. If the introduction does NOT CLEARLY address the specific question, no mark is to be awarded. **Length – 1 mark** ONE STRUCTURE MARK for an adequate **length** essay, of at least 250 words. The argument/discourse should flow logically and should be written in full, logical sentences with no point-form listing of facts or headings, unless the question specifically asks for them. If the essay is under a page, no mark to be awarded. Conclusion – 1 mark – adequate and relevant conclusion.	**3**
Context	**C**	**Maximum of 5 marks to be awarded.** ONE CONTEXT MARK should be awarded for **each relevant contextual** factor **informed by the specific question.** These factors can relate to the **relevant** political, social, cultural, economic and environmental circumstances that impacted on the designed products. However, reference to the biographical details of designers are mostly irrelevant, unless they apply to the designs themselves or to the specific question. Any extraneous context factors outside the reference of the question should be ignored.	**5**
Facts	**F**	**Maximum of 10 marks to be awarded.** ONE FACTUAL MARK should be awarded for **each** relevant and correctly spelt **designer** (the first time the designer's name is mentioned, not subsequent naming). ONE FACTUAL MARK for **each** relevant and correctly spelt **design work** that is an appropriate example to substantiate the answer. Marks should be awarded for a maximum of 3 designers/3 works each to avoid listing. If other works are discussed in detail, marks should be awarded under Analysis for the discussion, but not for the name of the work. ONE FACTUAL MARK should be awarded for **each** relevant and correct **date/fact** regarding the design works. Any extraneous facts outside the reference of the question should be ignored	**7**
Analysis	**A**	**Maximum of 10 marks to be awarded.** ONE ANALYSIS MARK should be awarded for **each** relevant and correct description and analysis of a design work using the elements and principles. No marks should be awarded for invalidated value judgements.	**10**

		Maximum of 3 marks to be awarded. ONE TERMINOLOGY MARK should be awarded for **each** relevant and correct term used/relevant use and level of 'design-speak' The use of correct design terms, language and references will be an indicator of the quality of the answers.	
Terminology	**T**		**5**

Because of the vast breadth of this question, works from any significant designers from the latter half of the 20th century, 1960+ should be allowed in the essay. However, the emphasis of the essay MUST be on the **evolution and use of technology** and this should form the focus of the essay. The definition of 'technology' can be open to interpretation and need not be consistent throughout the essay. For instance, candidates can answer on plastic development, aluminium and steel cabling and then move onto digital technologies.

The selection of designers should be appropriate to the exploration of technology and the works discussed should reinforce that specific perspective. Marks should be awarded at one mark per substantiated fact, backed up with reference and discussion of the impact and evolution of technology. Discretion is required in the marking to allow for personal interpretation (to some extent).

Use the rubrics suggested at the beginning of this section for marking the essay.

Use the following as a guideline:

One of the most significant consequences of World War II was the meteoric rise in technological advancements as a result of military investments. This became manifest in the Space Race of the late 50s and 60s and led to extraordinary developments in materials technologies, specifically plastics and light-weight metals. Subsequently, design movements like Pop-Luxe and Googie, Hi-Tech and more recently, Deconstructivism, have shown evidence of the exponential rise of technological advancements.

In the 1960s the influence of the Space Race was a prominent influence in design works. From the elevated space-ship inspired **Seattle Space Needle by Edward Carlson** and the parabolic arches of **Langenheim's LAX Theme Building**, to **Oscar Niemeyer's Brazilia Cathedral**, concrete enjoyed great favour as it developed from ferroconcrete into lighter gasbeton. The use of cast concrete allowed architectural shapes to become much more fluid, organic and large scale, as explored in Niemeyer's design of **Brazilia**.

However, it was the development of plastic and plastic-related products like polyurethane, polyethylene, nylons, rubber, fibreglass, that revolutionised design production. The introduction of PVC in the mid-1960s was particularly suited to the Pop Culture. With PVC new inflatable chairs, sofas, pillows appeared, even tables and lighting. The **'Blow Chair'** (a blow-up lounge chair) by **d'Urbino, Lomazzi and de Pas** was cheap and could be discarded once popped. It parodied the idea of a solid, durable armchair by using see-through plastic. 'Techno-chic' made sculptural use of plastics. The chair is composed of simple inflated cylinders of PVC. This was used by the teen culture. Products were mass produced. Quality was not important, but quantity. Bright colours and kitschy themes encouraged designers to expand furniture's possible playfulness.

Verner Panton was one of the most prominent Pop-Luxe designers, creating the **S-chair**, the first mass-produced injection-moulded chair. The chair was produced using high quality ABS plastic in bright saturated colours. The organic sensuous form was

ergonomically designed, the double-curved form reflecting the hallucinogenic rhythms of the psychedelic movement. Panton's **Moon-lamp** and **Pantower** became highly successful commercial products.

Joe Columbo also worked with a wide range of plastics like his stackable **Universal chair**, and later he took self-assembly a step further in the **Tube chair** (1969) composed of four ready-made hollow plastic cylinders, padded with polyurethane and upholstered with synthetic knit.

Later, the development of plastics evolved into the use of laminates like formica during Anti-Design and Memphis. **Ettore Sotsass** experimented with unconventional materials, historic forms, kitsch motifs and gaudy colours. His furniture made for Poltronova was made from flashy coloured plastic laminates emblazoned with kitsch geometric and leopard-skin patterns usually found in comic books and cheap cafes. Later, this treatment was extended into the **Carlton Cabinet** and **Beverley sideboard**. Later, the plastic faux surface treatments of PoMo and the consumer products of the 80s eventually evolved into new biodegradable plastics and smart plastics.

High-tech architecture, also known as Late Modernism or Structural Expressionism, is an architectural style that emerged in the 1970s, incorporating elements of high-tech industry and technology into building design.

The Hi-Tech movement grew out of a climate of technological advancement in the 1970s, as a result of developments in the aerospace and manufacturing industries. This reflected a renewed belief in the power of technology to improve the world and the style emerged as a utilitarianism that countered the excesses of the Pop era. The style was initially named by two design journalists, in the book 'High-Tech: The Industrial Style and Source Book for the Home' describing an emerging trend in interior and architectural design. Photographs documented how designers and architects were applying industrial materials and characteristics to products and structures.

High-tech architecture celebrated and incorporated elements of high-tech industry and technology into building design. **Richard Rogers and Renzo Piano's Centre Pompidou** in Paris is a radical design of an inner city cultural centre, which takes the form of a 7-story glass rectangle forming a superstructure, supported by a metal framework of steel girders and tie-beams anchored on cross-bars. This space frame exoskeleton has an industrial appearance resembling a prefabricated mecano-like structure. A vast internal space is freed up by placing the stairs and escalators between floors in a large plexiglass tube on the outside of the structure. The extensive glazing shows the outside world the activity going on inside this cultural centre. This building highlights one of the aims of high-tech architecture, to boast the technical elements of the building by externalizing them. Colour-coded ducts are attached to the outside of the building: blue for air; green for fluids; yellow for electricity cables; and red for movement and flow (elevators) and safety (fire extinguishers). The technical aspects create the building's aesthetic.

The style could be seen in many architectural structures, all of which accentuated and externalized the building's technical and functional components, and used an orderly arrangement of pre-fabricated elements. **Richard Rodgers' Lloyd's bank Building** in London makes use of stainless steel sheeting and exposed pipes to create a 'nuts-and-bolts' aesthetic. **Norman Foster**, in his **Hong Kong and Shanghai bank** building uses a suspension technology and a skeleton of triangulated components.

These interior detailing of these architectural structures were fitted with furniture and fittings that used factory-produced industrial materials to create minimalist, linear forms - metal cladding, chemical glass, metal deck plate, restaurant supply fittings, factory and airport runway light fixtures, movers' quilts, industrial carpeting etc. Technological instruments also became a common sight for people at the time because of the use of ramps, video screens, headphones, and bare scaffolds.

In terms of product design, **Dieter Rams** took the introduction of the microchip and housed it in pocket calculators, like his **ET 66 for Braun**, that used a minimalist, functionalist and rationalist aesthetic. At this time, word processors, videogames and other electronic devices were being developed by Microsoft and Apple. This industry has continued to grow enormously over the past 50 years. From the 1990s, **Jonathan Ives** would collaborate with Steve Jobs to revolutionise the electronic and digital products produced by Apple, making it the top international brand in 2012 with the **i-Phone**, **i-Pad** and myriad other products.

While technology has catapulted design into new realms, the new technologies of smart materials, digital platforms and 3-d printing will no doubt see design developing even more in the years to come.

SECTION C   DESIGN IN CONTEXT (CONTEMPORARY)   40 marks

Answer TWO QUESTIONS from this section. You may include drawings and mind maps to support your answers.

You may not repeat the same information in different answers!

QUESTION 6   DESIGN IN A CULTURAL CONTEXT

Question 6.1 (2 marks)

QUESTION TYPE/COGNITIVE SKILLS: Application (2 marks)

LEVEL: Middle (1)

The answer to this question should clearly define the role that design plays and substantiate with an example of how this is done. One mark to be awarded for the definition and another mark for the example. A maximum of two marks to be awarded for any credible description.

Use the following as a guideline:
Design gives physical manifestation to cultural identity by using the design elements to communicate stories, beliefs, values, ideas and experiences in visual forms. Culture is manifest through architectural forms, dress, patterns and of course, visual documents, books, illustrations, magazines etc.

Question 6.2 (4 marks)

QUESTION TYPE/COGNITIVE SKILLS: Knowledge (1 mark), Comprehension (1 mark)

Application (1 mark), Analysis (1 mark)

LEVEL: Lower (2), Middle (1), Higher (1)

In this answer, the candidate should clearly explain the term cultural hybridity by making reference to an appropriate design example.
One mark to be awarded for the correct definition,
One mark for the title of an appropriate design example. (Candidates may mention more than one example, but must describe the work.)
Two (or one) marks for the description and explanation of the design example/s.

Use the following as a guideline:

Cultural hybridity refers to the cultural manifestation of societies that have intermingled the cultural contact of European 'explorers' and those 'explored', to create an intermingled culture, a third identity. Many theorists see hybridity as a cultural effect of globalization and in the extreme form, it appears as the **global village**.

Marianne Fassler's design, reflects a cultural hybridity, as Fassler combines a westernized style of pattern-making with indigenous prints and bright African colour combinations. In a similar way, Sun Goddess's designs also combine elements of traditional Xhosa garments into an evening wear ensemble.

> **Question 6.3 (4 marks)**
>
> **QUESTION TYPE/COGNITIVE SKILLS: Knowledge (1 mark), Comprehension (1 mark), Application (1 mark), Analysis (1 mark)**
>
> **LEVEL: Lower (2), Middle (1) Higher (1)**

The answer should clearly explain the difference between these two terms, despite them being closely linked. One mark to be awarded for each of the correct definitions, one mark each for an appropriate design example.

Use the following as a guideline:

Vernacular refers to the standard native language/visual language of a country or locality. The term refers to a language, be it spoken or visual, that represents a certain culture. It can include specific terms, slang, or patterns, colours, use of images/forms. Relating to or expressed in the native language or dialect. Of or being an indigenous building style using local materials and traditional methods of construction and ornament, especially as distinguished from academic or historical architectural styles.

Indigenous craft production refers to traditional craft methods of creating product, including techniques like weaving, knitting, crocheting, pottery, beadwork, quilting and so on.

A design group like Ardmore uses both indigenous methods of creating ceramic products by using hand coiling and sculptural techniques with a vernacular style of painting animals in a stylised manner, as seen in the Elephant Tureen by Ntshalintshali. The Zulu Mama chair by Haldane Martin also uses a vernacular language of open, flat seating using traditional production techniques of weaving.

Other examples could refer to Garth Walker, Peet Pienaar, Mielie, Monkeybiz, Indalo etc.

> **Question 6.4 (10 marks)**
>
> **QUESTION TYPE/COGNITIVE SKILLS: Knowledge (4 marks), Comprehension (1 mark) Application (1 mark), Analysis (2 marks) Synthesis (2 marks)**
>
> **LEVEL: Lower (5), Middle (1), Higher (4)**

The answer to this question must be framed as a direct response to the question. Candidates must refer to at least ONE of the principles of global culture, homage and/or the social imaginary, accurately explaining the concept briefly and relating it very clearly to the works of an appropriate designer. Examples are the Campanas, Marcel Wanders, demarkersvan, Garth Walker, Porky Hefer, Tord Boontje or any other appropriate relevant designers/designs. Answers can refer to a wide range of case studies that were covered in the CAT tasks. Answers cannot be generic and based on general knowledge, but MUST be based on SPECIFIC designed products by SPECIFIC designers/design companies/ consultancies.

Candidates are required to discuss the work of ONE designer who responds to the principles. If more than one designer is discussed, the first designer mentioned should be marked.

concept explanation
names of 3 works
inspirations/description/explanation of 3 works
focused discussion of one work

Use the following information as an exemplar guideline:

Global culture relates to the shared norms and knowledge with which people associate their individual and collective cultural identities, and increasing interconnectedness among different populations and cultures.

Homage is a show or demonstration of respect or dedication to someone or something, sometimes by simple declaration but often by some more oblique reference, artistic or poetic.

Social imaginary is the body of images shared by a particular group that provide them with the same vision of reality and reflexive understanding of their world. It implies a selective filter through which people communicate and establish society.

Fernando and Humberto Campana, Brazilian Designers.
Suschi roll chair, Favela Chair, 1991, Vermelha chair.

The Campanas use inspiration from Brazilian street life and carnival culture, as they combine found objects – such as scraps of wood, fabric off-cuts or furry toys – with advanced technologies to create a vibrant, energetic and definitively Brazilian approach to design, reflecting a typical Brazilian social imaginary. The streets of São Paulo are the laboratory for their designs, the chaos and beauty of the city they live in.

Central to their practice is the importance of materials. Fernando and Humberto Campana transform mundane materials into objects that celebrate and pay homage to the discarded and are instilled with the spirit of contemporary Brazil (social imaginary) that embraces the need for responsible design practice in improving our environment. Their cues come from everyday scenarios and unexpected combinations of found materials – such as rubber hose, tissue paper, string or fabric. The challenge, as the Campanas see it, is to transform something poor into something decadent and opulent.
Their Sushi chair transforms strips of brightly coloured plastic and carpet underlay into decorative rolls which then 'upholster' a basic frame.

The material tradition of Brazil is based on craftsmanship and economy of means. By experimenting with high and low tech materials and using artisanal techniques, the Campanas are able to harness the energies of their inherited tradition while defining a new aesthetic based on experimentation and advanced technologies.
They have also created a fresh and surprising way of looking at things. By weaving the fabric of São Paulo into their objects, the brothers present a very personal portrait of their city. 'Our designs were born in the street, from the urban kitsch of the popular quarters and contact with nature,' they say. 'Whenever we can, we go back to our farm. Nature revitalises our ideas.

Example 1:
In the Vermelha chair, the brothers tie and weave an abundance of brilliantly coloured cord through a metal frame. The idea emerged when they bought a large bunch of rope from a street stall and brought it back to the studio. They placed it on a table and observed it

deconstructing before their eyes. They felt that it was a representation of Brazil in its beautiful chaos and deconstructiveness. First they used the material, then the form and finally they elaborate the function of the product by studying its ergonomics, limitations and capabilities.

Example 2:
In the Favela Chair, wood, 1991, they have created a truly unique, environmentally conscious chair by using discarded waste wood. Inspired by the haphazard and chaotically built shanty towns of Sao Paulo, the Campanas designed a chair using similar construction techniques i.e. Favela chair from scraps of wood they found on the streets. The result is an intricately fabricated chair, carefully assembled piece – by – piece using hundreds of recycled components. The end result means that this design does not impact on the ecology as trees do not have to be cut down for production. In this regard, discarded wood pieces are used in a creative way to create a sustainable design solution that also looks good. This process of transformation has injected a new energy into contemporary design by presenting a bold, vibrant alternative to the rationalist ideals of the long dominant European modern movement.

ANALYSIS QUESTION 6 TOTAL				
	COGNITIVE SKILLS			MARKS
	Lower : Knowledge recall	Middle: Application	Higher: Analysis/Synthesis/ Evaluation	
6.1		2		2
6.2	2	1	1	4
6.3	2	1	1	4
6.4	5	1	4	10
TOTAL	9	5	6	
WEIGHTING	45%	25%	30%	

QUESTION 7   DESIGN IN AN ENVIRONMENTAL CONTEXT

> **Question 7.1 (3 marks)**
>
> **QUESTION TYPE/COGNITIVE SKILLS: Knowledge (1 mark), Application (1 mark), Evaluation (1 mark)**
>
> **LEVEL: Lower (1), Middle (1), Higher (1)**

The answer to this question expects candidates to clearly describe three factors that designers should take into account when designing to influence the product life cycle (the stages through which a product goes from the introduction stage to the growth stage, the maturity stage and finally the decline stage) and lifecycle impact.

One mark to be awarded for any credible appropriate factor. Use the following points as a guideline.

Designers should
• insist that the conditions of harvesting/obtaining raw materials are sustainable, ensuring that the sources of materials are local, indigenous and certified by the FSC or another body so as not to impact the environment negatively

- ensure adequate research into ergonomics that products work to create a safe and non-toxic environment
- ensure that the manufacturing process is non-toxic, using alternative energy sources so as not to cause pollution
- ensure that the conditions of manufacture are fair, equitable to the labourers who could share in the profits (Fair Trade) conditions of labour are sustainable – payment, support, healthcare
- insist on the use of quality materials and quality control to create product that are durable and recyclable/use disassembly
- limit the use of unnecessary packaging materials.

Question 7.2 (3 marks)

QUESTION TYPE/COGNITIVE SKILLS: Knowledge (1 mark), Application (1 mark), Analysis (1 mark)

LEVEL: **Lower (1), Middle (1) Higher (1)**

In this answer, the candidate should clearly explain the term disassembly by making reference to an appropriate design example.

One mark to be awarded for the correct definition,
One mark for the title of an appropriate design example.
One marks for the description and explanation of the design example/s.

Use the following as a guideline:

Active Disassembly (AD) technology refers to the disassembling of products into separate components. It could be single or combinations of smart materials, adhesives, layers and parts. OLPC is designed for disassembly as it can easily be taken apart and components can be recycled easily.

Question 7.3 (4 marks)

QUESTION TYPE/COGNITIVE SKILLS: Knowledge (1 mark), Comprehension (1 mark), Analysis (2 marks)

LEVEL: **Lower (2), Higher (2)**

The answer should clearly explain the difference between these two terms, despite them being closely linked. One mark to be awarded for each of the correct definitions, one mark each for an appropriate design example.

Use the following as a guideline:

Hybridisation
In the Biological world it is to produce or cause to produce hybrids; crossbreed – therefore transferring it into Design, it will be to combine two different styles, functions with each other to create a new 'breed' of design product/style. Often, two or more functions are combined into one product.

Hybridisation is a new approach in design aimed at transferring logics, codes and complex qualities of biological systems to the design of sustainable products and services. Hybrid

design refers to technological transfer from fields with high scientific and technological content. It involves the incorporation of nature to compliment the development of designs. Growing design, or cloning design, and designing objects or building that fit like a glove, or inspirational usages of skeletal shapes, animal and natural skins, should be considered for the future of design.

Examples are Pascal Tarabay's Suspend Wall Clock, a sleek and pure wall clock design with a coat hanger hook. Volvo has also launched a new plug-in electric hybrid, the V60, that operates with electricity and petroleum.

Biomimicry

Biomimicry or biomimetics is the examination of nature, its models, systems, processes, and elements to emulate or take inspiration from in order to solve human problems. The term *biomimicry* and *biomimetics* come from the Greek words bios, meaning life, and mimesis, meaning to imitate. Other terms often used are bionics, bio-inspiration, and biognosis.

Examples of designs using biomimesis as a design strategy are: Dew Bank water bottle, based on the desert beetle. Kitae Pak designed the Dew Bank Bottle lately after being inspired by onymacris unguicularis, a beetle found in the Namibian desert. The beetle procures water in a unique way: it goes to the peak of the sand dune every morning, and uses its body to help in dew formation, making the dew enriched fog to provide enough water for drinking. The Dew Bank Bottle works in almost the same way as that beetle. Its steel body assimilates the morning dew, purifies the water and then stores it in the bottle. The Dew Bank Bottle won the Bronze Prize at the Idea Design Awards 2010.

<div align="center">**OR**</div>

Stickybot, at Stanford University, makes a foray onto similar terrain. Bristled toes grab and let go, and the bot's limbs mimic the gecko's own anatomy. But so far it moves at a relative snail's pace. Designers hope it may one day be used in search-and-rescue applications.

Question 7.4 (10 marks)

QUESTION TYPE/COGNITIVE SKILLS: Knowledge (4 marks), Comprehension (1 mark) Application (1 mark), Analysis (2 marks) Synthesis (2 marks)

LEVEL: **Lower (5), Middle (1), Higher (4)**

The discussion should be framed as a direct response to the question. Candidates must refer to at smart materials and new materials for technology. Answers can refer to a wide range of case studies that were covered in the CAT tasks. Answers cannot be generic and based on general knowledge, but MUST be based on SPECIFIC designed products by SPECIFIC designers/design companies/consultancies.

Candidates are required to discuss the work of ONE designer.

> concept explanation for smart materials and new production materials and how it relates to/is used by designer
> names of 3 works
> aims, influences and characteristics in discussion of 3 works
> focused discussion of one work

Use the following information as a guideline:

New materials technologies are developing innovative new ultra-efficient materials that are ultra-light, ultra-durable, such as a nickel-based 'super-alloy' that resists damage; for instance aerogel, an ultralight, ultra-dense material that is used to create fire-resistant clothing, bullet-proof vests etc.

Smart materials or designed materials are materials that have one or more properties that can be significantly changed in a controlled fashion by external stimuli, such as stress, temperature, moisture, pH, electric or magnetic fields. There are a number of types of smart material, some of which are already common. Some examples are as following:
Piezoelectric materials are materials that produce a voltage when stress is applied. Suitably designed structures made from these materials can therefore be made that bend, expand or contract when a voltage is applied.
Shape-memory alloys and shape-memory polymers are materials in which large deformation can be induced and recovered through temperature changes or stress changes (pseudoelasticity).
pH-sensitive polymers are materials that change in volume when the pH of the surrounding medium changes.
Halochromic materials are commonly used materials that change their colour as a result of changing acidity. One suggested application is for paints that can change colour to indicate corrosion in the metal underneath them.
Smart materials are materials that have one or more properties that can be significantly changed in a controlled fashion by external stimuli, such as stress, temperature, moisture, pH, electric or magnetic fields.
Smart materials respond to environmental stimuli with particular changes in some variables. For that reason they are often also called responsive materials. For example: self-healing materials.

New production technologies are increasingly using digital platforms to manufacture designs, like 3D printing, CNC milling and other CAM technologies.
Possible designers are:
• Iris van Herpen
• Thingking
• Ross Lovegrove
• Marc Newson, etc.

Iris van Herpen is a fashion designer who experiments with materials, techniques and technologies.
From early on, she has experimented with materials, and later on developed materials that approached her concepts the closest. Sculptural is a term much used to describe her work, and, indeed, the designs can function very well on their own as sculptures, as several exhibitions on her work have proven. Yet, the designs remain clothes they are not wearable sculptures, because there is another essential aspect to be taken into consideration: Van Herpen's love for the body in movement. The design is only realized in equal interaction with the body. Van Herpen's designs follow, complete, and change the body and the emotions that accompany it, when simultaneously the body adapts and adopts the new forms. Movement is key. It is of decisive importance for the ultimate design how a moving body reacts on a piece of clothing and, vice versa, how a piece of clothing behaves when worn.

Van Herpen's decision to explore the rapid prototyping technology of 3D printing allowed her to be the first to introduce this technology in fashion, and to create astonishing designs with it. Van Herpen became fascinated with the endless design potential of 3D printing. In recent collections she further developed her prints by adding detailed handwork. She collaborates with the Belgian company Materialise NV for the printing of her designs.

The 3D prints only added to that other much-heard term to describe Van Herpen's style: futuristic. Besides the use of new technologies, the term mostly refers to the appearance of her looks. What is very important to realize, though, is that her designs combine new technologies and diligent handwork. In fact, this is characteristic for all Van Herpen's collections. Exactly this combination of handwork and innovative technologies brings Van Herpen to her edgy designs. She equally values techniques from the past and techniques and technologies of the future, because they have their own power and beauty that, when rightly combined, can be enhanced instead of being substituted by one another.

Van Herpen's work has evolved through many different collections:

FRAGILE FUTURITY – July 2007, Amsterdam Fashion Week
Starting point for this collection was the fusion of animal instinct and human rationality.

REFINERY SMOKE – July 2008, Amsterdam Fashion Week
The ambiguous character of refinery smoke, both beautiful and poisonous, inspired this collection. Van Herpen translated the elusiveness of industrial smoke into specially woven metal gauze. She turned metal threads into an extremely soft and pliable material. The metal kept its characteristic of oxidation and Van Herpen considers this inherent chemical process as (visually) reflecting the dual aspect of industrial smoke.

MUMMIFICATION – January 2009, Amsterdam Fashion Week

RADIATION INVASION – September 2009, London Fashion Week
Radiation Invasion translates Iris van Herpen's question of what we could do with our daily (over)dose of electromagnetic waves and digital information streams if we could see them. In these designs the wearer seems to be surrounded by a whimsical complex of wavy rays, flickering patterns, vibrating particles, and reflecting pleats.

SYNESTHESIA – February 2010, London Fashion Week
Synaesthesia is a neurological condition that results in a combination of sensory perceptions. To underscore the hypersensitivity of the body, and to visualize this entanglement of sensory perceptions Van Herpen secured shiny metal foil on specially treated leather that generated a confusing visual effect without a steady fixation point.

CRYSTALLISATION – July 2010, Amsterdam Fashion Week
At the instigation of ARCAM (Architecture Centre Amsterdam) a collaboration was organised between Iris van Herpen and Benthem Crouwel Architects. Benthem Crouwel's design for a new extension to Amsterdam's Stedelijk Museum had earned the nickname 'bath tub'. This inspired Van Herpen to design a dress that would fall around the wearer like a splash of water, like being immersed in a warm bath, and to express in the collection the different states, structures and patterns of water. Noteworthy is that in this collection Van Herpen presents her first 3D-print that she created in collaboration with the London-based architect Daniel Widrig and that was printed by.MGX by Materialise.

ESCAPISM – January 2011, Paris Haute Couture Week

Escaping from everyday reality through addictive digital entertainment incites in Iris van Herpen not only feelings of emptiness but also associations with the grotesque, the extreme and the fantastic. This collection aims to capture both the exaltation of these addictions, like the disproportionate attention for celebrities (the 'new heroes') and its dark flipside, the never fulfilled hunger that is inherent to it. Another important source of inspiration was the exuberant baroque sculptures of the American artist Kris Kuksi. Dramatic bulging spherical shapes alternate with lace- and skeleton-like 3D-prints, and silver-grey fabrics that seem to reflect their own surface.

CAPRIOLE – July 2011, Paris Haute Couture Week

Iris van Herpen made her debut in Paris as member of the Chambre Syndicale de la Haute Couture with this collection. Besides being a compilation of highlights from previous collections, this new collection also presented five striking outfits that evoke the feeling just before and during a free-fall parachute jump. A 'leap in the air' (the meaning of the French word Capriole) that Van Herpen once in a while takes to reset her body and mind. The five outfits are a reflection of the extreme feelings experienced during that jump. For instance, the dress consisting of serpentine forms made of black acrylic sheets, nicknamed the 'snake dress', evokes the mental state at the moment before the jump when, as Van Herpen explains, "all my energy is in my head and I feel as though my mind is snaking through thousands of bends".

MICRO – January 2012, Paris Haute Couture Week

Inspired by the pictures that science photographer Steve Gschmeissner took using Scanning Electron Microscope (SEM) technology, Micro zooms in on the world of microorganisms that is completely hidden from our sight. The pictures show specimens that are dead, dried, and chemically fixated to preserve and stabilize their structures. Van Herpen remains interested in the living organism. Her designs allude to armature, tentacles, cell structures, and plasma. Some seem moist others glow and move while being worn, coming to live on the body.

HYBRID HOLISM – July 2012, Paris Haute Couture Week

The project Hylozoic Ground by the Canadian architect and artist Philip Beesley provided the inspiration for this collection. Hylozoic refers to Hylozoism, the ancient belief that all matter is in some sense alive. Beesley created a responsive architectural system that uses hylozoism in a quite specific way, that is, "we are working with subtle materials, electricity and chemistry, weaving together interactions that at first create an architecture that simulates life but increasingly these interactions are starting to act like life, like some of the ingredients of life". His environment breathes, shifts and moves in relationship to people walking through it, touching it, and sensing it. Microprocessors invest that environment with a primitive or insect-like intelligence like a coral reef or a great swarm. Iris van Herpen is intrigued by these kinds of possibilities for a future of fashion that might take on quite unimaginable shapes. Fashion that might be partly alive and growing, and, therefore, existing partly independent from us, which in turn allows for a new treatment by humans: instead of discarding the fashion after use, we cherish, value, and maintain it in its abilities to change constantly. Van Herpen's translated this future vision in a collection that is highly complex and incredibly diverse in terms of shape, structure, and material. For one design, the 'cathedral dress' Van Herpen introduced a technique referred to as mammoth stereolithography which refers to a 3D printing method. This 3D printed process is built slice by slice from bottom to top, in a vessel of polymer that hardens when struck by a laser beam.

VOLTAGE – January 2013, Paris Haute Couture Week
For her fourth collection presented in Paris as a guest member of the Chambre syndicale de la Haute Couture, Iris van Herpen explores the electricity of the body. Experimenting with its use in the field of creation, this collection seeks to portray its tangible movement and power. This ability of light and electricity to change states and bodies is reproduced using the most innovative technologies. Described as an alchemist approach to fashion, Van Herpen's designs perpetually embrace new collaborations with artists, architects and researchers.

As part of the show she collaborated with New Zealand artist Carlos Van Camp, echoing his notion of controlling high voltage electricity and its interaction with the human body. Van Camp experiments with three million volts running through bodies. Van Herpen shares Canadian architect Philip Beesley's fascination with materials and structures. They focus specifically on how the reaction of chemistry and electricity causes structures to respond to their environment and react as living beings.

Iris van Herpen is also known for being today's leading fashion designer in the use of 3d printing. Drawing on the idea of movement, the flexible 3D printed dresses are a revolution, a result of collaborations with Neri Oxman of the MIT Media Lab as well as Keren Oxman and Prof. Craig Carter of MIT with Stratasys, and architect Julia Koerner with Materialise.

WILDERNESS EMBODIED - July 2013, Paris Haute Couture week
Nature is wild. Generated by powerful forces. Its proliferates by creating startling beauty. Trough her collaboration with artist Jolan van der Wiel, who has spent several years pondering the possibilities of magnetism, they have created dresses whose very forms are generated by the phenomenon of attraction and repulsion. Iris van Herpen draws equally upon the life force that pulses through the sculptures of David Altmejd. His wild organic forms derived from the regenerative processes of nature have inspired Wilderness Embodied. The human spirits forged of this same vital energy, coursing and erupting through the limits of the body in such resplendent displays of extreme tradition or technology as piercings, scarification or surgery. This wild(er)ness of the human body, as unchecked as it is intimate, is one that the designer has sought to reveal the collection. With architect Isaie Bloch and Materialise she continues to develop 3D-printed dresses, which she was the first to present in both static and flexible forms. Her partnership with United Nude's Rem D. Koolhaas and Stratasys has led to shoes like tangled webs of tree-roots around the foot.

ANALYSIS QUESTION 7 TOTAL				
	COGNITIVE SKILLS			MARKS
	Lower: Knowledge recall	Middle: Application	Higher: Analysis/Synthesis/Evaluation	
7.1	1	1	1	3
7.2	1	1	1	3
7.3	2		2	4
7.4	5	1	4	10
TOTAL	9	3	8	
WEIGHTING	45%	15%	40%	

QUESTION 8   DESIGN IN A SOCIAL CONTEXT

Question 8.1 (2 marks)

QUESTION TYPE/COGNITIVE SKILLS: Application (2 marks)

LEVEL: Middle (2)

The answer to this question could refer to a wide range of effects of globalization. Marks should be awarded for any credible and viable points.

Use the following as a guideline.

Globalisation refers to the world wide movement towards economic, financial, trade and communications integration. Globalisation will mean the decrease in barriers between countries and cultures start to merge, creating a global culture. One of the current effects of this is that language is becoming superseded by signs and symbols to create a culture above language. Groups of people are able to connect and mobilise through social media and using digital technology.

Question 8.2 (2 marks)

QUESTION TYPE/COGNITIVE SKILLS: Knowledge (1 mark), Analysis (1 mark)

LEVEL: Lower (1), Higher (1)

One mark to be awarded for the correct definition, another for an example/per substantiated fact.

Use the following as a guideline:

Glocalisation refers to the practice of conducting business according to both local and global considerations. Many large corporations, like Coca Cola and MacDonald's use a glocalised approach to their marketing. While the brand has a global identity, in each localized area, the design is customized using a local identity.

Question 8.3 (6 marks)

QUESTION TYPE/COGNITIVE SKILLS: Knowledge (3 marks), Application (3 marks)

LEVEL: Lower (3), Middle (3)

The answer to this question necessitates that candidates specify TWO design examples that meet the needs for basic human rights, giving a brief explanation of how they do so. Basic human rights include access to water, food, shelter, education, health. Any credible and well-known examples should be accepted.

Marks should be allocated for:
ONE mark for the correct name of a design and the designer's name. If only one of these is present, award half a mark
TWO marks for a brief description of how the design satisfies human rights.

Use the following as a guideline:

- Shigeru Ban – Relief housing in Japan cardboard housing for earthquake victims – provides shelter with use of cardboard tubes and a crated foundation
- Rajan Harinarain – Foldaway house – provide shelter with galvanised metal sheets in an easily-assembled structure.
- Solar cooker by John Bohmer – enables people to cook food without electricity using aluminium sheeting.
- Lifestraw by Vestegaard Frantzen – enables people to drink any water and not contract sicknesses in a simple filtration device
- OLPC by Yves Behar – enables people to access the internet, apply for jobs online, get news using a simple power device.
- Pot-in Pot cooler by Mohammed Bah Abba – enables people to keep food cool, fresh by using layers of ceramic and wet sand.
- Dewbank by Kitae Pak – collects dew water for drinking by considering dew of a ridged aluminium surface.

Question 8.4 (10 marks)

QUESTION TYPE/COGNITIVE SKILLS: Knowledge (4 marks), Comprehension (1 mark) Application (1 mark), Analysis (2 marks) Synthesis (2 marks)

LEVEL: **Lower (5), Middle (1), Higher (4)**

The answer to this question should be framed as a direct response to the question. Candidates must refer to at least one of the terms: design intervention and activism, social regeneration, HIV awareness, challenging bias and prejudice and promoting human centred design. Answers can refer to a wide range of case studies that were covered in the CAT tasks. Answers cannot be generic and based on general knowledge, but MUST be based on SPECIFIC designed products by SPECIFIC designers/design companies/consultancies. Candidates are required to discuss the work of ONE designer. Use the following mark allocation:

> appropriate understanding of and reference to the concept and how it relates to/used by designer
> names of 3 works
> aims, influences and characteristics in discussion of 3 works
> focused discussion of one work

Examples are multiple. Use the following information as a guideline:

> design intervention and activism,
> Shigeru Ban (Paper house, Lake Yamanaka/Kobe catholic Church and refugee housing/Christchurch Cathedral)
>
> social regeneration,
> Maya pedal   (Bicycle Mill/Blender/mobile water pump)
> Yves Behar   (OLPC/Y-water/Scoot)
>
> HIV awareness,
> … XYZ Pronto condom

challenging bias and prejudice and
Wieden+Kennedy (The Girl Effect/Honda Grr commercial/Nature City for MOMA exhibition" Foreclosed: Reassembling the American dream")

promoting human centred design.
Vestegaard Frantzen   (Lifestraw/Permanet/Carepack)
Tord Boontje – CoOpA Roca

Answers may not be a repetition of any examples used in the question, or in any other answers in the paper. Examiners must take care to check that information has not been duplicated elsewhere.
One mark should be awarded per substantiated, relevant fact. Actual design examples must be discussed in detail and not only generic information should be used. Credit must be given to any valid and reasonable answer.

Example: Yves Behar and the Fuse Project

Behar incorporates environmental sustainability with social regeneration. Behar states: "To create a sustainable future, design must be deeply in tune with human needs, deeply connected with emotional needs, deeply self-expressive. Human needs include a healthy environment, which means that the products have to be non-toxic as well as low-energy-consuming."

Behar has worked on many designs, including Scoot, y-water, OLPC, Puma's Clever Little Bag

Yves Behar OLPC
The One Laptop Per Child XO laptop is a joint project by designer Yves Behar's Fuseproject and MIT's Nicholas Negroponte. Fuseproject, founded in 1999 by Yves Behar, develops cohesive brand + product experiences and together with Negroponte, Behar founded the OLPC Foundation. The One Laptop Per Child Association, Inc. (OLPC) is a U.S. non-profit organisation set up to oversee the creation of an affordable educational device for use in the developing world.

To create educational opportunities for the world's poorest children by providing each child with a rugged, low-cost, low-power, connected laptop with content and software designed for collaborative, joyful, self-empowered learning. When children have access to this type of tool they get engaged in their own education. They learn, share, create, and collaborate. They become connected to each other, to the world and to a brighter future.

Yves Behar is the chief designer of the present XO shell. Now more than one million laptops have been distributed to children around the world to help further the mission of providing education and access to information for all... like in Uruguay where every public school child between 6 and 12 years old has one.

The XO-1, previously known as the '$100 Laptop' or 'Children's Machine', is an inexpensive laptop computer designed to be distributed to children in developing countries around the world, to provide them with access to knowledge, and opportunities to 'explore, experiment and express themselves' (constructionist learning). This is a small machine with a big mission. The XO is a potent learning

tool designed and built especially for children in developing countries, living in some of the most remote environments. It's about the size of a small textbook.
It has built-in wireless and a unique screen that is readable under direct sunlight for children who go to school outdoors. It's extremely durable, brilliantly functional, energy-efficient, and fun. The XO-1 is designed to be low-cost, small, durable, and efficient. It is shipped with a slimmed-down hardware and customised software that is intended to help young children collaborate.
The rugged, low-power computers use flash memory instead of a hard drive, run a Fedora-based operating system and use the Sugar user interface. Mobile ad-hoc networking based on the 802.11s wireless mesh network protocol allows students to collaborate on activities and to share Internet access from one connection.

The wireless networking has much greater range than typical consumer laptops. The XO-1 has also been designed to be lower cost and much longer lived than typical laptops.
The XO-1 includes a video camera, a microphone, long-range **Wi-Fi**, and a hybrid **stylus**/touch pad. In addition to a standard plug-in power supply, human power and solar power sources are available, allowing operation far from a commercial power grid.

The laptops include an anti-theft system which can, optionally, require each laptop to periodically make contact with a server to renew its cryptographic lease token. If the cryptographic lease expires before the server is contacted, the laptop will be locked until a new token is provided.

While the distribution of OLPC XO continues, today Forbes is presenting the XO-3. Our new design features an all plastic tablet screen which is semi-flexible and extremely durable (compared to current glass screens which crack upon impact), and just like the original XO, the display can be optimised in both transmissive and reflective modes for indoor and outdoor lighting conditions.

The XO-3 supports many use scenarios to fulfil kids' learning needs: from horizontal book mode to portrait reading mode, to multi-touch, so many hands can play and learn together on the same screen, to a full-touch keyboard and a back facing camera. More OLPCs, more smiles...

The shell of the laptop is resistant to dirt and moisture, and is constructed with 2 mm thick plastic (50% thicker than typical laptops). It contains a pivoting, reversible display, movable rubber Wi-Fi antennas, and a sealed rubber-membrane keyboard.
Designing with the user in mind binds the emotional value and reduces the obsolescence of an object. Yves Béhar explains that usefulness and functionality are not the same thing. 'Design's purpose is not only to show us the future, but to bring us the future,' is another of his mantras.
Now with his sophisticated solution to the controversial $100 laptop challenge and his ingenious LEAF Lamp developed for Herman Miller, Béhar's creations are leading a new approach to sustainable informed design for the masses. The One Laptop Per Child (OLPC) project is not directly an environmentally conscious design, more addressing humanitarian elements. Nonetheless, the design has taken the resource challenges of its target market into account.

When people ask if design isn't a bit of luxury for a product destined for the developing world, I explain that, typically, technology products for the developing world are hand-me-down versions of their Western equivalents – lesser technologies of lesser quality. Additionally, those products are not designed with their specific users or surrounding conditions in mind. Low-cost products are literally 'cheap' (low-tech and low quality).

This is a paradigm the team at OLPC and MIT wanted to change, by instead creating a high-touch and high-tech product and experience. Upon reviewing a prototype of the OLPC, Bono spoke of the very real meaning OLPC will have for the kids – DIGNITY and pride to now possess their own education, communication and entertainment tool.

I see a bigger role for design in the future, and the opportunity for designers to be true participants in both for-profit businesses and non-profit causes. Humanistic design must tap into the 'giving' element of our profession. It must be deeply in tune with the need to create a sustainable future, and deeply connected with emotional needs, deeply self-expressive.

I often say that 'if design is not ethical, it cannot be beautiful'. Design that does not consider the effect of the product at the source or at the consumer interface is hard to justify, especially now that information is available to all. But design must also be useful. Usefulness can be about function; but inspiring, resting the soul or creating a sense of wonder and intelligence around one's life, is a form of usefulness that goes beyond function.

One Laptop Per Child is not about a machine, it's about a movement.

ANALYSIS QUESTION 8 TOTAL				
	COGNITIVE SKILLS			MARKS
	Lower : Knowledge recall	Middle: Application	Higher: Analysis/Synthesis/ Evaluation	
8.1		2		2
8.2	1		1	2
8.3	3	3		6
8.4	5	1	4	10
TOTAL	9	6	5	
WEIGHTING	45%	30%	25%	

QUESTION 9   DESIGN IN A BUSINESS CONTEXT

Question 9.1 (3 marks)

QUESTION TYPE/COGNITIVE SKILLS: Knowledge (3 marks)

LEVEL: Lower (3)

One mark to be awarded for the listing any of the accurate ways in which a designer can protect their **intellectual property**. No explanation is needed.

Common types of intellectual property rights include
copyright,
trademarks,
patents,
industrial design rights,
trade dress, and
trade secrets.

Question 9.2 (2 marks)

QUESTION TYPE/COGNITIVE SKILLS: Knowledge (1 mark), Comprehension (1 mark) Application (2 marks), Analysis (1 mark), Synthesis (1 mark), Evaluation (1 mark)

LEVEL: Lower (1), Middle (1)

One mark to be awarded for the correct definition of open source, another for a brief discussion of the impact that it has made on the design world.

Use the following as a guideline:

Open source is a philosophy where ideas and designs are gifted to the Creative Commons and/or Public Domain so that others might collaborate on and improve upon the design for the benefit of society as a whole. Design from a grass roots level by users. The impact of this on the design world is that anybody is able to access information and ideas, regardless of their backgrounds, financial status or even geographical location.

Question 9.3 (2 marks)

QUESTION TYPE/COGNITIVE SKILLS: Application (1 mark), Analysis (1 mark)

LEVEL: Middle (1), Higher (1)

The answer to this question should reveal an implicit understanding of what branding is and a brief explanation of two ways in which a brand can be built.

Use the following as a guideline:

Branding involves attributing a 'personality' to or associating an 'image' with a product or service. A personality or image is 'branded' into the consciousness of consumers through a collection of images and ideas to represent implicit values, ideas, and even personality.
A brand is a symbolic embodiment of all the information connected to a company, product or service. A brand can be built with an explicit logo, fonts, colour schemes, symbols which may be developed into corporate identities and other visual products. A brand serves

to create associations and expectations among products made by a producer through advertisements, promotions, visual merchandising, store layouts, uniforms etc.

> **Question 9.4 (3 marks)**
>
> **QUESTION TYPE/COGNITIVE SKILLS: Application (1 mark), Analysis (2 marks)**
>
> **LEVEL:**   **Middle (1), Higher (2)**

Answers to this question should include a clear definition (one mark) of crowd-sourcing and an explanation of why (one mark) and how (one mark) a designer would use this design strategy.   (3)

Use the following as a guideline:

Definition: Crowd sourcing is when the design process is informed by soliciting contributions (services, ideas, or content) from a large group of people, and especially from an online community, rather than from traditional employees or suppliers.

Why: While it can refer to the division of labour for splitting up tedious tasks, it can apply to a wide range of activities including specific requests, such crowd voting, crowd funding, open broad-based competition, and a general search for answers, solutions, or even missing people.

How: Most often, crowd-sourcing is done on a digital platform using social media. Many crowd-sourced projects have gone viral.

> **Question 9.5 (10 marks)**
>
> **QUESTION TYPE/COGNITIVE SKILLS: Knowledge (4 marks), Application (2 marks), Analysis (3 marks), Synthesis (1 mark)**
>
> **LEVEL:**   **Lower (4), Middle (2), Higher (4)**

The answer to this question should be framed as a direct response to the question. Candidates must refer to design co-operatives and/or corporate social responsibility. Answers can refer to a wide range of case studies that were covered in the CAT tasks. Once again, answers cannot be generic and based on general knowledge, but MUST be based on SPECIFIC designed products by SPECIFIC designers/design companies/ consultancies.

Candidates are required to discuss the work of TWO designers in this answer. Marks should be awarded as follows:

concept explanation for design co-operatives and/or corporate social responsibility
names of 2 designers and 2 works each
aims, influences and characteristics in discussion of works

Use the following information as a guideline:

Co-operative design is a participatory form of design which actively involves stakeholders (e.g. employees, partners, customers, citizens, end users) in the design process in order to help ensure the design both meets needs while remaining functional. The aim of design co-operatives is to ensure designs meet cultural, social, emotional, spiritual and practical needs.

Responsible design refers to the current trend in design practice that requires designers and manufacturers to find ways of generating profit while minimising the potentially negative impact (1) on communities or nature (1). The philosophy behind responsible design is that designed products should be sustainable not only environmentally but also socially in terms of workers (1), working conditions and so on. The answer might discuss issues including Green design (1) transgenerational strategies (1), ethical business practice, products that save energy and other resources (1), designers/producers acting responsibly in the communities served, efforts to maximise the benefits design may bring to a situation, whilst minimising the impacts. Students might also make reference to the global Fairtrade movement that is encouraging designers to be more aware of the effects of design production on society and the environment.

Yves Behar
> Answers can refer to a wide range of case studies that were covered in the CAT tasks. Once again, answers cannot be generic and based on general knowledge, but MUST be based on SPECIFIC designed products by SPECIFIC designers/design companies/consultancies.

The following examples were suggested in the CAT task.

Local:
> … XYZ (BOP Ecommerce Business kit/BATSA Shuttle/First National bank signage)
> Black River FC (Nando's brand and advertising campaigns: Loeries campaign; Sanlam spoof; Julius)
> Southern Guild/DNA: Design Network Africa: Ronel Jordaan, Hoefelt Chair/ Dokter and Misses, **LALA Drinks Cabinet** /Heath Nash, **Hidden Pretty**/Pedersen and Lennard

International:
> David Butler of Coca Cola brand management (aluminium Coca Cola bottles with Turner Duckworth/interactive vending machine/motion graphics – THE MOVIE/ recycling bin with Yves Behar's Fuseproject)
> Fuseproject with Yves Behar (Pumavision–Clever Little Bag/Jawbone/Coca-Cola bin)
> IDEO & Open IDEO **Embody**, Sealy foam mattress new branding/**PumpAway with WSUP/Locavore Field Guides/Open Plant with WWF and Sony**

ANALYSIS QUESTION 9 TOTAL				
	COGNITIVE SKILLS			MARKS
	Lower : Knowledge recall	Middle: Application	Higher: Analysis/Synthesis/ Evaluation	
9.1	3			3
9.2	1	1		2
9.3		1	1	2
9.4		1	2	3
9.5	4	2	4	10
TOTAL	8	5	7	
WEIGHTING	40%	25%	35%	