PRACTICE PAPER
DESIGN AND APPLIED TECHNOLOGY   PAPER 1
Technology, Design and Society

Section A - Compulsory question.

1. Design problem – plant sprinkler system

Question Number	Comments
(a)	Most candidates were able to clarify the design task and showed basic considerations including physical, emotional, intellectual and social needs of the target groups. However a few of the candidates did not seem able to identify and consider the needs and values of a range of users.
(b)	Most candidates could state appropriate constraints and draw up the design specification through various presentation methods, e.g., using mind mapping, graph and tables to organize information. However a few of the candidates could not separate the difference between constraints and specification clearly by identifying essential criteria (e.g. function, aesthetics, performance requirements, intended standard of quality)
(c)	Well-answered. Candidates were able to present a range of design ideas and show a variety of different ideas that cater for different peoples like and tastes around the sprinkler system. Most candidates were able to generate ideas from the existing products to help creativity. Most candidates demonstrated basic ability to handle information to address problems and to propose solutions. Not many candidates were able to provide dimensions and materials chosen for their designs.
(d)	Well-answered. Candidates able to use a mixture of sketches to present their final design. A few of the candidates were able to respond by annotated drawings and labels with materials and sizes. Not many candidates were able to consolidate their ideas with full annotation.
(e)	Well-answered. Most candidates show some technical understanding of materials, components, ingredients etc.
(f)	Most candidates could analyse their designs with regard to aesthetic (e.g., appearance) and economic (e.g., costing and levels of production) issues, and also suggest ways for further improvement. A few of the candidates were able to evaluate their final solution against the promotion of corporation identity and brand building.

Section B

Question Number	Comments
2(a)(i)(ii)	Fairly well answered. Most candidates were familiar to analyse the calculators with regard to the applications and their energy sources. Some of them used table to answer the questions effectively.
2(b)	Well-answered. Most candidates could suggest appropriate ergonomic considerations related to the design of a calculator. They displayed moderate capabilities in applying the concepts to familiar situations.
2(c)	Not many candidates were able to identify the materials cases of the calculators.
2(d)	Well-answered. Most candidates were able to design a calculator with the theme "35th anniversary" for the Ocean Park with the aid of a coloured sketch. Most of them communicated ideas effectively with a proficient use of design and technology terminologies and formats.

3(a)(i)(ii)	Some of them only displays minimal capabilities in the separation the difference between the shape and the design clearly by the comparison of the design features of bottle 'A' and bottle 'B'.
3(b)	Poorly answered. Most candidates could not suggest method to strengthen the structure of bottle 'A'.
3(c)	Most candidates could not state the functions of the concave-shaped bottom of bottle 'B'. They demonstrated minimal competence in the practical application involved in technology and design.
3(d)(i)(ii)	Fairly well-answered. Most candidates were able to state the advantages of the "light-weight and twistable" plastic bottle. Most candidates could design the carrying device with effective presentation techniques.

4(a)	Poorly answered. Most candidates could not draw the appropriate flow chart of the robot arm for the assembly work. Some of them were able to show minimal capabilities to solve the problem concerned.
4(b)	Fairly well-answered. Most candidates could suggest the suitable sensor.
4(c)	Poorly answered. Most candidates could not show the appropriate structural principal of the gripper.

Paper 2A – AUTOMATION

Q1. This is not a popular question among the candidates as it requires candidates to comprehend the setup for the system, the description and the flowchart. However, this question is straight forward and most of information for the answer has been included.

Q1		Comments
	(a)	Well-answered. Candidates were able to identify the Input/Output devices of the control system
	(b)	Fairly well-answered. However, some candidates were able to identify the necessary sensors for particular step but did not state clear about the state of sensors to trigger the outputs, i.e should be I3=1 instead of just I3.
	(c)	A significant number of candidates did not recognize the term 'Timing diagram', therefore they did not answer this question correctly.
	(d)	Well-answered.

Q2. This question tests the candidates understanding of the pneumatic technology and the selection of appropriated power source in the automation system design.

Q2		Comments
	(a)	A straight forward question to test the candidates understanding of the notation specifying the configuration of the directional control valve. However, a significant number of candidates could not state the meaning of '5/2' as a 5 ports and 2 possible positions.
	(b)	A significant number of candidates did not recognize the term 'a closed-loop block diagram'
	(c)	Well-answered, most candidates were able to suggest some useful improvements.
	(d)	Candidates could not pick up correctly and name the component. Therefore they were not able to modify the circuit correctly.
	(e)	Well-answered, most candidates could identify the electricity is a good alternative for this train door actuation and suggest the relevance advantage

Q3. This question tests the candidates understanding the control system configuration s and the robot technology.

Q3		Comments
(a)	i	Well answered. However it was a common mistake to identify the 'Water inlet valve' as an input device.
	ii	A significant number of candidates could not recognize the components and state the function of the components
	iii	Well-answered, most candidates were able to identify the desired outputs and door status for the given conditions.
(b)	i	Candidates did not understand the term 'line diagram'.
	ii	Well-answered question, most candidates could correctly identify the advantages of the SCARA robot
	iii	Well-answered question, most candidates could correctly suggest relevant solution for the application
(c)	i	Well-answered questions, most candidates could correctly state suitable advantages for two application areas

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PAPER 2B **Creative Digital Media**

Question Number	Comments
4(a)	Well-answered. Candidates were able to design and sketch a storyboard and also communicated ideas effectively with a proficient use of design and technology terminologies and formats.
4(b)	Fairly well-answered. Most candidates could suggest the slogan to promote the digital camera with appropriate content and wordings.

Question Number	Comments
5(a)	Well-answered. Most candidates were familiar to make design and sketch the icons. They demonstrated good competence in creativity and aesthetic.
5(b)	A few of the candidates were able to suggest appropriate factors to be considered when the icon is used in the printed format.

Question Number	Comments
6(a)	Well-answered. Most candidates could state the appropriate considerations when design a pop-up cards.
6(b)	Well-answered. Most candidates were able to suggest appropriate materials. They demonstrated ability to select relevant resources to solve the problems.
6(c)	Well-answered. Most candidates could show appropriate process(es) with basic presentation techniques.
6(d)	Well-answered. Most candidates were able to state the advantages and disadvantage of e-card. They demonstrated general knowledge and understanding of the concepts.

Paper 2 C Design Implementation and Material Processing

Question Number	Comments
7(a)	Most candidates were not able to indicate correctly that the mechanism of a nail clipper is a linkage
(b)	Most candidates could not explain effectively with schematic diagram of the working principles of the cutting tools. A few of the candidates did not seem to possess adequate knowledge of fulcrum, effort and load.
(c) (i)	Well-answered. Candidates able to indicate the design feature of the cutting edge for each cutting tools.
(c) (ii)	Well-answered. Most candidates were familiar with ergonomic considerations when designing cutting tools.

Question Number	Comments
8(a)	Fairly well-answered. Most candidates were familiar to make the rack in school workshop. Some of them used wrong glue for assembling the rack.
(b)	Fairly well-answered. Most candidates could suggest an appropriate material for making the rack in mass production process.
(c)	Fairly well-answered. Most candidates were able to show the mass production process with sketches but some of them could not mention the name of the process such as injection moulding.

Question Number	Comments
9(a) (i)	Fair answered. Most candidates could illustrate the weakness of a pure concrete beam but some of them did not mention the beam is in tension when it is under loaded.
(a) (ii)	Well-answered. Most candidates strengthened the concrete beam by adding steel rods to the bottom of the beam.
(b) (i)	Fair answered. Most candidates did not use the given formula to do the calculation.
(b) (ii)	Fair answered. Most candidates could only show how the structure would be distorted but they could not explain why the wire would not make the frame rigid.
(b) (iii)	Well-answered. Most candidates were able to show two methods to make the frame more rigid.

Paper 2 D   Electronics

Question Number	Comments
10(a)	Well-answered. Candidates appear to know this topic well.
(b)	Mostly poorly answered. A good percentage of candidates seem to remember a previously-seen solution/problem which is not exactly the same as this one.
(c)	Very-well-answered by a couple of candidates. . Some candidates displayed obscured concepts in the topic.

Question Number	Comments
11(a)	Fairly well-answered by students who studied the very basic knowledge of the topic.
(b)	This is an analytical question. Poorly answer by most students, but perfectly answered by one student.
(c)	No score was made by all students, hinting that the topic might not been taught in class.
(d)	Well-answered by some students.

Question Number	Comments
12	This question is only attempted by students who are overall weak (single-digit total score).
(a)	Fair answered. Most candidates could not remember the very basic characteristics of ROM and RAM..
(b)	Poorly answered/ unanswered. Topic seems not covered in class.
(c)	Poorly answered by overall-weak candidates. This question is analytical. Appears that candidates have very limited exposure to similar case studies.

Overall Comments:

Students are not prepared to attempt questions on the analysis of systems.

Analytical parts of a question were often unattempted, or avoided.

Quite many students did not answer what has been exactly asked.

Some students gave memorized answers which did not match question.

Unclear/inaccrate concepts are often exposed, even in questions on presummably learnt material

Paper 2 E Visualisation and CAD Modelling

Question Number	Comments
13(a)	Well-answered. Most candidate had drawn six sets. Most candidates were able to locate the office desk and chair properly. Some students did not use drawing instruments to draw the answers. Concept of corridor/spacing need to be reinforced. Some candidates did not draw proper lines(poor draughtsmanship.
(b)	Fair-answered. Most candidates did not show the correct percentages. Most candidates did not show colours effectively. Very little candidates use free-hand sketching. The characteristics of a Pie-chart were not well demonstrated in most of the answers.

Question Number	Comments
14(a)	No candidate attempted this question.
(b)	No candidate attempted this question.

Question Number	Comments
15(a)	Well-answered. Most candidates sketched the tap instead of coloured illustration. The presentation of infra-red sensor was weak. Some good effect of marker rendering were shown..
(b)	Well-answered. Correctly rotated(mirrored) images were show. Some candidates used proper construction method. Most candidates did not show the elliptical hole properly. Some candidates did not draw proper lines(poor draughtsmanship.