



National
Qualifications
2023

2023 Graphic Communication

Advanced Higher

Finalised Marking Instructions

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General marking principles for Advanced Higher Graphic Communication

Always apply these general principles. Use them in conjunction with the specific marking instructions, which identify the key features required in candidates' responses.

- (a) Always use positive marking. This means candidates accumulate marks for the demonstration of relevant skills, knowledge and understanding; marks are not deducted for errors or omissions.
- (b) If a candidate response does not seem to be covered by either the principles or detailed marking instructions, and you are uncertain how to assess it, you must seek guidance from your team leader.
- (c) For 'Describe' questions
Candidates must provide a statement or structure of characteristics and/or features, not just an outline or a list. For example they can refer to a concept, experiment, situation or facts in the context of and appropriate to the question. The number of marks available for a question indicates the number of factual/appropriate points required.
- (d) For 'Explain' questions
Candidates must relate cause and effect and/or define relationships. This must be in the context of the question, or a specific area within the question.
- (e) For 'Compare' questions
Candidates must demonstrate knowledge and understanding of the similarities and/or differences between things, methods, or choices. This must be in the context of the question, or a specific area within the question.
- (f) Candidates can respond to any question using text, sketching, annotations or combinations of these. Award marks for the information conveyed. Do not award marks for the quality of sketching.

Marking instructions for each question

Question			Expected response	Max mark	Additional guidance
1.	(a)		- Ensures brand consistency. - Brand is instantly recognisable. - Ensures all graphics are associated with the company and not competitor products.	2	One mark for each correct answer
	(b)		Negative Space - Three triangles on the logo introduce a new graphic in the form of a mountain range. - The silhouette is cut into the red triangle framing the context of the logo. - A rock/rough texture in the form of negative space is utilised on the “climb on” font emphasising the climbing theme. - The ‘rope’ within the ‘climb on’ words links the title with the image. Silhouettes - The female climber silhouette makes the climbing context easily recognisable. - The evolution silhouettes on the car window sticker links to the message ‘evolve to climb’. - The evolution silhouettes create unity with the logo.	3	One mark for each correct answers (2 for negative space and 2 for silhouettes) Repeat answers will not be accepted

Question			Expected response	Max mark	Additional guidance
1.	(c)		File Type The logo must be produced as a vector graphic to ensure it is scalable across a range of graphic and media to avoid diminished quality. The logo must also be easy to convert to other file types compatible with digital media. Resolution If the logo is saved as a raster file it must be exported at 300ppi to ensure optimum resolution across both digital and printed media. Colour Space The logo must utilise CMYK to RGB colour conversion to ensure accuracy in reproducing colour across both digital and printed media. Printing Techniques Due to the range of items the logo can be printed on it must work for different kinds of printing and substrates.	6	One mark for each correct answer Repeat responses will not be accepted. Logo could also be printed from an ai file.
	(d)		• Ensure the photograph is 300 dpi. • Fully crop the image/remove the background from around the figure. • Apply a black colour fill. • Convert jpeg to vector or png.	2	Any 2 points from the 4 required

Question			Expected response	Max mark	Additional guidance
2.	(a)		• STL files are the standard in 3D printing which ensures the 3D printer can easily read the data contained within the model. • STL files splice the model into several printable layers for accurate printing. • STL files enable us to determine weak points in the print and add structural meshes to strengthen the model. • STL files will provide all of the required details for volume, mass etc. to ensure the model can be printed accurately.	2	Any 2 points from the 4 required
	(b)		Volume: • Ensures the model being printed can be printed within the usable volume inside the 3D printer. Centre of Mass: • Allows us to determine the distribution of mass within a model to ensure areas of weakness are easily identified stopping the model from collapsing on itself. • Can be used to determine center of gravity in ensuring the model remains balanced/stable during 3D printing. Model Mass: • Can provide details on the quantity of material required for the build which can help with costings and reducing material waste.	3	Accept for volume or model mass an answer related to the strength of the model or creating mesh supports

Question			Expected response	Max mark	Additional guidance
2.	(c)		Volumetrics: - Used to create a realistic representation of the water within the swimming pool. - Gives an idea of the clarity in the water and/or depth of the pool. - Volumetrics ensures realism in the waterfall feature adding spray/mist/correct amount of transparency. - Used to create an accurate representation of dissipation of light in the water. Bump Mapping: - Used within the brickwork features to enhance the definition of the rough texture found within this material. - Used within the woodwork features to enhance the definition of the grain texture found within this material. - Used within the tiles features to enhance the definition of the texture found within this material. - Used within the trees/leaves/ foliage to add depth/definition to the height of the grass blades (technically displacement mapping). - Used within the grass to add depth/definition to the height of the grass blades (technically displacement mapping). IBL: - Building created within a realistic outdoor scene capturing exact lighting of the environment. - Reflections captured in the windows from the surrounding area/sited environment.	6	2 marks for each area. Do not accept repeat answers

Question			Expected response	Max mark	Additional guidance
3.	(a)		File Type DXF Suitability - Allows for accurate data transference/interoperability between the CAD software and the CAM process. - DXF files are widely compatible across a range of graphics software. - DXF files are easily editable/scalable allowing the graphics to be amended if the output is not as desired.	3	
	(b)		- Symbol A refers to the standard of surface finish required for the manufactured item. - The circle feature on the surface finish indicates that all surfaces must be finished to the same standard/roughness factor.	2	
	(c)		- Maximum Size = 48.15 - Minimum Size = 47	2	
	(d)		Centre Piece: 1 mark: Half profile with all dimensions included and revolved command 360 degrees. 1 mark for subtracted hole created to 14mm depth. Fan Blade: 1 mark for green profile with all dimensions included. 1 mark for purple profile with all dimensions included on a plane offset 16 from green profile. 1 mark for 'blending' green to purple profile. 1 mark for 'offset thickness of the blade surface to 1mm. 1 mark for adding the irregular fillet 4.5-3.5 to edge of the fan blade. 1 mark for radial array of fan blade 12 times around the centre axis of the centre piece.	8	2 marks for the centre piece can be achieved in one step of the 14mm hole is included within the revolved profile

Question			Expected response	Max mark	Additional guidance
3.	(e)		• Determine the best position for the fan to ensure effective distribution cooling for components. • Determine the position of air vents to allow for natural cooling/effective air flow. • Determine best positions for other components within the design to avoid overheating.	2	
	(f)		Advantages: • Animation can be paused/rewound at key stages to support understanding. • User can zoom into video to make instructions clearer. • Subtitles/audio descriptions can be included to support understanding. • Subtitles can be changed to support different languages. • Mechanical animation demonstrates how the components fit together which may be easier to understanding than static diagrams/drawings • (rotation of screws etc.). Disadvantages: • Some demographics may still prefer written instructions. • Those with incompatible software to run the video.	4	Do not accept repeat answers
	(g)		Advantage • Can store both audio and video elements of separate files. • Excellent for Web based applications. • Can be embedded within other programs such as apps etc. • Is easily edited without having to rewrite code. • Provides high quality playback within a compressed file size. Disadvantage • Often requires QuickTime player to run/is not universal across all platforms. • Compression can result in diminished quality in some cases.	2	

Question			Expected response	Max mark	Additional guidance
4.	(a)		Digital to print media Colour space • The graphic designer would be using an RGB monitor so the colour space would be different to the CMYK file that they would be working on so they would have to be careful to colour match them before printing. • The designer could use pantone colours to help everyone in the project be clear about colour space. Bleed area • The printer would have to check the registration marks and bleeds for any run over as this will not be apparent in the file that the designer uses onscreen. • This will need to be carefully checked and the paper choice will be important, and the cropping will have to be correct to avoid any mistakes. These will not be clear when designing it on a PC. Dots per inch (DPI) • This will determine how the design appears on the screen. • There will need to be similarity between the PPI and the DPI so the screen design matches the print design. • PPI can be very high on a PC and IN DTP software but DPI will dictate the final quality.	3	One point required for each term

Question			Expected response	Max mark	Additional guidance
4.	(b)		• Offset Lithography suitable for large scale production: quantities greater than 10000. • Can be printed on a variety of substrates such as textured paper. • Consistently high-quality images • Easily setup for non-standard/ custom sized paper.	3	
	(c)		• The image will not be the required resolution if printed from a screen shot. • The print will not look the same on the smooth calendared paper. • The ink jet printer will not reproduce the colours the same as the offset lithography machine.	3	

Question			Expected response	Max mark	Additional guidance
5.	(a)		Motion capture 2 marks Advantages • This is an accurate way to represent a human figure movement. • The animation will be better to watch/more realistic as it will be matching the walking and arm movements of the human body accurately. • The animator can request all required body movements and record this data. Disadvantages • Expensive: equipment/actor wages/data collection. • Specialist technicians and actors. • Large amounts of data some of which will not be required. • Large amount of editing required. Motion tweening 2 marks Advantages • control over the number of key frames required to create a scene • being able to run checks to see how it animates smoothly and if the complex shapes need more adjustment to look more life like • Being able to export the tweened animation without dozens of frames required. Disadvantages • Time and possible errors arising from the position of body parts/features and frames eg a smoother anchor change for an elbow part. • Tweening may increase the file size significantly after tweening as it may add many key frames. • Skills required from the animator to ensure required quality.	4	Advantage and disadvantage required for each method

Question			Expected response	Max mark	Additional guidance
5.	(b)		ai • AI files are vector so accurate shapes can be easily created and scaled. • are easier to edit and tweak with a smaller file size and a smoother graduated fill than rasters • AI files are compatible with vector illustration software so can be edited and tweaked before converting. png • files are small and have transparency so can be used for a range of exported vector ai files • raster files like png will load quickly in the final animations as it's a small file type • png files are also more compatible with other software	2	Accept png Files can be tweaked with the resolution, when exported to be as small as possible

Question			Expected response	Max mark	Additional guidance
5.	(c)		dynamic effect the wavy lines behind the character in screenshot 3 the blurred effect behind the character in screenshot 3 gives the impression of speed/movement depth of field created by the blurred foreground in the screen this helps to create focus on the character rule of thirds screen shot 2 uses rule of thirds as the phone/facial expression is 1/3 in and 1/3 up from the bottom right corner focal points focal points are achieved on the face of the character by ensuring they remain in focus/are highly visible and are show the most obvious clear variations in the animation	3	
	(d)		Transitions Transitions would be used to add interest to the animation by creating brief breaks at different points in the animation eg, between the close up of screen shot 2 and a far away shot of screen shot 3 or one camera view point and another Overlays Overlays could be used to add more information to the animation eg, speech bubbles of what the character is saying, indicators of how well the game is going eg, numbers of task complete etc. Frame rates By changing the frame rate the speed of the charter could be altered or the quality of the game play could be increased.	3	

Question			Expected response	Max mark	Additional guidance
6.	(a)		- Identify type of substrate/depth of substrate to determine foundations required. - Identify wildlife habitats that could be affected by building work. - With trees to be removed there may be root systems to deal with - Identify any old drains/cabling/rail lines etc that may affect building work.	2	Accept Identify anything of historical significance
	(b)	(i)	Landscape architect - Can use the location plan and scale provided to work out the space available for the surrounding landscape, park area and houses. - Can use the developer requirements to establish what materials are required and work out costs based on available space. - Can see where trees are being removed/proposed so that they can plan the landscape accordingly. - Can use the contours shown to establish the lay of the land and where areas may need to be built up etc.	2	
		(ii)	Quantity surveyor - Quantity surveyor could work out the amount of tarmac, asphalt and paving required for the roads/pavements using the scale and requirements provided. - Once the amount is worked out the quantity surveyor could provide costings. - For the play area the quantity surveyor could work out the amount of solid rubber required and how many children's play items/fixtures and fitting etc. would be required given the space provided. Costing could also be provided for this.	2	

Question			Expected response	Max mark	Additional guidance
6.	(b)	(iii)	Construction trades • Available plot space for each house and surroundings garden/land. • Roadworkers know the specification for the tarmac and asphalt/kerbs. • Plumbers can use the location plan to identify where mains drainage for connecting to houses for foul and waste water.	2	
	(c)		• layering showing different houses in colour: easier identification of house locations • a key to identify BS features eg existing trees, North point, non-technical audiences can understand the meaning of symbols • a linear scale: makes it easier to measure distances and areas. • any other layer (ie must be able to be superimposed onto top of the existing layout) that improves communication with purchasers.	4	1 mark for a relevant layer and 1 mark for describing the information provided to the purchaser

[END OF MARKING INSTRUCTIONS]