X835/77/01

Graphic Communication

Marking Instructions

Please note that these marking instructions have not been standardised based on candidate responses. You may therefore need to agree within your centre how to consistently mark an item if a candidate response is not covered by the marking instructions.

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.
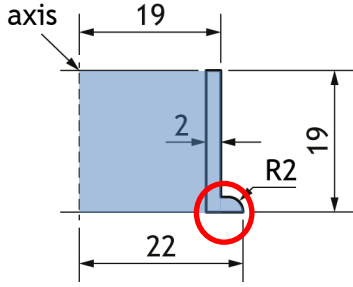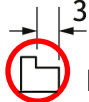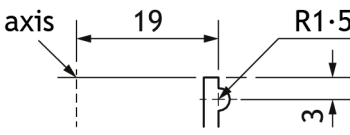
Marking instructions for each question

Question			Expected response	Max mark	Additional guidance
1.	(a)		**Advantages** • No need to spend time generating your own model. • Wide range of models available. • Provide structural (and/or rigging) information to allow manipulation of movement • Provide pre-applied textural (texture map) data which can be edited speeding up the modelling process. **Disadvantages** • Cannot change the geometry/ relative proportions of the model • May be a cost involved in purchasing the model. • Cost of editing software to animate/edit the model. • Editing software may not be compatible with the model. • Not possible to edit bump or displacement mapping.	4	• 2 marks for advantages • 2 marks for disadvantages Accept the following as advantages: • Models of similar styling can be downloaded in bulk. • Models will contain data on reliable/realistic movement of the model. • Provide proportional/scalable information to assist modifications.

Question			Expected response	Max mark	Additional guidance
1.	(b)		• **Bump maps** as they give the illusion of a real texture adding realism to the character. • **Polygons** can be manipulated and edited to define very complex shapes. The greater the number of polygons the more accurate the appearance will be. • **Morphing** can be used to create and edit organic shapes e.g. the muscles in an arm.	3	• 1 mark for each technique • No marks for repetition **Bump Mapping** • eg, characters need accurate textures and colours so users think they are real and get immersed in the game so the Animator should use bump maps as they give the illusion of a real texture that is not uniform eg human skin, it's not all the same colour or tone. And have a huge range of colours and can be made from a photo. **Polygons** • eg, characters need accurate shapes and feature eg a face and need accurate modelling of a jacket or clothing. This is not possible with basic 3D commands such as sweep or loft as they are so complex, so polygons are used as they can be manipulated and edited to very complex shapes. **Morphing** • eg, Morphing is ideal for complex shapes such as a human arm as each bit may need pushed and pulled until it looks real. Measurements are not important in this type of modelling as the form of the model needs to look organic and realistic.
	(c)		• **Directional lighting** would be used to simulate the sun (or other distant light source) and create shadows/silhouettes of the characters. • **Volumetrics** could be added to create mist, light coming through clouds or some other <u>outdoor</u> atmospheric effect. • **Depth of field** could put the foreground or background in a blur and/or puts the characters in focus.	3	1 mark for each technique.

	Question		Expected response	Max mark	Additional guidance
2.	(a)		**Variety of screen sizes** • Website will still look as intended on different sizes/orientations of device. • User can still access key functions/buttons/menus. • Text still clear on all sizes/ orientations of device. • All features/text large enough to operate on touch screen devices. **File Types** • Correct files to function on mobile devices. • Suitable file types have been used for the content eg 3GP for video. JPEG, PNG or GIF for images. • File types used are compatible with different operating systems/ devices. **Typeface** • Legibility of text. • Only a few different typefaces/ styles used for clarity/to maintain branding • Variety of sizes of typeface will create the correct visual hierarchy. • Choice of typeface in keeping with the type of company.	6	• 2 marks for variety of screen sizes • 2 marks for file types • 2 marks for typeface
	(b)		Any 2 of the following: • The digital items eg the website would be created in RBG **colour space** • The printed items such as the <u>carrier bag</u> would use CYMK **colour space** • These **colour space** would generate codes and a colour matching system such as pantone colours would be used to define the exact colours: important for the logo and reproduction of the logo • Resolution of images in the logo would need to be **300dpi for printed items** such as the poster and **72 dpi for digital items** such as the images on the social media account to clearly represent the logo/items.	2	

Question			Expected response	Max mark	Additional guidance
2.	(c)	(i)	Any 2 of the following: **AI** • Adobe InDesign is an industry standard vector file type. • Vector files are easy to edit • Scaling parts of the logo will not reduce shape/curve/line definition/resolution. • It embeds colour info and type face into a single file • It can be saved as another vector file type or as a pdf. • Vector file format allows for precise modifications of curves. • The logo design is block colours so does not require the variations in tone associated with raster graphics.	**2**	A specific advantage of the vector file format or ai file type must be mentioned.
		(ii)	Any 2 of the following: **PNG** • Widely used for presentation graphics, particularly on the web • Widely compatible/multi-platform accessibility • Has background/alpha channel transparency so is better for logos • Smaller file than a jpeg/bitmap so easier to use online/ quicker to download online. • More suitable for logo is it copes well with text in image • Lossless file format so if image is saved it will maintain its resolution	**2**	
	(d)		Any 1 of the following: **DXF** • Vinyl cutting the logo to be used as a decal (eg on the Flask-hot delivery van). • CNC milling/laser cutting (eg for production promotional material such as a key ring or engraved/ embossed flask).	**1**	Any other CNC/CAD-CAM machine provided a suitable application is included in the response.

Question			Expected response	Max mark	Additional guidance
2.	(e)		**Converting Text to Vector** • Effective for all printing types. • Negates the need for a separate font file to be sent to the printer. • Controls the quality/definition of the font (vector) when resizing and/or scaling the logo text/slogan. • Prevents the possibility of the printing company using a substitute typeface if they do not have access to the original. **Image Resolution** • 300dpi required for the **photograph** to ensure full range of colours contained in the raster (.jpeg) image. **Pantone** • Standard matching system to ensure consistency between the digital design and the physical printing. • To ensure that the colours in the logo such as the flame graphic are always the same.	3	• 1 mark for converting text to vector • 1 mark for image resolution • 1 mark for pantone
	(f)		Any 3 of the following: • Suitable for large format printing. • Suitable for wide variety of substrates. • Suitable for high quality images. • Suitable/more affordable for low volume print runs.	3	Responses should refer to the specification.
	(g)		Any 2 of the following: • Test print to check for colour correctness on substrate (colour calibration settings of the printer). • Check for crisp edge on image/text (substrate creep). • Check for contrast (hue/saturation).	2	

Question			Expected response	Max mark	Additional guidance
3.	(a)		**Bottle Top Section** • **Profile** sketch (**IMAGE 1**)– (if all dimensions opposite are included) **1 mark)** **ref.Note 1** • **Revolve** profile **(1 mark)** **ref. Note 1**	**7**	**IMAGE 1** **IMAGE 2** **before fillet** **Note 1:** 3 marks can still be awarded if the top is created by another method that yields the same result. Examples include - extrude (diameter 44, height 2 and diameter 38, height 19) and fillet (R2), extrude subtract (diameter 17, depth 19 - extrude (38 diameter, height 17) height, shell (wall thickness 2 – removing top and bottom faces), extrude (diameter 44, height 2), fillet (R2) - revolve (**IMAGE 1** shaded area)) and extrude subtract (diameter 34, depth 19) - revolve (**IMAGE 1** shaded area) and extrude subtract (diameter 34, depth 19) and fillet R2 cannot be created using a fillet unless initial profile looks like **IMAGE 2**
			Bottle Container • **Circle profile** (used for loft - create by project geometry **or** draw circle diameter 44) **and** create offset workplane (97-99) and draw **square profile** (base of bottle 44x44) **(1 mark)** • **Loft** circle to square **(1 mark)** • **Shell** lofted solid (wall thickness 2, removing top/circular face **(1 mark)**		
			Helix on Bottle • Circle (or semi-circle) for helix correctly dimensioned (R1.5 or diameter 3) and positioned (3mm from top or bottom) and axis (19 mm from the axis) **(1 mark)** **IMAGE 3** • **Helix** one revolution and 10 mm Pitch **OR** helix 1 revolution and 10 mm total height **(1 mark)**		**IMAGE 3**

Question			Expected response	Max mark	Additional guidance

3.	(b)		• Profile (**IMAGE 1**),
			  - **10-13** dimensions **(3 marks)**
			  - **7-9** dimensions**(2 marks)**
			  - **4-6** dimesnions**(1 mark)**
			  - **0-3** dimensions **(0 marks)**
			
			• **Revolve** 360 degrees around central axis **(1 mark)**
			
			• Profile for opening: **(IMAGE 2)**
			  - **arcs** (large arc R14.75, small arc R12.25) **(1 mark)**
			  - **lines** (2.5 long, 13 apart, 60 degrees angle between) **(1 mark)**
			
			• **Extrude subtract** profile **(1 mark)**
			
			• **Radial array, 360 degrees, 6** features in total **(1 mark)**
				8	**IMAGE 1**
					
					IMAGE 2
					
					Enlarged view of Openings Scale 4:1
					
					Note:
					- R1 groove may be added later as a revolve subtract
					- the centre of the R30 is not required for the dimension mark.

Question			Expected response	Max mark	Additional guidance

3.	(c)		Any examples that show where existing geometry can be used to model new parts.
			
			Examples
			• Cap and rotating cutter
			  1. Semi-circle Torus/revolve and corresponding subtraction.
			  2. Internal diameter of cap with external diameter of rotating cutter.
			• Rotating cutter and bottle
			  1. Helix and corresponding subtraction.
			  2. Internal diameter of rotating cutter with external diameter of bottle.
			
			Other possible responses
			• Gaps in the cap aligning the outside edge of the grinder teeth.
				3	Mark can be awarded where candidate has clearly shown where existing geometry has been used to create a corresponding part.
					
					'Project geometry' is a desirable but not essential part of the response.
					
					Specific features should be mentioned in candidate's response.

	(d)		Any 2 of the following: • The ridge must hold the cap securely in place: because of this function it must have a specific tolerance. • Prevent fine particles of salt from getting stuck between the parts. • So that replacement part would fit: interchangeability (female/male) component.	2	Responses do need to include the terms functional tolerance or interchangeable parts.
	(e)		Any 2 of the following: • Change the material used for the cutter teeth. • Change to the direction of the force on the teeth. • Change in the number of forces applied to the teeth. • Change to the location/distribution of the forces to somewhere else on the teeth. • Changing the scale of the stress 'bar'.	2	Note : do not award marks for change the size or number of teeth or changing the size of the applied force as these are set. Do not accept answers that apply the forces out-with the teeth.

Question			Expected response	Max mark	Additional guidance
4.	(a)		**Rule of thirds** • Position of the logo on the board is 1/3rd across and 1/3rd down the page emphasising the company. • Position of the logo on board in the photograph is 2/3^{rds} across and 2/3rds down the right-hand page. • The designer uses 1/3rd of the page for text boxes on the right-hand page. **Silhouettes** • Silhouettes of the 'man and board' on the left-hand page creates unity between left and right pages. • Silhouettes of the 'splash effect' also unifies the right and left pages. **Negative space** • The Riber logo above the title is negative space and helps reinforce the brand. • There is negative space of a 'wave' in the Riber logo which emphasises the water sports theme. • The page number is an interesting way of using negative space to add information.	6	2 marks for each element/principle.

Question			Expected response	Max mark	Additional guidance
4.	(b)		**Duplexing** • It is important that the printing on both sides is properly aligned so that both the map and the pass information are in the correct positions. **Paper opacity** • You do not want to see any of the information printed on the other side of the pass. It will look unattractive and may affect the operation of the barcode and the clarity of the logo. **Bleed** • The correct amount of bleed is vital in this design so that the correct amount of the words 'pass' and 'map' are cropped. **Registration marks** • Registration marks are vital for the pass as the barcode will not work if there is poor registration. • The logo will not have the correct definition. • Imprecise registration on any of words or images may make the pass look like a fake.	4	1 mark for each technique.
	(c)		• MPEG is a common file type and can be accessed easily on laptop and mobile devices. • MPEG is high resolution and good quality. • MPEG is better quality than an AVI file. • MPEG is a compressed video file which improves download speeds (making it suitable for a social media application).	2	Note: do not accept that MPEG can be more easily edited.

	Question		Expected response	Max mark	Additional guidance
4.	(d)		**Zoom** • Can highlight otherwise small or obscure features. • Emphasise a focal point/logo or other key information in a scene. **Transitions** • Can slow the pace of a video, provide a breathing space between scenes. • Can reinforce the theme of the video (e.g. a 'splash' transition would help emphasise the 'water' sport product). **Overlays** • Can provide additional information such as titles of scenes, names of people, locations, language subtitles. • Can provide explanation/ annotation to direct a user to specific features of the product.	**3**	1 mark for each technique.

	Question		Expected response	Max mark	Additional guidance
5.	(a)	(i)	**Interior Designer** • Space allocation so that the fixtures/furniture will fit. • Location of possible furnishings. • Checking the location of rooms so that their design is suitable for that type. • Checking the transition between rooms and movement around the property. **Prospective purchaser** • The position of the rooms so it meets their needs. • The size of the rooms so they know if their furniture fits.	3	2 marks for the professional and 1 mark for the purchaser. **Accept** • They can use the graphic to edit the room to the customer's needs. * only accept this answer for the professional or the purchaser not both
		(ii)	**Quantity Surveyor** • Cost of the building materials which can be calculated from the specified materials and dimensions. • The nature of the construction to determine costs in relation to time required for the build and labouring costs. • The style of fixtures such as the windows. **Prospective purchaser** • The range of finishes/material choices available. • The size of the property to determine if it will meet their needs. • The style/aesthetic of the property is clear from this pictorial view.	3	2 marks for the professional and 1 mark for the purchaser. * only accept this answer for the professional or the purchaser not both

Question			Expected response	Max mark	Additional guidance
5.	(a)	(iii)	**Landscape Architect** • Plant/fauna/tree positioning. • Amount of hard and soft landscaping. • Number or trees, plants, materials for costing purposes. • Direction of sunlight so suitable plants/feature positions are chosen. **Prospective purchaser** • Idea for the basic layout of the garden. • The facilities within the garden. • The maintenance requirements. • Whether the garden is south facing. • The size of the garden. • The existing land use/ colour scheme of the garden.	3	2 marks for the professional and 1 mark for the purchaser. • Provides a graphic for discussion between landscape architect and prospective purchaser*. * only accept this answer for the professional or the purchaser not both.
		(iv)	**Town Planner** • Understanding potential access issues. • Monitoring the appropriateness of the buildings in relation to the surrounding aesthetic. • The closeness to neighbouring properties/facilities. • As a basis for discussion/proposal to with local councillors / authorities*. **Prospective purchaser** • The closeness to neighbouring properties/facilities. • Whether the location is accessible by road, rail etc. • The slope of the land (south facing).	3	2 marks for the professional and 1 mark for the purchaser. **Accept** * only accept this answer for the professional or the purchaser not both **Note:** Whilst 'graphic communication as it impacts on our environment and society' was not sampled in this question paper, candidates who give responses from this area of course content should be awarded marks. For example: • Proximity or height of the land near waterways/possible flood risk. • Impact on the local environment.

[END OFMARKING INSTRUCTIONS]