S5 Visual Arts Practice Paper: Visual Elements and Design Principles, Colour Theory and Value Contrast, Painting Materials and Canvas Ratio, Perspective and Human Proportion, Photographic Exposure and Digital Resolution, Exhibition Budget and Artwork Pricing

S5 | Visual Arts | Time: 60 minutes | Total: 100 marks | 24 questions

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Part A - Visual Elements and Design Principles (18 marks)

Show working and units in calculations; answer appreciation questions in full sentences.

1. A canvas is 90 cm long and 60 cm wide. Calculate the ratio of length to width and express it as a ratio in simplest whole numbers. [5]

Answer: Ratio = 90 / 60 = 1.5, i.e. 90:60 (simplified to 3:2).

2. For a composition using the golden ratio 1.618, find the ideal height of a canvas whose width is 40 cm (1 decimal place). [5]

Answer: Height = 40 x 1.618 = 64.7 cm (about 64.7 cm).

3. Using the rule of thirds on a picture 96 cm wide, calculate the positions of the two vertical third lines measured from the left edge. [4]

Answer: Each third = 96 / 3 = 32 cm, so the two lines are at 32 cm and 64 cm.

4. Explain how the design principles of contrast and balance create visual tension, giving one example of each. [4]

Answer: Contrast example: strong differences in value, scale or warm-cool colour direct the eye and emphasise the subject. Balance example: asymmetrical balance sets one large dark mass against several small light shapes, giving stability without dullness.

Part B - Colour Theory and Value Contrast (16 marks)

Show working in calculations; use colour-theory terms in the discussion questions.

5. A blue has a value of 95 and a purple has a value of 10. Calculate the value difference and state whether it is a high-contrast pair. [4]

Answer: Value difference = 95 - 10 = 85; a gap of 85 is high contrast and gives strong visual impact.

6. On a twelve-hue colour wheel, how many degrees apart are adjacent hues? Complementary hues are 180 degrees apart, so how many steps is that? [4]

Answer: Each step = 360 / 12 = 30 degrees; complementary hues are 180 / 30 = 6 steps apart.

7. Mix 3 parts blue with 2 parts yellow to make green. Calculate the percentage of each primary colour in the mixture. [4]

Answer: Total parts = 3 + 2 = 5; blue = 3 / 5 x 100% = 60.0%, yellow = 2 / 5 x 100% = 40.0%.

8. Explain how cool and warm colours differ in mood, naming one colour and its usual association for each. [4]

Answer: Warm colours (red, orange, yellow) suggest sun and fire, feeling advancing, energetic and intimate; cool colours (blue, green, violet) suggest sky and water, feeling receding, calm and distant. Placing both in one picture creates spatial depth.

Part C - Painting Materials and Canvas Ratio (17 marks)

Show working and units in calculations; keep a sensible number of decimal places.

9. A canvas measures 1.2 m by 0.9 m and linen costs 180 dollars per square metre. Calculate the area and the cost of the linen (1 decimal place). [5]

Answer: Area = 1.2 x 0.9 = 1.08 square metres; cost = 1.08 x 180 = 194.4 dollars.

10. Four paint tubes of 37 ml each cost 168 dollars in total. Calculate the total volume and the price per millilitre (2 decimal places). [4]

Answer: Total volume = 4 x 37 = 148 ml; price per ml = 168 / 148 = 1.14 dollars.

11. A3 paper measures 297 mm by 420 mm. Calculate the length-to-width ratio (2 decimal places) and name the standard ratio it approximates. [4]

Answer: Ratio = 420 / 297 = 1.41, close to the square-root-of-two ratio (1.41:1); folding an A-series sheet in half keeps the same ratio.

12. State two environmental factors to control when storing acrylic paintings and explain why each matters. [4]

Answer: Ultraviolet light: prolonged exposure fades and yellows acrylic paint, so direct sunlight should be avoided. Temperature and humidity: high humidity causes mould on the canvas and warping of the wooden stretcher, so a dry, stable environment is best.

Part D - Perspective and Human Proportion (17 marks)

Show working in calculations; describe drawings in words where needed.

13. In two-point perspective a box has a near edge of 8 cm and a far edge of 5 cm. Calculate the percentage reduction of the far edge relative to the near edge. [5]

Answer: Reduction = (8 - 5) / 8 x 100% = 37.5%, consistent with the rule that distant forms appear smaller.

14. Draw a figure 165 cm tall using a 7.5-head canon. Calculate the head height and the height of the shoulder line (taken as 1.5 head lengths). [4]

Answer: Head height = 165 / 7.5 = 22 cm; shoulder line = 1.5 x 22 = 33 cm.

15. A sketch measuring 15 cm by 20 cm is enlarged so that its width becomes 45 cm. Calculate the scale factor and the enlarged height. [4]

Answer: Scale factor = 45 / 15 = 3.0; height = 20 x 3.0 = 60 cm.

16. Explain the principle of aerial (atmospheric) perspective and describe two ways it is shown in landscape painting. [4]

Answer: Principle: light passes through a thicker layer of air, so distant objects lose contrast and saturation and show less detail. Methods: distant forms are lighter in value with weaker contrast, and their colours shift toward cool blue with softer edges.

Part E - Photographic Exposure and Digital Resolution (16 marks)

Show working in calculations; justify your answers in comparison questions.

17. Print an 8 inch by 10 inch photograph at 300 dpi. Calculate the minimum pixel dimensions required (width x height). [4]

Answer: Pixels = 300 x 8 = 2400 wide and 300 x 10 = 3000 high, i.e. 2400 x 3000.

18. Stopping the aperture from f/5.6 to f/11 reduces the light by how many stops? Show the f-number sequence. [4]

Answer: The sequence is 5.6, 8, 11, i.e. 2 stops; each stop halves the light, so the exposure falls to one quarter.

19. Raising ISO from 100 to 400 increases exposure by how many stops? State the cost of a higher ISO. [4]

Answer: 400 / 100 = 4, so exposure rises by 2 stops (each stop doubles). The cost is more image noise and loss of detail and colour purity.

20. Explain the relationship between aperture size and depth of field, with examples for portraits and landscapes. [4]

Answer: A wider aperture (smaller f-number) gives shallower depth of field; a narrower aperture (larger f-number) gives deeper depth of field. Portraits use a wide aperture such as f/2 to blur the background, while landscapes use a small aperture such as f/11 to keep near and far subjects sharp.

Part F - Exhibition Budget and Artwork Pricing (16 marks)

Show working and units in calculations; give practical measures in the discussion question.

21. Exhibition costs are 6,000 dollars for venue hire, 1,200 dollars for printing and 800 dollars for insurance. Calculate the total budget and the cost per artwork for 20 works. [4]

Answer: Total budget = 6,000 + 1,200 + 800 = 8000 dollars; per work = 8000 / 20 = 400 dollars.

22. A gallery charges 40%% commission on the sale price. For a work sold at 5,000 dollars, calculate the artist's net income and the commission. [4]

Answer: Commission = 5,000 x 40% = 2000 dollars; the artist receives 5,000 - 2000 = 3000 dollars.

23. From the budget above, what percentage of the total is venue hire? If the rent rises by 20%%, by how much does the total budget increase? [4]

Answer: Venue share = 6,000 / 8000 x 100% = 75.0%; increase = 6,000 x 20% = 1200 dollars, raising the total budget to 9200 dollars.

24. Describe three practical ways a small exhibition can control costs, explaining how each affects the final budget. [4]

Answer: Share a studio or school hall to cut rent; use digital instead of screen printing to cut print costs; invite guests instead of a large campaign and share staffing with classmates. Each reduces fixed costs, lowering the cost per work and moving the break-even point earlier.
