S5 Visual Arts Practice Paper (Set 1): exhibition attendance and ticket revenue, auction hammer price and commissions, canvas area and material cost, digital image resolution and compression, studio hours and pricing, public art budget and benefit

Senior Secondary Visual Arts

S5 Visual Arts Set 1: 24 parts, 100 marks, 60 min on exhibition revenue, auction commission, canvas cost, image compression, studio pricing and public art budget.

Question 1: Exhibition Attendance and Ticket Revenue

The figures below are annual data of a public art museum (teaching example). Show your working.

#	Question
1	Annual attendance is 480,000, of which 62% are adults, 25% concession tickets and the rest free entry. Find the number of adult and concession visitors.
2	Adult tickets cost 80 dollars and concession tickets 40 dollars; free entry earns nothing. Find the annual ticket revenue in dollars.
3	The museum raises both ticket prices by 15% and expects attendance of both categories to fall by 8%. Find the new ticket revenue and the percentage change in revenue.
4	Revenue rises while attendance falls. Give one argument for and one argument against the view that a public art museum should aim to maximise revenue.

Question 2: Auction Hammer Price and Commissions

A painting is sold at the teaching hammer price below. Show your commission working.

#	Question
5	The hammer price is 2,400,000 dollars and the buyer pays a premium of 22%. Find the total amount payable by the buyer.
6	The seller pays 10% commission plus 3,000 dollars for insurance and catalogue costs. Find the net proceeds.
7	Find the auction house total commission income and explain how buyer premium and seller commission differ as market signals.
8	The buyer pays 2,928,000 dollars. If the work appreciates 6% a year compounded, find its value after five years (to the nearest hundred dollars) and the five-year percentage gain.

Question 3: Canvas Area and Material Cost

A studio produces a series of paintings using the unit prices below as teaching examples.

#	Question
9	A canvas measures 0.6 m wide by 0.9 m high. Find its area in square metres and the frame length needed in metres.

#	Question
10	Canvas costs 120 dollars per square metre, priming 30 dollars per square metre and framing 45 dollars per metre. Find the material cost per painting.
11	For a batch of 8 identical canvases the canvas price is discounted by 10% (priming and framing unchanged). Find the total material cost for 8 paintings.
12	If each work is priced at three times its material cost, find the total revenue for 8 paintings and the gross margin (%). State one risk of pricing on material cost alone.

Question 4: Digital Image Resolution and Compression

Works are photographed for a catalogue and a website. Show your working.

#	Question
13	An image is 3,000 by 2,000 pixels. Find the total number of pixels.
14	Each pixel uses 3 bytes (24-bit colour) uncompressed. Find the file size in MB (1 MB = 1,000,000 bytes).
15	After JPEG conversion the file is 2.7 MB. Find the compression ratio (%) and explain the trade-off with image quality.
16	For printing at 300 dpi, find the largest printable size in centimetres (1 decimal place) and judge whether it is enough for A4 output (21.0 x 29.7 cm).

Question 5: Studio Hours and Pricing

A studio prices work from hours, materials, rent and exhibition commission (teaching example).

#	Question
17	The work takes 45 hours at a costed rate of 180 dollars per hour. Find the labour cost.
18	Materials cost 216.00 dollars; studio rent is 6,000 dollars a month for an average of 4 works. Find the total cost per work.
19	The exhibition takes 40% commission. If net income after commission must exactly equal total cost, find the listed price (to the nearest dollar).
20	If the work sells for 20,000 dollars, find net income, profit and profit margin (%). Explain why pricing must include hours, not only materials.

Question 6: Public Art Budget and Social Benefit

Budget and benefit estimates of a district public art scheme are teaching examples.

#	Question
21	The scheme has a budget of 3,600,000 dollars, 70% for construction and the rest for maintenance over 5 years. Find the annual maintenance cost.
22	Estimated use is 250,000 visits a year with a social benefit of 18 dollars per visit. Find the annual social benefit and the benefit-cost ratio (using the construction budget as cost, 2 decimal places).

#	Question
23	If construction overruns by 12% with benefits unchanged, find the new benefit-cost ratio and explain what a ratio of 1.12 means for policy.
24	Compute the 5-year total benefit, total cost (construction plus maintenance) and net benefit, and state one limitation of benefit valuation.

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