Rewarding Learning

ADVANCED SUBSIDIARY (AS)
General Certificate of Education
2013

History of Art

Assessment Unit AS 2

assessing

Module 2: Architecture, Craft and Design

[AD121]

FRIDAY 14 JUNE, MORNING

MARK SCHEME

General Marking Instructions

Introduction

Mark schemes are published to assist teachers and students in their preparation for examinations. Through the mark schemes teachers and students will be able to see what examiners are looking for in response to questions and exactly where the marks have been awarded. The publishing of the mark schemes may help to show that examiners are not concerned about finding out what a student does not know but rather with rewarding students for what they do know.

The Purpose of Mark Schemes

Examination papers are set and revised by teams of examiners and revisers appointed by the Council. The teams of examiners and revisers include experienced teachers who are familiar with the level and standards expected of students in schools and colleges.

The job of the examiners is to set the questions and the mark schemes; and the job of the revisers is to review the questions and mark schemes commenting on a large range of issues about which they must be satisfied before the question papers and mark schemes are finalised.

The questions and the mark schemes are developed in association with each other so that the issues of differentiation and positive achievement can be addressed right from the start. Mark schemes, therefore, are regarded as part of an integral process which begins with the setting of questions and ends with the marking of the examination.

The main purpose of the mark scheme is to provide a uniform basis for the marking process so that all the markers are following exactly the same instructions and making the same judgements in so far as this is possible. Before marking begins a standardising meeting is held where all the markers are briefed using the mark scheme and samples of the students' work in the form of scripts. Consideration is also given at this stage to any comments on the operational papers received from teachers and their organisations. During this meeting, and up to and including the end of the marking, there is provision for amendments to be made to the mark scheme. What is published represents this final form of the mark scheme.

It is important to recognise that in some cases there may well be other correct responses which are equally acceptable to those published: the mark scheme can only cover those responses which emerged in the examination. There may also be instances where certain judgements may have to be left to the experience of the examiner, for example, where there is no absolute correct response – all teachers will be familiar with making such judgements.

AS Generic Mark Scheme

Assessment Criteria	Level 1 0–12 marks	Level 2 13–24 marks	Level 3 25–36 marks	Level 4 37–48 marks	Level 5 49–60 marks
Knowledge Source, select, recall material to demonstrate knowledge effectively (AO1).	Insufficient knowledge. Recall lacking scope, depth, relevance and/or accuracy.	Limited knowledge. Recall problematic in scope, depth, relevance and/or accuracy.	Satisfactory knowledge. Recall mostly satisfactory in scope, depth, relevance and accuracy.	Good knowledge. Recall extensive, relevant and accurate, with minor lapses.	Excellent knowledge. Recall extensive, relevant and accurate.
Understanding Demonstrate understanding through analysis and make substantiated judgements and sustained discussion and/or arguments (AO2).	Insufficient understanding. Any relevant analysis, judgements, discussion and arguments unsubstantiated and/or unsustained.	Limited understanding. Any relevant analysis, judgements, discussion and arguments problematic.	Satisfactory understanding. Analysis, judgements, discussion and/or arguments mostly relevant and satisfactorily substantiated.	Good understanding. Analysis, judgements, discussion and/or arguments relevant, substantiated and sustained, with minor lapses.	Excellent understanding. Relevant and fully substantiated and sustained analysis, judgements, discussion and/or arguments.
Communication Present a clear and coherent response (AO3), addressing Quality of Written Communication requirements.	Insufficient communication. Unclear, incoherent and/or non-extensive, with inaccurate spelling, punctuation and/or grammar, and/or inappropriate vocabulary and/or form/style of writing.	Limited communication. Clarity, coherence, extensiveness, spelling, punctuation, grammar, vocabulary and/or form/style of writing problematic.	Satisfactory communication. Clarity, coherence, extensiveness, spelling, punctuation, grammar, vocabulary and form/style of writing mostly satisfactory.	Good communication. Clear coherent, and extensive, with accurate spelling, punctuation and grammar, and appropriate vocabulary and form/style of writing, with minor lapses.	Excellent communication. Clear, coherent and extensive, with accurate spelling, punctuation and grammar, and appropriate vocabulary and form/style of writing.
Marks available for each AC	1 2 3 4	5 6 7 8	9 10 11 12	13 14 15 16	17 18 19 20

Throughout this mark scheme:
- *insufficient* – clear that minimum required standard for an AS pass has not been achieved
- *limited* and *problematic* – unclear that minimum required standard for an AS pass has been achieved.

AS 2 Mark Scheme

Candidates' demonstrated knowledge and understanding of the indicative content will be assessed against the assessment criteria and performance descriptors within the AS Generic Mark Scheme above.

For each question, candidates must demonstrate some knowledge and understanding of the relevant 'immediate context' – within their historical contexts, closely associated artistic styles, themes, centres, movements and/or practitioners, as identified within the particular subject content section. 'Immediate contexts' shown below reproduce in full content descriptions directly relating to the questions, with the less relevant contextual content shown in summary form. The major part of each answer should not be contextual but, rather, drawn from the subject content to directly address the question.

Principal practitioners and works relevant to the examination question should be dated on first mention. Basic biographies should be provided for these principal practitioners. (To assist examiners, information within the Mark Scheme may occasionally be extensive – more than expected from any single candidate's answer.)

For archiving purposes each question is given a six-digit reference, the first three digits identifying the year (09, 10…) and examination series (1, January; 2, May–June), and the second three the unit (1–4) and section number (01–10).

AS 2 Section 1 – Greek architecture

132.201: If the term *structures* refers to basic forms, and *aesthetics* to such as proportions and decoration, in which respect was Greek architecture more innovative: structures or aesthetics? Establish contexts and refer to appropriate architects (where known) and works in support of your answer.

Indicative content

Answers should include the following:

KNOWLEDGE

- Immediate context:
  - **Classical orders** Three major Greek building styles governing detail of column, capital, entablature and their constituent parts; terms, descriptions (including visual where appropriate), development, significance. Doric: imposing 'masculine' strength, characteristic sculpted frieze of triglyphs and metopes. Ionic: 'feminine' delicacy, continuous sculpted frieze. Corinthian; possibly designed by Callimachus: decorative emphasis, limited use by Greeks; interiors, exteriors.
  - **Materials and methods** From timber to limestone and marble; adherence to trabeated (post-and-lintel) system; structural and optical refinements; use of mathematics and geometry; significance.
  - **Religious** Development of temple through Archaic (late 8thC–c.480 BC), Classical (c.480–323 BC) and Hellenistic (c.323–27 BC) periods; its religious and social functions; major examples in European Greece, Sicily, Southern Italy, Greek Asia Minor. Ictinus (Iktinus), Mnesicles, Callicrates (Kallikrates).
  - **Civic** Town-planning; theatre design; major examples.
- Identification of practitioners and works, and descriptions of works, e.g.:
  - Ictinus (Iktinus) and Callicrates (Kallikrates), overseen by Phidias.
    - Parthenon, Acropolis, Athens, 448–432 BC.
      - Commissioned by Pericles. Pentelic marble used throughout. Doric peristyle of 8×17 columns (overall measurements 33.5×72.2 m/110×237 ft) with Ionic sculpted frieze high on outside of the cella walls. Portico at each end, two columns deep. Cella divided into two rooms, the smaller, to the west, the *parthenon* or treasury; the main room or naos, opening to the east, housed Phidias's chryselephantine (gold and ivory over wooden core) statue of Athena, some 12 m/40 ft tall. Other sculpture in the two pediments and 92 metopes.
  - Mnesicles(?).
    - Erechtheum, Acropolis, Athens, 421–405 BC.
      - Small, venerable, uniquely complex Ionic temple; dedicated to Erechtheus, Poseidon and Athena. Irregular layout and levels, with three differently sized Ionic colonnades (site slopes from north to south and from east to west). Caryatid porch (flat roof supported by six columns in the form of maidens) to the south, facing the Parthenon; finely decorated friezes and capitals.
  - Architect(s) unknown.
    - Choragic Monument of Lysicrates, Athens, 335–334 BC.
      - Monument erected by the *choregos* (patron of theatrical performances) Lysicrates to display a bronze tripod won by him for sponsoring a chorus at the Theatre of Dionysus. One of the earliest surviving examples of the Corinthian order used on a building's exterior. The tall square base supports a hollow circular structure (without access), with six engaged Corinthian columns, and topped by an acanthus finial.
- Materials and methods, e.g.:
  - From timber and mud brick to limestone and marble:
    - Archaeological problem of very little physical remains of timber and mud brick buildings.
    - Egyptian, Mycenaean and Minoan architectural influences, including Mycenaean 'megaron' or house.
    - Earliest known Greek stone temples (such as Temple of Artemis, Corfu, c. 580 BC) emerge with principal (Doric) features largely established.
    - Availability of suitable limestone and marble encourages use of these materials.
    - Overlap of architectural materials and methods with the sculptural.

- Developed practice of building without mortar, relying on finely crafted masonry jointing (sometimes discreetly supplemented with bronze, lead or wooden pins/clamps).

- Adherence to trabeated (post-and-lintel) system:
  - Arch and its various permutations known to Greek (and Egyptian) architects but chose not to use them.
- Structural and optical refinements:
  - Orders: the three major Greek building styles governing detail of column, capital and entablature and their constituent parts.
  - Entasis: slight convex swelling given to columns, thought to offset the natural illusion of concavity and/or weakness produced if perfectly straight-sided.
  - Slight convex curve given to stylobate and entablature, thought to offset the natural illusion of sagging produced if perfectly horizontal (and also to allow for rainwater run-off).
  - Inclination of columns: subtle inclination of columns towards central axis of building, thought to enhance sense of structural coherence.
  - Spaces between columns at the corners slightly reduced, thought to enhance sense of structural solidity and coherence.
- Use of mathematics and geometry:
  - Parthenon (see above), with its 8 × 17 peripteral columns, exemplifies the 2n+1 ratio typical of Greek temple design.
  - Various proportioning systems have been proposed for Greek temple design, including, for the Parthenon, ones based on a 0.89 m/35.0 in module, the 4:9 ratio and/or the Golden Section.

- Religious, e.g.:
  - Callicrates (Kallikrates) and Ictinus (Iktinus), Parthenon (see above).
  - Mnesicles(?), Erechtheum (see above).
- Civic, e.g.:
  - Town-planning.
    - Boundaries, streets, public spaces, and zones or districts (sacred, public and private); gridded street plans; agoras (open public meeting areas), stoas (long, rectangular, colonnaded municipal halls). Examples: Athens and, in Greek Asia Minor (Turkey), Miletus and Priene.
  - Theatre design.
    - Set into a suitable hillside; tiered stone seating, regularly divided by access aisles, radiating up and out from a circular, or almost circular, orchestra (where the actors, chorus and dancers performed). Examples: Priene, 5-4th C BC; Epidaurus, c. 350–300 BC; Theatre of Dionysus, Athens, c. 330 BC; Delphi, c. 160 BC.

UNDERSTANDING

- Analysis/interpretation/significance/appraisal, e.g:
  - Classical orders.
    - Orders (and temple design) reveal sustained aesthetic development over many generations, the Greeks seemingly uninterested in developing more structurally/spatially/functionally efficient building systems.
    - Parthenon and Erechtheum the principal temples of Athens and the city's patron goddess Athena; Classical masterpieces; enormous expense and care lavished on their construction; in some respects more like great sculptures than buildings.
    - Aesthetic development of architectural orders and other embellishments hand-in-hand with aesthetic developments in sculpture – closely integrated.
    - Doric and Ionic orders seen as visual expressions of distinctive components of the Greeks themselves (the Dorian and Ionian peoples, and/or male and female, respectively) whilst also allowing expressions of national/civic harmony/unity.
    - Corinthian order little used by Greeks themselves, especially on exteriors, but highly influential on Roman architecture, and subsequently.
  - Materials and methods.
    - Pursuit of aesthetic and technical perfectionism, ultimate refinement, arguably a major national characteristic. Perhaps this is key factor in their choosing to persevere with a temple structure (trabeated/ post-and-lintel) essentially primitive and spatially inefficient (compared with arcuated/arch-based structures). Innovative in terms of structural details but not the basic forms.
    - In Greek temple design, architectural development is closely integrated with the sculptural/aesthetic. Other aspects of Greek cultural life – such as the philosophical, literary and mathematical – may be similarly related (e.g. the application of mathematics in various proportioning systems proposed for the Parthenon, such as ones based on a 0.89 m/35.0 in module, the 4:9 ratio and/or the Golden Section).
  - Religious.
    - Athenian Acropolis and its buildings highly visible focal point for entire city, reinforcing sense of religious and social cohesion.
    - Western room within the Parthenon also the city-state treasury. Functional in sense of providing a relatively high level of protection, but aesthetic interests also served.
    - Greek religious worship patterns, and the climate, exerted little pressure to accommodate large numbers of worshippers within temples. The religious festival of the annual Panathenaic Procession – up to and through the Athenian Acropolis and its complex of buildings – an example of how the site was used and how Greeks observed their religion and simultaneously promoted social cohesion.
  - Civic.
    - Greek town-planning and theatre designs basis for most later developments. Greek theatre design arguably prioritises aesthetics (sense of place, sense of openness) over structure/function.
- Any other valid content to be identified at the standardising meeting and credited.

AS 2 Section 2 – Early Renaissance Italian architecture

132.202: If the term *structures* refers to basic forms, and *aesthetics* to such as proportions and decoration, in which respect was Early Renaissance Italian architecture more innovative: structures or aesthetics? Establish contexts and refer to appropriate architects and works in support of your answer.

Indicative content
Answers should include the following:
KNOWLEDGE

- Immediate context:
  - **Classical influence and rise of Humanism** Emergence from Gothic and Byzantine traditions; studying, questioning, challenging; individualism; architect's status rises; enlightened patronage.
  - **Technical and aesthetic developments** Structural engineering innovations; interest in mathematics, geometry, proportion; discovery (or rediscovery?) of perspective and its impact.
  - **Florence as centre** Isolated examples elsewhere; Filippo Brunelleschi, Leon Baptista (Battista) Alberti, Michelozzi Michelozzo (Michelozzo di Bartolommeo), Giovanni Pisano, Bernardo Rossellino.
- Identification of required practitioners and works, and descriptions of works, e.g.:
  - Filippo Brunelleschi (1377–1446). Leading 15th century Florentine goldsmith, sculptor and architect. 1401, lost to Ghiberti competition for north Baptistery doors; thereafter, concentrates on architecture, spending time in Rome studying buildings of antiquity. About 1410–1420, (re)discovers linear/scientific perspective. Innovative structural and mechanical engineer.
    - Florence Cathedral Dome, 1420–1436.
      - 1418, Brunelleschi wins competition with design of octagonal pointed arch form with 8 principal stone ribs and 16 secondary ones; the secondary ribs encased in a double-shell of stone in the lower part of the dome and herringbone brick in the upper. The brick-laying technique was derived from Ancient Roman buildings and permitted the dome to be erected without timber centring. Hoists and other special equipment

needed also designed by Brunelleschi. 1436–1451, lantern added, overseen and possibly partly designed by Michelozzo di Bartolommeo (1396–1472).

- Leon Baptista (Battista) Alberti (1404–1472). Quintessential 'Renaissance man', highly accomplished in a range of the arts and humanities. Born into Florentine nobility but the family expelled from the city for political reasons in 1402; Alberti himself first recorded there in 1434.
  - Malatesta Temple (Tempio Malatestiano/S. Francesco), Rimini; exterior designed 1450.
    - Refurbished classical exterior, designed 1450, enclosing original Gothic church; ground storey only completed; a domed roof intended. Front façade of 3 semi-circular arches, the central one framing the pedimental main door; the 2 side arches left as shallow niches. A plinth, broken at the entrance, surrounds the building and supports, on the front façade, 4 fluted engaged columns and, on each of the side elevations, 7 deep semi-circular arches. Above the columns and arches, a heavy entablature. Small round windows throughout. The capitals of the engaged columns to Alberti's own design, incorporating volutes, egg-and-dart mouldings, acanthus leaves and winged cherub heads.
- Bernardo Rossellino (b. Settignano, near Florence, c. 1409; d. Florence 1464); sculptor, architect and town planner. Studied under Alberti.
  - Tomb of Leonardo Bruni, 1444–1447, marble; Santa Croce, Florence.
    - Bruni, a leading Florentine humanist and statesman, is depicted lying on a bier, which is supported by Roman eagles, holding a copy of his book, *History of the Florentine People* or *History of Florence*, and with a laurel crown on his head. Below him is a sarcophagus with an inscribed plaque held by two angels or genii in bas-relief. Translated from Latin, the inscription reads: "At Leonardo's passing, history grieves, eloquence is mute, and it is said that the Muses, Greek and Latin alike, cannot hold back their tears". A fluted Corinthian pilaster either side and a semi-circular arch above frame the figure. Above the arch, a medallion of a rampant lion, the Bruni family coat-of-arms, supported either side by an angel or cupid. The niche immediately behind the figure is divided into three simple rectangular panels. Above these, a deep florally-ornamented architrave, and above this, within the arch, a tondo bas-relief of the Madonna and Child, this also supported by two angels. The arch itself is highly ornamented with laurel leaf and other decoration.

UNDERSTANDING

- Analyses/interpretation/significance/appraisal, e.g.:
  - Brunelleschi.
    - Florence Cathedral Dome.
      - Largest dome since the Pantheon in Rome, c. 118–125, and the highest to that time. Highly innovative and daring engineering solution. Resolution involving Ancient Roman, Gothic and Renaissance forms and techniques. Structural innovation arguably exceeds aesthetic in this example. Alternatively, arguable that structural and aesthetic here achieve a harmonious balance.
  - Alberti.
    - Malatesta Temple.
      - Alberti's refurbishment borrows elements from the antique triumphal arch (including the Arch of Augustus in Rimini itself) but also brings an innovative and individual sense of design and massing of forms that significantly influences the development of Renaissance architecture. Limited structural innovation; exceeded by aesthetic.
  - Rossellino.
    - Tomb of Leonardo Bruni.
      - Architectural and sculptural forms in close harmony. Highly influential example of wall tomb. The abundant references to Greek and Roman antiquity set against the relatively few Christian ones clearly illustrate a cultural shift towards Humanism. Limited structural innovation; exceeded by aesthetic.
- Any other valid content to be identified at the standardising meeting and credited.

AS 2 Section 3 – European architecture Renaissance to Rococo

132.203: If the term *structures* refers to basic forms, and *aesthetics* to such as proportions and decoration, in which respect was European architecture Renaissance to Rococo more innovative: structures or aesthetics? Establish contexts and refer to appropriate centres, architects and works in support of your answer.

Indicative content
Answers should include the following:
KNOWLEDGE

- Immediate context:
  - **France** Armies of Charles VIII of France invade Italy 1494; Italian Renaissance gradually influences French Gothic; rich mix of classical and romantic tendencies; François Mansart (Mansard), Louis Le Vau, Jules Hardouin Mansart (Mansard).
  - **Britain** Reformation; Henry VIII breaks with Rome and establishes Church of England, 1529; period of iconoclasm; resistance to and isolation from Renaissance artistic influences; first colony established in Virginia, N. America, 1607, marking beginning of 300 years of overseas expansion; architectural expression mainly through great country houses; Robert Smythson, Inigo Jones, Christopher Wren, Nicholas Hawksmoor (Hawksmore), John Vanbrugh.
- Identification of required practitioners and works, and descriptions of works, e.g.:
  - François Mansart (1598–1666).
    - Château of Maisons (today Maisons-Lafitte), near Paris, 1642–1650.
      - Free-standing château on moated stone terrace, commissioned by wealthy financier René de Longeuil.
  - Louis Le Vau (1612–1670).
    - Château of Vaux-le-Vicomte, Maincy, Melun, c. 1656–1661.
      - The most magnificent chateau to that time, built for Nicolas Fouquet, the French Overseer of Finance, later charged with embezzlement. Interiors decorated by Charles Lebrun (1619–1690) and others. Extensive formal gardens, incorporating a moat, designed by André Le Nôtre (1613–1700). Double-storey arcaded structure approached through central courtyard, flanked by service buildings. Rectangular hallway leading to octagonal domed saloon opening onto the gardens; a grand apartment either side, one for Fouquet and one for royal visits (Louis XIV).
  - Jules Hardouin Mansart (1646–1708). Grandnephew of François Mansart, under whom he trained. Appointed Architect to the King (Louis XIV) 1675. Began redesign and expansion of the Palace of Versailles 1678; thereafter given responsibility for major architectural projects throughout France.
    - Church of the Invalides (or the Dôme of the Invalides), Paris, c. 1676–1706.
      - Belonging to an institution caring for disabled soldiers. Hardouin Mansart appointed to the project in 1676, taking over from Libéral Bruant who had been appointed in 1670. Plan based on Greek cross with a circular chapel in each of the four corners. Square substructure topped by a tall tambour and slender dome (105 m/344 ft high), with an oculus.
  - Christopher Wren (1632–1723). Son of the Dean of Windsor. Educated in sciences at Oxford. Appointed professor of astronomy at Gresham College, London c. 1656. Savilian professor of astronomy at Oxford 1661–1673. Earliest architectural work c. 1662–1663; commissions largely for church or crown. 1664–1665, consulted on refurbishment of the Old St Paul's Cathedral, following which he spent several months in Paris studying major buildings by François Mansart (1598–1666), Louis Le Vau (1612–1670) and others, and briefly meeting Gianlorenzo Bernini (1598–1680). Following Great Fire of London in 1666, appointed Surveyor General to the Crown 1669. Involved in designing 51–52 of the city's churches, c. 1670–1686. Saw himself as effectively having to invent a new tradition of church architecture, writing, "…in our reformed

Religion, it should seem vain to make a Parish church larger than that all who are present can both hear and see. The Romanists, indeed, may build larger Churches, it is enough if they hear the murmur of the Mass, and see the Elevation of the Host, but ours are to be fitted for Auditories".

- Sheldonian Theatre, Oxford, c. 1663–1669.
  - Building intended for university ceremonials. Exterior derived from Serlio's reconstruction of D-shaped Theatre of Marcellus, Rome. Interior remarkable for using triangulated timber trusses to span 21.3 m/70 ft without ground supports.
- St Paul's Cathedral, London, 1673–1710.
  - Various designs proposed, including a domed Greek-cross with portico of giant Corinthian columns (Wren's own preference; the wooden 'Great Model', 1673, still exists), before building began on a Latin-cross design, with a spire over the crossing, and a classical portico – the 'Warrant Design', 1675. Wren made many changes to this design over the course of its construction, including changing the spire to a dome, similar to the one in the Great Model.

o John Vanbrugh (1664–1726). Soldier turned playwright turned architect. Influenced and aided by Nicholas Hawksmoor.

- Blenheim Palace, Woodstock, Oxfordshire, 1705–25.
  - National tribute to, and country residence of, Duke of Marlborough. Monumental stately home. Symmetrical arrangement of colonnades and porticoed and other buildings around gradually narrowing central forecourt.

UNDERSTANDING

- Analysis/interpretation/significance/appraisal, e.g.:
  - o François Mansart.
    - Château of Maisons.
      - Generally seen as his masterpiece. Essentially French classical but with constrained Baroque expression, as perhaps best seen in treatment of the vestibule leading to the grand staircase – classical pilasters surmounted by curvilinear ceiling. Limited structural innovation; aesthetic arguably dominant.
  - o Louis Le Vau.
    - Château of Vaux-le-Vicomte.
      - Highly influential – used as model for Le Vau's own redesign and expansion of the Palace of Versailles, 1669. Limited structural innovation; aesthetic arguably dominant.
  - o Jules Hardouin Mansart.
    - Church of the Invalides.
      - Strongly influenced by Roman Baroque and particularly the plan and dome designed by Michelangelo for St. Peter's. In turn, Mansart influenced many others well into the 18thC; some of his Palace of Versailles work, such as the Hall of Mirrors, begun 1678, anticipating Rococo. Limited structural innovation; aesthetic arguably dominant.
  - o Christopher Wren.
    - Sheldonian Theatre.
      - Exemplifies mathematical and scientific understanding allied to innovative, imaginative structural engineering.
    - St Paul's Cathedral.
      - Centralised Greek-cross design of 1673 rejected as impractical, too radical and/or insufficiently Protestant; final building a masterly solution to a demanding brief and impressive synthesis of many stylistic influences; definitive statement of English Protestant Baroque. Aesthetically and structurally innovative.
  - o Vanbrugh.
    - Blenheim Palace.
      - Dramatic scale, theatricality of effect (approach through narrowing forecourt creates impression of greater distance and scale); towers at four corners of forecourt surmounted by highly sculptural lanterns testify to Italian Baroque influence. Aesthetic innovation dominant.
- Any other valid content to be identified at the standardising meeting and credited.

132.204: If the term *structures* refers to basic forms, and *aesthetics* to such as proportions and decoration, in which respect was architecture 1835–1918 more innovative: structures or aesthetics? Establish contexts and refer to appropriate movements, architects and works in support of your answer.

Indicative content
Answers should include the following:
KNOWLEDGE

- Immediate context:
  - **Arts and Crafts Movement** Structural and decorative integration; contribution to ideas of suburb and Garden City; Philip Webb, Charles F. Voysey, Edwin Lutyens.
  - **Art Nouveau** Painting and plant form influences; influence of Viollet-le-Duc's 'structural rationalism'; Antonio (Antoni) Gaudí, Victor Horta, Charles Rennie Mackintosh.
  - **Wiener Werkstätte and Deutscher Werkbund** Innovative practice in Austria and Germany; tension between 'arts and crafts' and industrial approaches; Adolf Loos, Josef Hoffmann, Peter Behrens.
  - **Independents** Joseph Paxton, Gustave Eiffel, Dankmar Adler and Louis Sullivan, Frank Lloyd Wright.
- Identification of required practitioners and works, and description of works, e.g.:
  - Philip Webb (1831–1915). Architect and designer; close associate of William Morris (1834–1896) and one of the founding members of the Arts and Crafts Movement.
    - Red House, Bexley Heath, Kent, 1859–1860.
      - Marriage home for Morris and his bride Jane Burden; L-shaped plan; red brick construction, left bare; red tile pitched roof, roof-lines varying; doors and windows mostly within pointed arches but varied in shape and size.
  - Antonio Gaudí (1852–1926). Son of a coppersmith. Based in Barcelona, where almost all of his work is found. A unique style, within Art Nouveau, based on organic structures, exuberantly textured and coloured. Influenced by nature, religious belief, Catalonian independence movement (political and artistic), Moorish design and the architectural theories of Eugène Emmanuel Viollet-le-Duc.
    - Sagrada Familia (variously referred to as a church, cathedral or temple), Barcelona, 1875–ongoing.
      - In 1883–1884 Gaudí replaced Francesco del Villar as architect, continuing to work on the church until his death. He replaced his predecessor's modest Neo-Gothic design, with flying buttresses, with a highly complex one, of cathedral proportions, in which the arches, piers and columns are 'equilibrated' (self-supporting – tilting, dispensing with the need for internal bracing or external buttressing). Catenary model based on Hooke's Law ("the arch stands as the loaded chain hangs", 1660–1675; weighted loops of cord/wire suspended from ground-plan set out on a large board and then inverted, each loop corresponding with the size and loading of a particular arch).
  - Victor Horta (1861–1947). Belgian pioneer of Art Nouveau architecture and, in particular, use of iron as both a structural and decorative element within domestic architecture.
    - Hôtel Tassel, Brussels, 1892–1893.
      - Four-storey town house of stone, iron and glass. Cast-iron used both structurally and decoratively. Façade of centred doorway surmounted by bowed windows on first and second floors, and a bowed balcony on third floor; an exposed cast-iron beam at eaves level; stonework relatively restrained. Large octagonal hall and stairwell; the iron staircase and columns given vegetal forms and these carried through into the floor mosaics and wall decorations.
  - Peter Behrens (b. Hamburg 1868, d. Berlin 1940). Highly influential architect, and industrial, corporate identity and furniture designer. 1886–1889, studied painting in Karlsruhe. 1890s, worked in Jugendstil (German Art Nouveau) style as painter and designer in Munich. 1893, cofounded Sezession movement of artists, architects and designers. 1899, influenced by J. M. Olbrich to take up architecture. 1903–1907, Director of Düsseldorf School of Applied Arts, directing studies away from craft-based approach and towards industrial design and work-based practice. 1907, founding member of Deutscher Werkbund, its aim to modernize German design. 1907–1914, design consultant with AEG, the electrical manufacturing

company, designing buildings, products, publicity material, workers' housing and furniture. 1908–1911, gave architectural training to, among others, Gropius, Mies van der Rohe and Le Corbusier. 1922, taught at the Prussian Academy of Fine Arts and became head of Architecture Department there in 1936, remaining in the post, during Nazi rule, until his death in 1940.

- AEG Turbine Factory, Berlin, 1908–1910.
  - Massive masonry corner pylons, narrowing towards top, with extensive use elsewhere of iron/steel and glass. Designed with use and manufacture of very large machinery in mind. Well lit and adaptable functional space.

- Joseph Paxton (1803–1865). Gardener and self-taught landscape architect and architect. 1826, appointed Head Gardener at Chatsworth, Derbyshire, by William Spencer, 6th Duke of Devonshire. In this post for 30 years, overseeing the estate, its gardens and exotic plants, and designing buildings and landscape features. During this time also carried out work for numerous private and public authority clients. Built the 'Great Stove' conservatory at Chatsworth, 1836–1840 (destroyed 1920), the largest glass-house in Europe at the time, using a ridge-and-furrow glazing system (invented by John Loudon in 1817) supported by arched laminated-timber frames. 1850, patented an improved ridge-and-furrow glazing system. 1849–1850, designed and constructed a special conservatory for a specimen of the enormous Victoria Regia (now Victoria Amazonica) lily, achieving the plant's first flowering in Britain. An illustration of Paxton's daughter Annie standing on one of the lily's floating leaves appeared in *The Illustrated London News* in 1849.
  - Crystal Palace, Hyde Park, London, 1850–1851.
    - Large temporary structure (1,848 × 408 × 108 ft/ 563 × 124 × 33 m) prefabricated from cast iron, wrought iron, glass and timber to accommodate Great Exhibition of 1851. Disassembled and re-erected in enlarged form at Sydenham, South London, 1852, where it was destroyed by fire in 1936. Development of his conservatory ridge-and-furrow glazing system but the rib structure of the Victoria Amazonica lily was also

apparently an inspiration.

UNDERSTANDING

- Analysis/interpretation/significance/appraisal, e.g.:
  - Webb.
    - Red House.
      - Consistent with modernist 'form follows function' design principle in that, unlike symmetrical-façade (Neo)classical buildings, designed essentially from the inside out.
      - Consistent with modernist 'truth to materials' design principle in that:
        - the exterior is left as unadorned red brick (giving the house its name) at a time when a gentleman's residence was expected to be finished in fine cut stone, or at least stucco (again referencing the classical)
        - by Victorian standards, the staircase and certain other features similarly stark and unadorned.
      - Consistent with Morris's political/socialist principles.
      - Inconsistent with modernist design principles in that:
        - (Neo)Gothic and other decorative elements are used
        - vernacular (traditional local) materials, skills and methods are used.
      - Structurally (debatable) and aesthetically innovative.
  - Gaudí.
    - Sagrada Familia.
      - Prime example of Gaudí's total commitment to his art; fully consistent and coherent throughout. In plan and elevation, eschewing the 'Euclidean' geometrical forms (of circles, straight lines and flat surfaces) conventionally used by architects in favour of complex 'Non-Euclidean' ones (catenary, hyperboloid, conoid, paraboloid) closer to the organic forms of nature. Arguably structurally and functionally 'rational' in that large volumes are enclosed with minimal material, but particularly costly, and demanding on the craft skills of his masons, as constructed of cut stone rather than, say, poured concrete. Distinctiveness of the architecture accords with Catalonian drive for independence. The aesthetic, imaginative and 'irrational' aspects appealed to Surrealists. Following the decline of International Style Modernism in the 1950s and '60s, his work influenced the architecture of curved surfaces.
      - Structurally and aesthetically innovative.
  - Horta.
    - Hôtel Tassel.
      - Innovative use of iron as a structural element in domestic architecture. Conspicuously expensive/indulgent. Emulation of vegetal forms perhaps expressing a desire to reconnect with nature, and/or the irrational, in an age of rapidly expanding science, technology and urban development.
      - Structurally and aesthetically innovative.
  - Behrens.
    - AEG Turbine Factory.
      - Masonry corner pylons point to past, with innovative use elsewhere of iron/steel and glass pointing to Modernist functionalism; new materials and methods.
      - Structurally and aesthetically innovative.
  - Paxton.
    - Crystal Palace.
      - Widely regarded as the most innovative and influential building of the 19th century. Informed by detailed knowledge and understanding of natural forms. Adoption of materials and methods of industry and civil engineering – rather than those of craftsmen, builders and architects. Exploitation of industry and mass production; few elements reproduced in large numbers; prefabrication; unskilled or semi-skilled labour; just-in-time delivery; exploitation of new railway/transport system; rapid assembly and disassembly; minimal imprint on site.

    - Structurally and aesthetically innovative.
- Any other valid content identified at the standardising meeting to be credited.

AS 2 Section 5 – Architecture 1900–1945

132.205: If the term *structures* refers to basic forms, and *aesthetics* to such as proportions and decoration, in which respect was architecture 1900–1945 more innovative: structures or aesthetics? Establish contexts and refer to appropriate movements, architects and works in support of your answer.

Indicative content
Answers should include the following:
KNOWLEDGE
- Immediate context
    - **French Avant Garde** Development of reinforced concrete; classical rationalism; the Industrial City; Tony Garnier, Auguste Perret, Le Corbusier.
    - **De Stijl and Bauhaus** De Stijl: Neo-Plasticism; influences of Cubism and the machine-made; Gerrit Rietveld, Jacobus Johannes Pieter Oud. Bauhaus: functionalism; concrete, steel and glass classicism; Walter Gropius, Ludwig Mies van der Rohe.
    - **North American** Innovative practice; informed by and reacting to European modernism; Frank Lloyd Wright, Richard Buckminster Fuller.
    - **Independents** Wells Coates, Alvar Aalto, Berthold Lubetkin.
- Identification of required practitioners and works, and descriptions of works, e.g.:
    - Le Corbusier (b. Charles-Édouard Jeanneret, Switzerland, 1887; d. France, 1965).
        - Villa Savoye, Poissy, 1927–1931.
            - Weekend retreat. Severely geometrical flat-roofed concrete dwelling raised off ground on thin columns; horizontal windows; painted white; no applied decoration.
    - Walter Gropius (1883–1969).
        - Bauhaus Building, Dessau, 1925–1926.

        - Building complex comprising workshop wing, accommodation and studio block, teaching wing for Dessau Technical College, a ‘flyover’ administrative section, and a block containing an auditorium, theatre and canteen. Constructed of reinforced concrete, steel and glass; no applied decoration.
    - Frank Lloyd Wright (1867–1959).
        - Falling Water, Kaufmann House, Bear Run, Pennsylvania, 1935–1939.
            - Weekend retreat for wealthy businessman and his family. Sited in a birch forest, directly over a small waterfall, and built of rough-cut local stone and timber plus reinforced concrete, with timber-framed banded windows. Smoothly finished reinforced concrete platforms are cantilevered out from the walls and chimney of rough-cut local stone, and tied in also to the natural rock.
    - Alvar Aalto (1898–1976).
        - Villa Mairea, Noormarkku, Finland, 1937–1938.
            - Commissioned as rural retreat and guesthouse for Maire (or Mairea) and Harry Gullichsen. L-shaped two-storey dwelling of brick, concrete, timber, steel and glass enclosing courtyard with curved swimming pool; large open-plan living area; wooded setting.

UNDERSTANDING

- Analysis/interpretation/significance/appraisal, e.g.:
    - Le Corbusier.
        - Villa Savoye.
            - Defining example of Le Corbusier’s ‘5 points of a new architecture’ (pilotis, free plan, free façade, strip windows and roof terrace/garden). Idealist and influential but some practical shortcomings, such as being too cold in winter and too hot in summer. Questionable also as to ‘homeliness’ of the design. The house often criticised for dictating the lifestyle of its inhabitants. Debatable as to how effectively it meets the criteria of a house, in the sense of providing the basis of a practical and comfortable home. Structurally and aesthetically innovative.
    - Gropius.
        - Bauhaus Building.
            - Defining example of modernist non-domestic architecture. Reinforced concrete frame with supporting columns set back from the non-structural ‘curtain walls’ of metal-framed windows. Building system allowing rapid and economical construction of large, well lit, open-plan spaces. Non-symmetrical; functionalist. Structurally and aesthetically innovative.
    - Wright.
        - Falling Water.
            - As typical of his house designs, open-plan for most part and centred on large fireplace. The main living area takes the living rock as its floor, and a small stairway connects directly to the waterfall below. The cantilevered platforms, horizontal banded windows, and flat roofs echo the modernism of Gropius, Mies van der Rohe and Le Corbusier but the use of local materials and the formal coherence achieved between man-made and natural forms (the cantilevered platforms, for instance, echoing the rock formations) are significantly different. The cantilevered platforms echo his ‘Prairie House’ use of large overhanging eaves and the flow of space between interior and exterior. Structurally and aesthetically innovative.
    - Aalto.
        - Villa Mairea.
            - Encouraged by his wealthy clients to ‘experiment’. Example of Aalto’s ‘organic modernism’; combination of Finnish vernacular and modernist forms. Courtyard and turfed roofs adaptations of traditional Finnish farmyard and buildings. Much use of natural forms and materials – such as rattan-wrapped poles within the entrance hall – and varied textures. Structurally and aesthetically innovative.

- Any other valid content to be identified at the standardising meeting and credited.

AS 2 Section 6 – Three-dimensional craft and design 1850–1918

132.206: Who do you consider made the single greatest contribution to three-dimensional craft and design 1850–1918? Establish contexts, refer to appropriate movements, practitioners and works, and give reasons in support of your choice.

Indicative content
Answers should include the following:
KNOWLEDGE
- Immediate context:
  - o **Early industrial design** Great Exhibition of 1851 highlights poor state of British product design; widespread debate, design reforms; from craft- into batch- and mass-production; Michael Thonet, Christopher Dresser, Josef Hoffmann.

  or
  - o **Arts and Crafts Movement** Led by textile designer William Morris; reaction to industrialism; craft as art; unresolved agonizing on ethics of craft production seeking mass market; sporadically functionalist, traditional materials and techniques; Philip Webb, Charles F. A. Voysey.

  or
  - o **Art Nouveau** Fluid lines predominantly; new interior schemes; conspicuous craftsmanship, luxury; application of a decorative motif; Louis Comfort Tiffany, René Lalique, Hector Guimard, Charles Rennie Mackintosh.

  and in summary
  - o Shaker, Early industrial design, Arts and Crafts Movement and/or Art Nouveau, as not already covered.
- Identification of required practitioner(s) and work(s), and descriptions of work(s), e.g.:
  - o Michael Thonet (b. Boppard, Germany, 1796; d. Vienna, Austria, 1871). With his sons Franz, Michael, August and Joseph, founded the furniture making firm of Gebrüder Thonet in Vienna, 1845. Awarded bronze medal for furniture design at 1851 Great Exhibition in London.
    - ■ Bentwood Chair No. 14 (Kaffeehausstuhl or Coffee shop chair No. 14), c. 1859.
      - – Lightweight mass-produced glued-laminate wooden chair. Steam treatment also used

to bend solid wood. Awarded gold medal at 1867 World's Fair in Paris. Some 30 million produced to 1930.

or

- o Christopher Dresser (b. Glasgow, 1834; d. 1904). Lecturer in botany. Prolific designer of wallpaper, textiles, ceramics, glass, furniture and metalware. Influential writer and theorist on design. Described by some as the first modern, or professional, industrial designer. Contended that ornamentation should be based not on historical styles but on the abstraction of natural forms. Shared certain views on design with William Morris and the Arts and Crafts Movement but, unlike them, interested in designing for industry and a wide market. Influenced by Pugin, Owen Jones and oriental art and design, especially Japanese, examples of which he had seen at the 1862 International Exhibition in London. 1876–1877, made his first trip to Japan, after which he established the firm Dresser & Holme to import Japanese and oriental goods.
  - ■ Model No. 2045 Crow's Foot Claret Jug, 1878.
    - – Designed for and manufactured by Hulkin & Heath. Electro-plate and glass. Amphora-shaped glass jug supported on three feet; angular handle connecting feet and lid assemblies.

or

- o Philip Webb (1831–1915). Architect, designer and founding member of Arts and Crafts Movement.
  - ■ Morris Chair, 1866.
    - – Reclining upholstered armchair; arms backwardly extended and drilled with series of holes in which inserted pins/pegs set desired reclining angle.

or

- o Hector Guimard (b. Lyons, 1867; d. New York, 1942). Widely seen as pre-eminent French Art Nouveau architect and designer.
  - ■ Dining room chair, for Maison Coillet, Lille, c. 1898–1900 (reproduced in Charlotte and Peter Fiell, *Design of the 20th Century*, Taschen, Köln, 1999, p. 314).
    - – Fine hardwoods and upholstered seat. Sweeping organic forms – the side rails, for instance, sharply angled down from back to front and almost continuous curves with the chair's back.

UNDERSTANDING

- o Gebrüder Thonet.
  - ■ Bentwood Chair No. 14.
    - – Functional, lightweight, comfortable, durable and economical. Affordable due to its minimalist decoration and a design having adapted handcraft methods to mass-production ones. Use of glued laminates and steam-bending enabled efficient and economical use of wood. Light weight minimised transport costs. Curved lines influenced by contemporary Rococo Revival, and also anticipate Art Nouveau.

or

- o Dresser.
  - ■ Model No. 2045 Crow's Foot Claret Jug.
    - – Inventively practical design and restrained use of ornament (abstracted natural forms). Electro-plating and industrial processes reduce costs and broaden potential market.

or

- o Webb.
  - ■ Morris Chair.
    - – Essentially simple and practical design, although some fussiness of treatment in the turned rails and other decorative touches (strength also slightly compromised by the turnings).

or

- o Guimard.
  - ■ Dining room chair.
    - – Flowing organic lines throughout lend the design coherence; also coheres with the Art Nouveau style generally. Conspicuously costly – fine hardwoods and ostentatious design and craftsmanship.

- Any other valid content identified at the standardising meeting to be credited.

132.207: Who do you consider made the single greatest contribution to three-dimensional craft and design 1918–1945? Establish contexts, refer to appropriate movements, practitioners and works, and give reasons in support of your choice.

Indicative content
Answers should include the following:
KNOWLEDGE

- Immediate context
  - **Art Deco** Cubist, African, Egyptian, South American, Japanese influences; formal simplicity infused with glamour and opulence; Jean Dunand, Eileen Gray, Jacques-Émile Ruhlmann, Maurice Marinot, René Buthaud, Clarice Cliff, René Lalique.

  or
  - **Modernist** De Stijl: Neo-Plasticism; Theosophical, Cubist, machine influences; Bakelite developed 1907–1909; Gerrit Rietveld. Bauhaus: formal experiment, functionalism; craft with a view to mass-production; Ludwig Mies van der Rohe, Marcel Breuer, Marianne Brandt, Wilhelm Wagenfeld. Independents: Le Corbusier, Alvar Aalto.

  and in summary
  - Art Deco or Modernist, as not already covered.
- Identification of required practitioner(s) and works, and descriptions of works, e.g.:
  - Jean Dunand (b. near Geneva, Switzerland, 1877; d. 1942). Sculptor turned Art Deco designer, based in France. Renowned especially for his use of lacquerwork – employed Japanese cabinetmaker and lacquerwork expert Seizo Sugawara (or Sougawara) to teach him the craft.
    - Vase, 1923–1924 (reproduced in Patricia Bayer, *Art Deco Source Book*, Quantum Books Ltd., 6 Blundell St, London N7 9BH, 1997, 1-84013-047-4, p. 45).
      - Approximately spherical (ceramic?) vase with small opening outlined in red; decorated with horizontal bands in coquille d'oeuf (crushed egg shells suspended in lacquer) over dark ground.

  or
  - Eileen Gray (b. Enniscorthy, Co. Wexford, Ireland, 1878; d. Paris, 1976). Irish-born, Paris-based, Art Deco designer. Employed Japanese cabinetmaker and lacquerwork expert Seizo Sugawara (or Sougawara) to teach her about lacquerwork.
    - *Pirogue [Canoe]* sofa, c. 1919–1920.
      - Wooden day-bed/sofa similar in basic form to a dug-out canoe; raised tapering ends; 10 or so small feet; dark lacquered finish on outside and lacquered silver-leaf within; cushioned within.

  or
  - Marcel Breuer (b. Pécs, Hungary, 1902; d. New York, 1981). Modernist architect and designer. Bauhaus student 1920–1923. Head of Bauhaus carpentry/furniture workshop c. 1925–1928. One of the first to use tubular steel for furniture, influenced in this by his purchase of a racing bicycle c. 1925 and/or awareness of Dutch designer Mart Stam's (1899–1986) tubular steel cantilevered chair prototype of 1926:
    - *Model No. B3, Wassily Chair*, c. 1925–1927.
      - Designed for Standard-Möbel, Berlin (a manufacturing firm established by Breuer and the Hungarian architect Kalman Lengyel), and Thonet. Chrome-plated tubular steel armchair with stretched leather or canvas seat, back and arms; chair frame appears almost a continuous length of tubular steel, for part of its length forming a 'runner' either side; named after Wassily Kandinsky (1866–1944), the abstract painter and Bauhaus master, who encouraged Breuer's experiments in new materials.

  or
  - Alvar Aalto (b. Kuortane, Finland 1898; d. Helsinki 1976). Leading Scandinavian Organic Modernist architect, city planner, furniture and glassware designer; renowned for designing in sympathy with both the human user and the natural environment. Strongly influenced by nature and by Finnish vernacular architecture, craft and design. Saw the task of architect and designer to humanize mechanical forms. 1916–1921, studied architecture at Helsinki Polytechnic Institute. Early architectural work reveals uneasy mix of Gothic and Classical elements –

the latter relating to the Nordic Classical movement, active c. 1910–1930. 1924, married designer Aino Marsio (1894–1949), subsequently collaborating with her on numerous projects. Experimented extensively with laminated wood and plywood. 1935, with Aino and others, founded Artek, a company to mass-produce and market his laminated birch moulded-plywood furniture – designs still being produced.

- *Paimio chair (Model No. 41)*, 1930–1933; later produced by Artek.
  - Moulded birch plywood armchair with sweeping curves; designed to help recuperation of patients at the Tuberculosis Sanatorium, Paimio, 1928–1933, also designed by Aalto.
- *L-leg Stool (Model No. 60)*, 1933; later produced by Artek.
  - Three-legged birch, stacking stool; flat round seat, L-shaped legs simply screw

directly to underside of seat.
- *Tea trolley (Model No. 98)*, 1935–1936, for Artek.
  - Two-tier, two-wheeled tea trolley made almost entirely – including wheels – of birch plywood and moulded-ply; curved frame.
- *Savoy vase (Model No. 3031)*, for Karhula (later manufactured by Littala), 1936–1937.
  - Muted green glass vase, hand formed over wooden block; originally called 'Eskimoerindens skinnbuxa' (Eskimo woman's leather trousers); softly curvilinear in plan, softly vertical in elevation.

UNDERSTANDING

- Analysis/interpretation/significance/appraisal, e.g.:
  - Dunand:
    - Vase.
      - Japanese influence very apparent in the *coquille d'oeuf* lacquerwork technique and also in the simplicity of the form and decoration. Certain 'primitive' quality also that connects with modernist artists' general interest in the art and artefacts of African and other pre-Renaissance and non-western cultures.

  or
  - Gray.
    - *Pirogue sofa*.
      - Could be argued that Gray's day-bed/sofa is essentially French in concept, African in form, Japanese in technique, modernist in constraint of applied decoration, and ergonomic in its physical harmony with the recumbent human form. Japanese and African artefacts particularly strong influences on European fine art late 19thC (Impressionism, Post-Impressionism, Symbolism) and early 20thC (Fauvism, Cubism, Expressionism…). Any such associations made to be credited.

  or
  - Breuer.
    - *Model No. B3*.
      - Chrome-plated tubular steel construction light, strong, adaptable, hygienic and reasonably comfortable and affordable. Minimal visual clutter and consistent with developments in Modernist architecture. Functional, modern, innovative, visually interesting/ exciting; suitable for mass-production. Can also be criticised as coldly clinical and somewhat lacking in comfort.

  or
  - Aalto.
    - *Paimio chair*.
      - Functional; no applied decoration; self-coloured natural material, enhanced by varnish only, adds sense of warmth and psychological connection that would probably not be available from man-made materials such as steel or plastics. Crisp and clean organic forms. Connects with Scandinavian craft heritage in use of curved wood; making use of local skills and materials. Early use of plywood and the structural use of wood veneers. Anticipated in some respects by German-Austrian furniture designer-manufacturer Michael Thonet (1796–1871) but helped also by recent developments in glue, timber processing and mass production technologies. Bentwood techniques allow efficient connection of vertical and horizontal elements. Modernism humanised. Such work strongly influential on Charles and Ray Eames and other leading Modernist furniture designers.
    - *Stool*.
      - As above; stacking ability enhances the design's usefulness, particularly for institutional or corporate use.
    - *Tea trolley*.
      - As for Paimio chair.
    - *Savoy* vase.
      - In plan and colour suggestive of natural landscape, such as a lake or fjord.
- Any other valid content to be identified at the standardising meeting and credited.

AS 2 Section 8 – Textiles and fashion design 1850–1945

132.208: Who do you consider made the single greatest contribution to textiles and/or fashion design 1850–1945? Establish contexts, refer to appropriate movements, designers and works, and give reasons in support of your choice.

Indicative content
Answers should include the following:
KNOWLEDGE

- Immediate context
  - o **Arts and Crafts Movement** Favoured sources, plant, bird, animal and other organic forms; Gothic and Japanese influences: William Morris, Liberty.

  or
  - o **Bauhaus** Ethos of abstraction, formal experiment, functional design; craft with a view to mass-production; Adelgunde (Gunta) Stölzl, Anni Albers, Léna Meyer Bergner (Helene Bergner).

  or
  - o **Art Deco** Formal simplicity infused with glamour and opulence; Sonia Delaunay, Marion Dorn.

  or
  - o **Fashion** Earliest practical sewing machines invented 1840s–1850s; economic, practical, gender, personal, lifestyle, social, cultural factors; emergence of haute couture; Charles Worth, Madeleine Vionnet, Paul Poiret, Coco Chanel, Cristobal Balenciaga.

  and in summary
  - o Arts and Crafts Movement, Bauhaus, Art Deco and/or Fashion, as not already covered.
- Identification of required practitioner(s) and work(s), and description(s) of work(s), e.g.:
  - o William Morris (b. Walthamstow, Essex, 1834; d. Hammersmith, London, 1896). Craftsman, designer, poet, Socialist campaigner and leading member of the Arts and Crafts Movement. Principal influences, nature, medievalism, Pre-Raphaelitism and the writings of John Ruskin. No formal art or design training, apart from, in 1856, training briefly as an architect under George Edmund Street, whose senior assistant at the time was Philip Webb (1831–1915), subsequently a longstanding friend and colleague.
    - ■ *Jasmine* wallpaper, 1872.
      - – One of over fifty wallpaper designs by Morris; the fact that this is a repeat pattern well disguised by the complex layering and intertwining of the plant forms.

  or
  - o Adelgunde (Gunta) Stölzl (b. Munich 1897, d. Küssnacht, Switzerland 1983). Textile artist and designer who studied and taught at the Bauhaus (its only female master) and who played leading role in moving textiles design from craft-based pictorialism to abstraction-based art and industrial-production design. 1913–1917, studied at the Kunstgewerbeschule (School of Applied Arts), Munich. 1917–1918, served as Red Cross nurse in WWI. 1919–1923, studied at Bauhaus. 1924, studied dyeing and textile production at a school in Krefeld and helped Johannes Itten establish the Ontos weaving workshops, in Herrliberg, near Zürich. 1925, returned to Bauhaus as member of teaching staff and, in 1927, was appointed Junior Master in the weaving workshop. 1929, married Israeli architecture student Arieh Sharon and thereby lost German citizenship. 1931, political pressure by Nazis forced her resignation (the school itself closing 1932). 1931, emigrated to Switzerland and, with her former students Gertrud Preiswerk and Heinrich Otto Hürlimann, established S-P-H Stoffe (S-P-H Fabrics), a textile studio and weaving workshop. 1933–1937, business partnerships dissolved due to financial difficulties. 1937, established her own hand weaving studio, Handweberei Flora (Hand Weaving Studio Flora).
    - ■ *Schlitzgobelin Red-Green Rug*, 1926–1927.
      - – Hand-loom tapestry in cotton, wool, silk and linen; richly coloured and patterned; predominantly reds and greens, with grids and checkerboard patterns set against wave forms top and bottom.

  or

- Marion Dorn (b. San Francisco 1896; sometimes recorded as 1899; d. 1964). Art Deco textile, carpet, interior and graphic designer. 1914–1916, studied graphics at Stanford University. 1923, visited Paris and met several leading textiles designers, including Raoul Dufy. 1923–1924, moved to London with American graphic designer Edward McKnight Kauffer, living and working with him until his death in 1954, and began to establish herself as successful freelance illustrator and designer. 1924–1940, based in London, obtaining many prestigious commissions for hotels, transport companies, carpet and textiles manufacturers.
  - *Aircraft* fabric, 1936.
    - Screen-printed linen and rayon, for Old Bleach Linen Company, Randalstown, Northern Ireland. Used in decoration of British ocean liner Orcades, commissioned in 1937; simplified overlapping bird-forms, without shading or modulation, printed in yellow, green, turquoise and navy blue.

or

- Charles Worth (b. Bourne, Lincolnshire, 1825; d. Paris, 1895). English-born fashion designer based in Paris; widely referred to as the first modern couturier.
  - An example of his silk ball gowns, c. 1872.
    - Curvaceous hourglass form achieved by use of corsetry and bustle; ostentatiously expensive fabrics and trimmings {see, e.g., detailed description and illustrations at: "Charles Frederick Worth: Ball gown (C.I.46.25.1a-d)". In Timeline of Art History. New York: The Metropolitan Museum of Art, 2000–. http://www.metmuseum.org/toah/hd/wrth/hod_C.I.46.25.1a-d.htm (October 2006)}.

or

- Gabrielle ‘Coco’ Chanel (b. Saumur, France, 1883; d. 1971). Fashion designer renowned for the comfort, practicality and simple elegance of her designs, and credited more than any other with freeing women from the constraining and generally ostentatious clothing of the previous era. Precise details of early life unclear but seems to have been raised in a convent orphanage at Aubazine, where she learned to sew. 1902–1904, café-concert singer under name ‘Coco’. 1910, with the financial backing of Arthur ‘Boy’ Capel, she began making and selling hats from her own shop in Paris. 1913, opened a boutique in Deauville and, in 1915, another in Biarritz, selling her own designs of hats, blouses and chemises – designed to be worn without corsets. 1916, began using jersey (a cheap material previously found mostly in underwear) for her garments; borrowing elements from menswear (sweaters, blazers, trousers…). By 1920s, she had established a couture house, textile factory and range of perfumes, including *Chanel No. 5*. 1939–1953, her business closed on outbreak of WWII and, following an affair with a Nazi officer, she went into exile in Switzerland. 1954, business reopened.
  - An example of her ‘little black dress’, c. 1927.
    - Pleated wool jersey dress; finely tailored {see, e.g., detailed description and illustration at “Gabrielle ‘Coco’ Chanel: Day ensemble (1984.28a-c)”. In *Timeline of Art History*. New York: The Metropolitan Museum of Art, 2000–. http://www.metmuseum.org/toah/hd/chnl/hod_1984.28a-c.htm (October 2006).

UNDERSTANDING

- Analysis /interpretation/ significance/ appraisal, e.g.:
  - Morris.
    - *Jasmine*.
      - Good example of Morris’s mature style; intimate knowledge of nature combined with informed and talented sense of pattern making; one of his less assertive designs; typically, an evocation of the plant rather than a detailed rendering.

  or

  - Stölzl.
    - Example of her freely experimental hand-woven textile art.
      - Tapestry a medium that lends itself particularly well to grids and abstract forms, fully consistent with Bauhaus approach; strong similarities with paintings of Bauhaus master Paul Klee; richly complex and dynamic abstract patterns.

  or

  - Dorn.
    - *Aircraft* fabric.
      - Figuration retained but severely simplified; lyrical sense of flight, sunlight and fleeting shadows; linen-rayon combination adds sheen and interest to the fabric.

  or

  - Worth:
    - Ball gown.
      - Extravagant form, colour, materials and decorative treatment, finely and expensively crafted. Female form extravagantly exaggerated (using corsetry, bustle and voluminous fabrics) to point where much physical activity and, by implication, female independence are curtailed. Worth’s career coincident with reestablishment of French Empire, under Napoleon III, and the Empress Eugènie his major client.

  or

  - Chanel:
    - ‘Little black dress’.
      - Modest form, colour, materials and decorative treatment, finely and expensively crafted. Innovative use of black as a fashion colour. Simple clean lines and inconspicuous detailing often described as ‘classically elegant’. ‘Boyish’ lines reflecting new independence and freedom of lifestyle for western women post-WWII, for which Chanel herself was a leading role model. Certain democratisation of style, connecting with servants’ uniforms, and capable of being cheaply emulated.
- Any other valid content to be identified at the standardising meeting and credited.

AS 2 Section 9 – Graphic design 1850–1945

132.209: Who do you consider made the single greatest contribution to graphic design 1850–1945? Establish contexts, refer to appropriate movements, categories, designers and works, and give reasons in support of your choice.

Indicative content
Answers should include the following:
KNOWLEDGE

- Immediate context
  - o **Post-Impressionism and Art Nouveau** Contemporary art influences; street as gallery; Jules Chéret, Henri de Toulouse-Lautrec, Alphonse Mucha, Aubrey Beardsley.

  or
  - o **Wars and revolution** World Wars, 1914–1918, 1939–1945: James Montgomery Flagg, Alfred Leete, John Heartfield (Helmut Herzfeld), Jean Carlu, Abram Games. Russian Revolution, 1917: El Lissitzky, Alexander Rodchenko.

  or
  - o **Modernism** Bauhaus: ethos of formal experiment, abstraction, functional design; László Moholy-Nagy, Herbert Bayer, Max Bill. Art Deco: formal simplicity infused with glamour and opulence; Edward McKnight Kauffer, Adolphe Mouron Cassandre. Independent: Jan Tschichold.

  and in summary
  - o Post-Impressionism and Art Nouveau, Wars and revolution, and/or Modernism, as not already covered.
- Identification of required practitioner(s) and work(s), and descriptions of work(s), e.g.:
  - o Aubrey Beardsley (1872–1898). Short-lived but unique and influential English Art Nouveau illustrator specialising in black-and-white images with a very distinctive air of decadence and – in the view of many – perversion.
    - ■ 'The Climax', illustration, first published 1893, to Oscar Wilde's play *Salomé*, written in French and first published in English in 1894 (version incorporating text as illustrated in Alan and Isabella Livingston, *The Thames and Hudson Dictionary of Graphic Design and Designers*, 1998, ISBN 0-500-20259-1, p. 24).
      - – Black-and-white illustration of Salomé holding head of John the Baptist, top right, the reward she requested from King Herod for pleasing him with her dancing (based on Biblical story). Large black areas contrasting with large white areas and also with areas of fine detail. Predominantly organic, curvilinear forms; very shallow pictorial space. Globules of blood appear to drop from the severed head and an exotic flower grows out of the pooled blood. Just below left centre of the composition are the words "J'AI BAISÉ TA BOUCHE/IOKANAAN/J'AI BAISÉ TA BOUCHE" (translating from the French as "I have kissed your mouth/Iokanaan/I have kissed your mouth").

  or
  - o Abram Games (b. Abraham Gamse, London, 1914; d. London 1996; name changed 1926). A leading English graphic and product designer renowned especially for his drawn and airbrushed WWII and Festival of Britain poster designs, also his Cona Coffee machine, 1959. Son of a Latvian artist-photographer and Russo-Polish seamstress. Largely self taught, having studied for two terms only at St Martin's School of Art, London. 1932–1936, worked as a 'studio boy' for London design studio Askew-Young – sacked for leaping over chairs as a prank. 1935, won first prize in a London City Council poster design competition. 1936, established his own studio, in time gaining clients that included London Transport, the General Post Office, and Shell. 1941, appointed official WWII poster designer, eventually designing over 100 posters for the war effort. His declared design principle, "maximum meaning, minimum means". 1945, returned to freelance practice, eventually with clients that included British European Airways (BEA), British Overseas Airways Corporation (BOAC), The Times, The Financial Times, Guinness and BBC. 1948, won competition to design symbol for the 1951 Festival of Britain. Recipient of several prestigious awards including an OBE (1957) and a Designers & Art Directors Association (D&AD) lifetime achievement award (1991).

- *Your Talk May Kill Your Comrades*,1942.
  - War Office poster; drawn and airbrushed; vertical rectangular format. Background graduated from black at top to pale yellow at bottom. Top, in two lines of sans serif capitals, “YOUR [red] TALK/MAY KILL [white] YOUR COMRADES [yellow]”. Top centre, low-contrast black-and-white image of head of a British soldier talking; anti-clockwise spiral emerges from mouth, thin and white becoming broader and changing to yellow and then red; bottom foreground, three identical soldiers “bayoneted” by the red-hot speech-spiral.

or

- Jan Tschichold (b. Leipzig, Germany, 1902; d. Locarno, Switzerland, 1974). Teacher, calligrapher, typographer, book designer and writer. Trained at the Academy of Graphic Arts and Book Design in Leipzig 1919–1922. Influenced by Russian Constructivism, De Stijl and the 1923 Weimar Bauhaus exhibition to adopt Modernist design principles, in his book *Die Neue Typographie (The New Typography)* Berlin, 1928, advocating such as asymmetric layouts, grids, sans serif typefaces, left-justified/ragged-right text, use of photographs rather than drawn illustrations. Persecuted by Nazis and escaped to Switzerland in 1933. Published *Typographische Gestaltung*, Basle, 1935, but from this time began to turn against Modernism, eventually associating it with totalitarianism and fascism. Increasingly used symmetrical/centred layouts and/or serif typefaces. Lived in London 1946–1949, working on Sir Allen Lane’s commission to redesign all Penguin Books publications (comprising 19 series – Penguin Books, Pelican Books, Penguin Classics, Penguin Shakespeare, etc – and over 500 individual titles). In 1947, as part of this redesign, he formulated the *Penguin Composition Rules*, which are still widely used as guidance on typographic practice. His typeface designs include *Transit* (or *Transits*), c. 1930–1931; *Saskia*, c. 1931–1932; and *Sabon*, c. 1964–1967. Internationally influential through his works and writings.
  - *Die Hose*, 1927.
    - Film poster in red and black on white for Phoebus Palast (Palace), Munich. Asymmetric layout and sans serif text; text – all upper case and in five sizes – at about 30° to the horizontal throughout, in white on red, black on red, and black on white; photographic still from the film within a circular frame.

UNDERSTANDING

- Analysis/interpretation/significance/appraisal, e.g.:
  - Beardsley.
    - ‘The Climax’.
      - An example of the controversial material produced by Aesthetic Movement activists Beardsley and Wilde, widely condemned at time as decadent, perverse, morally corrupt. This particular work taking theme from the Bible’s New Testament and emphasizing its erotic aspects. Congruence of sex and death. Japanese prints a major influence. Beardsley a strong influence on French Symbolist painting.

or

  - Games.
    - *Your Talk May Kill Your Comrades*.
      - Excellent example of his “maximum meaning, minimum means” axiom being implemented (6 words; 3 colours, including black; 3 forms). Clear and forceful. Effective use of abstract means, in the spiral, representing talk/speech. Very skilful use of airbrushing technique (soldier’s head is photograph-like).

or

  - Tschichold.
    - *Die Hose*.
      - An early example of his Modernist typography. Radically different from classical centred typography. Asymmetry and effective use of white space something shared with Japanese painting and graphic design. Purity of form, use of severe geometry, functionalism, rejection of the past and a declared dislike of “selfish individualism” all accord with principles widely held within Constructivism, de Stijl and Bauhaus. Use of photographic image emphasises openness to new technologies, as does the fact that it is a film poster. Connects also with popular culture.
- Any other valid content to be identified at the standardising meeting and credited.

132.210: Who do you consider made the single greatest contribution to automotive design to 1945? Establish contexts, refer to appropriate categories, designers, manufacturers and works, and give reasons in support of your choice.

Indicative content
Answers should include the following:
KNOWLEDGE

- Immediate context:
  - **Family car** From batch- to mass-production; social, economic, environmental and other kinds of impact; Henry Ford/Ford, Henry Royce/Rolls-Royce, Citroën, Chrysler, Mercedes-Benz, Ferdinand Porsche (Senior), Battista Pininfarina.

  or
  - **Other** Sports/racing cars: Enzo Ferrari, William Lyons/Jaguar, Ettore Bugatti/Bugatti, Aston Martin; Various, Harry Ferguson, Raymond Loewy, Henry Dreyfuss.

  and in summary
  - Family car or Other, as not already covered.
- Identification of required practitioner(s) and works, and description of works, e.g.:
  - Henry Ford (b. Michigan, USA, 1863; d. Dearborn, Michigan, 1947). Engineer, designer, industrialist and pioneer of assembly-line mass production (standardised parts, division of labour, and assembly-line system carrying the product to the worker), greatly increasing output and savings on production costs. By 1896 he had designed and built his first car, the four-horsepower Quadricycle. Various family car and racing car prototypes followed, 1896–1903, relationships with financiers ending acrimoniously when he insisted on design development and they on immediate production. 1903, the Ford Motor Company incorporated, almost immediately profitable but also almost immediately engaged in legal challenge to a patent claiming rights on all petrol-powered cars, losing the case in 1909 but winning it on appeal in 1911. Also in dispute 1909–1919 with his own shareholders who wanted to take profits out of the Company rather than reinvest them into design and production improvements. By 1919 all shares in the Company were held by Ford and other family members. By 1927, when production had been relocated to a huge new plant at River Rouge, Michigan, the Company was largely self-sufficient in production, assembly and transportation, and operating in 33 countries, but about to suffer serious market loss due both to the Great Depression and tardiness in matching what rival car manufacturers were by then able to offer. *Model T* design team led by Childe Harold Wills and included Joseph A. Galamb and Eugene Farkas.
    - *Model T* family car, designed 1908, manufactured 1913–1927.
      - Five-seat, two-speed, family car; front-mounted four-cylinder petrol engine. Almost 17 million manufactured in USA, Canada and Britain by 1927, about half of the global car production to that time. Simply, practically and economically designed. Various body styles on a standard chassis. Various body colours offered initially but restricted to black from 1913 (Ford: “in any colour you choose, so long as it’s black”). The unit price of about $850–950 in 1908 falling to about $290 by 1927, despite initially paying workers well above going rate.

  or
  - Charles Stewart Rolls (1877–1910) and Henry Royce (1863–1933), founders of Rolls-Royce Ltd, 1906. Rolls mostly providing the finance and business expertise and Royce the engineering and designing.
    - *40/50 hp* or *Silver Ghost*, 1907–1925.
      - After introduction of the *Phantom I* in 1925, all *40/50 hps* were officially renamed *Silver Ghost*s after a particular 1907 example – finished in aluminium paint and with silver-plated fittings – ordered by the company’s Commercial Managing Director, Claude Johnson). Six-cylinder (7,036cc, in 1909/10 increased to 7,428cc; 48–80 bhp), three-speed (four-speed from 1913) car with various body styles (such as the Barker Tourer, Hooper Landaulet, London-Edinburgh type, and Barker enclosed cabriolet).

Substantial chassis had rigid front and rear axles with leaf springs all round. Electric starting and lights introduced from 1919. Special lubrication and bearings used in the engine, transmission and elsewhere to minimize noise and vibration, and to increase reliability. Extensive, arduous public trials undertaken to increase awareness of the new car and demonstrate its reliability, quietness and refinement.

or

- Enzo Ferrari (b. Modena, Italy 1898; d. Modena 1988). Italian motor racing driver and founder of Ferrari, leading sports car manufacturer and motor racing team. His father had a small metalworking business. Discharged from Italian army during WWI due to ill health. Worked for car company CMN converting war surplus trucks. 1919, began racing for CMN team. 1920, began working and racing for Alfa Romeo. 1923, acquired Prancing Horse badge that would become the Ferrari symbol (given to him by the mother of Italian WWI flying ace Francesco Baracca, the badge retrieved from her dead son's crashed plane). 1929, formed and managed Scuderia Ferrari, Alfa Romeo's official racing team. 1932, Ferrari himself stopped racing. 1937, designed his first racing car, still for Alfa Romeo. 1939, severed Alfa Romeo link and founded Ferrari SpA. 1946–1947 (following WWII), first Ferrari racing car, the *Tipo* 125. 1951–present, many race wins (Le Mans, Formula One Grand Prix, and numerous sports car events) and manufacturers' championships. Racing Ferraris often said to be bright red and synonymous with indifference to death. 1950s, sports car production began essentially to help fund the racing team.
  - *Ferrari* 250 sports car series (numerous variants, including the *GT* and *GTO*), 1953–1964.
    - Marks Ferrari's transition from one-off and small batch-production into full production-line manufacture and assembly, with standardised parts and production in the hundreds. Coachwork by Pinin Farina. Mostly powered by *Tipo* 125 2953 cc V12 engine, front-mounted. Engine quite small, even by standards of the time, but unusually light and powerful. Race-bred steering, suspension and handling. Curvaceous and streamlined bodywork.

or

- (Sir) William Lyons (b. Blackpool 1901, d. Leamington Spa 1985; knighted 1956)/Jaguar Cars Ltd. Lyons served an engineering apprenticeship before, with William Walmsley, co-founding the Swallow Sidecar Company, in Blackpool, in 1922. 1927, expanded from designing and making motorcycle sidecars to coach-built cars, the *Austin Swallow* an early example. 1928, business moved to Coventry. 1931, the company now called SS Cars Ltd and the first car sold under this name, the SS1, of 1931. 1934, Walmsley left company. 1935, the first so-called Jaguar model, a saloon, produced. 1945, following WWII and the unfortunate Nazi connotations of SS, the company itself became Jaguar Cars Ltd. Although managing director of the company and although having no design training, Lyons himself maintained close design control, and especially of styling, working with full scale 3D models (Malcolm Sayer, though, was responsible for *C-type*, *D-type*, *E-type* and *XJS* models).
  - *Jaguar SS100* 2-seat sports car (roadster and coupé versions), 1936–1940.
    - 198 (costing £395) made with 2.5 litre engine, and 116 (costing £445) with 3.5 litre. Front-mounted engines developed from *Standard* unit and converted from side to overhead valve. 4-speed gearbox with synchromesh on top three gears. Half-elliptical spring suspension all round with rigid axles. Long low bonnet with headlights on chromed tubular steel mounts either side of upright radiator. Mudguards front and back in sweeping continuous curve with running board. Small flat windscreen which could be lowered if wished.

or

- Harry Ferguson (b. near Hillsborough, Co. Down, 1884; d. Stow-on-the-Wold, England, 1960). Engineer, aviator, inventor, manufacturer. 1909, made first powered flight in Ireland, in an aeroplane of his own design. 1926–1928, invented new plough and three-point linkage, the Ferguson System, that revolutionised farming. 1938, he made a handshake agreement with Henry Ford whereby the Ferguson System would be used on Ford tractors (*9N*, 1939–1942; *2N*, 1942–1947; and *8N*). 1947, this agreement broken by Ford's grandson, Henry Ford II, whereupon Ferguson sued for $240–340m, reaching an out-of-court settlement in 1952. 1953, he merged with Massey-Harris to become Massey-Harris-Ferguson Co., and subsequently

Massey-Ferguson Co. Later developments, through Ferguson Research Ltd, included four-wheel-drive systems for family, sports and racing cars.

- *TE20* tractor, 1946–1956.
  - 'Tractor England, 20 hp'; also informally known as the *Wee Grey Fergie*. Black Tractor prototype of 1933 led briefly to production of the *Model A* by David Brown Tractors, Huddersfield, 1936–1938, before full production of the *TE20* by The Standard Motor Company at Coventry, over 500,000 being produced 1946–1956. Small, economical lightweight tractor with three-point linkage and hydraulics systems, designed to operate a wide range of implements, including the first wheel-less plough.

UNDERSTANDING

- Analysis/interpretation/significance/appraisal, e.g.:
  - Ford.
    - *Model T*.
      - More than any other, made the car "the ordinary man's utility rather than… the rich man's luxury", with stated intention that the car be "so low in price that no man making a good salary will be unable to own one". Own workers also viewed as customers. Major role in general social change from an agricultural to an industrial society, and pioneering international conglomerates. Extensive repercussions affecting everything from urban planning to world economics. Ford assembly-line production methods revolutionised modern manufacturing in general. The utilitarian nature of the *Model T*'s design also its eventual downfall – others unable to match its price but able to surpass it in customer appeal (features, engineering developments, exclusiveness, styling, colour choice, etc).

  or

  - Rolls-Royce.
    - *40/50 hp* or *Silver Ghost*.
      - Promoted as having been designed and constructed to the highest standards almost irrespective of costs. Unashamedly addressing an elite, luxury, exclusive market.

  or

  - Ferrari.
    - *Ferrari* 250 series.
      - Perhaps more than any other series, helped establish a distinctive Ferrari look, a brand image. Crucial series for both Ferrari and Pinin Farina as both companies committed to substantial production runs and expensive new production facilities. Production and sales achieved a crucial tipping point – sufficient to establish credible position in the market whilst not undermining exclusive status, and sufficient also to sustain research and development.

  or

  - Lyons/Jaguar.
    - *SS100* sports car.
      - Classic British 2-seat sports car; lightweight, speedy and reasonably affordable to buy and run; substantial potential market. Considered by many to be one of the most aesthetically pleasing of Lyons' designs.

  or

  - Ferguson.
    - *TE20* established basic design of the modern agricultural tractor, three-point linkage and hydraulics systems enabling safe and efficient operation of very wide range of agricultural tasks. Adaptable, affordable system, suitable even for the smallest farms and/or hilly conditions. Significant aid to food production worldwide.
- Any other valid content to be identified at the standardising meeting and credited.