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UPSC Mains 2024 Anthropology Paper 1

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Q1(a) · 10 marks

Attributes of culture

Anthropology GS 1 · 2024 · The Nature of Culture

Revision summary

Culture is a learned and symbolically mediated design for living.

Its core attributes are sharing, symbolism, patterning, adaptation, transmission and change.

Tylor supplies the complex whole; Geertz supplies public meaning; Bourdieu links culture to embodied practice.

Kula shows integration of exchange, rank, ritual and inter-island relations.

- **Shared culture is never identical experience:** gender, class, age and power matter.

Treat integration as a question, not as automatic harmony.

Introduction

Culture is the learned and symbolically mediated way in which members of a society make life intelligible and practicable. **E. B. Tylor** called it a "complex whole"; **Clifford Geertz** later stressed webs of significance. Its attributes explain both the continuity of a way of life and its capacity to vary and change.

Body

Principal attributes

- **Learned and transmitted:** Culture is acquired through enculturation, not inherited biologically. **Margaret Mead's** work in Samoa made social learning central, even though her conclusions were later debated.
- **Shared but unequally:** Language, kin terms and ritual codes are intersubjective. Yet age, gender, class and status create different cultural competencies; sharing does not mean unanimity.
- **Symbolic:** Words, flags, totems and food taboos stand for meanings beyond themselves. Geertz's Balinese cockfight condensed status and masculinity into a public performance.
- **Integrated and patterned:** Economy, kinship and ritual affect one another. **Malinowski's** Trobriand Kula joined exchange, rank, magic and inter-island relations. Integration is an empirical question, not proof of harmony.

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- **Adaptive-and sometimes maladaptive:** Clothing, shelter and subsistence mediate environments. The sacred-cattle debate shows that adaptation is interpreted through values and political economy, while modern diet can turn an earlier preference for energy-rich food into metabolic risk.
- **Dynamic and cumulative:** Diffusion, invention, migration and contest continually alter culture. Indian caste associations, for example, entered electoral and digital arenas rather than simply disappearing.
- **Universal capacity, particular forms:** All humans possess culture, but no single cultural form is biologically inevitable. This supports **Boasian cultural relativism** and comparison without ranking societies.

Culture is also explicit and implicit, material and non-material, ideal and actually practised. **Pierre Bourdieu's habitus** helps connect these layers: learned history becomes bodily disposition without becoming an unchangeable programme.

Critical caution

Functionalism sometimes pictured a seamless whole. **Eric Wolf**, feminist anthropology and practice theory reveal porous boundaries, internal conflict and unequal power. Individuals reproduce culture, but they also improvise and resist it.

Flow diagram

Culture -> Learned and transmitted

Culture -> Shared and symbolic

Culture -> Patterned and integrated

Culture -> Adaptive

Culture -> Dynamic and contested

Dynamic and contested -> Agency and power

Conclusion

Culture is learned, shared, symbolic, patterned, adaptive and dynamic. These properties make collective life possible without making people cultural copies. Anthropology therefore studies patterned meaning together with history, inequality and agency.

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Q1(b) · 10 marks

Harappan maritime trade

Anthropology GS 1 · 2024 · Meaning, Scope and development of Anthropology.

Revision summary

Harappan maritime trade joined Indus rivers and coastal sites to Oman, Bahrain and Mesopotamia.

Lothal, Dholavira, Kuntasi, Balakot and Sutkagen-dor were important nodes.

Meluhha texts, Indus seals, Gulf materials and etched carnelian beads provide converging evidence.

Exports included crafted beads, shell, ivory, timber and probably textiles; metals moved inward.

Lothal's basin may be a dock or reservoir, so do not make the whole case depend on it.

Trade supported craft specialisation and urban integration but was not the sole cause of Harappan civilisation.

Introduction

Harappan maritime trade linked the Indus cities and coastal settlements with Gujarat, Makran, Oman, Bahrain and Mesopotamia during the third millennium BCE. Archaeology does not preserve a shipping ledger; it reconstructs the network from ports, seals, weights, imported materials and Mesopotamian references to **Meluhha**.

Body

Evidence and network

- **Coastal nodes:** Lothal in Gujarat had a large brick basin conventionally called a dockyard, warehouses, seals and bead workshops. Its nautical function is debated-some read it as a reservoir-but its estuarine location and craft-trade assemblage are secure. Dholavira connected Kachchh routes; Kuntasi, Balakot and Sutkagen-dor served coastal exchange from Saurashtra to Makran.
- **Routes and craft:** River transport fed coastal entrepôts. Sewn or reed boats probably followed coastwise routes to **Magan** (Oman) and **Dilmun** (Bahrain), then Mesopotamia. A boat motif on seals and terracotta models supports water transport, though it cannot specify cargo volume.
- **Exports:** Etched carnelian beads, shell and ivory objects, timber, cotton textiles and perhaps sesame travelled west. Harappan-style weights, cubical stone measures, seals and bead-making technology enabled standardised transactions.
- **Imports:** Silver, copper and other scarce raw materials entered the Indus system. Omani copper and Gulf shells have archaeological signatures, while lapis lazuli also moved through overland Afghan routes.
- **External testimony:** Mesopotamian cuneiform texts mention Meluhha, Meluhhan ships and a Meluhha village/interpreter. Indus seals and carnelian beads occur at Ur, Kish and Gulf sites; Gulf seals and foreign materials occur in the Indus sphere.

Anthropological significance

The trade sustained urban craft specialisation, redistributed prestige goods and tied hinterland producers to cities. It also carried styles and techniques without erasing Harappan

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standardisation. **Shereen Ratnagar** has emphasised West Asian interaction, while other archaeologists caution against making long-distance trade the sole cause of urbanism.

Silting, shoreline change and river shifts complicate present maps. The network was maritime and terrestrial, regional and overseas; it was not a single state-run "navy" for which evidence is absent.

Flow diagram

Indus hinterland -> Lothal / Kachchh / Makran

Lothal / Kachchh / Makran -> Magan: Oman

Magan: Oman -> Dilmun: Bahrain

Dilmun: Bahrain -> Mesopotamia

Mesopotamia -> silver and raw materials Indus hinterland

Indus hinterland -> beads shell textiles Mesopotamia

Conclusion

The strongest case rests on a chain of coastal settlements, standardised craft goods, Gulf materials and Meluhha texts. Lothal's basin remains debated, but Harappan seaborne exchange does not depend on that feature alone. Maritime trade amplified, rather than single-handedly created, Indus urbanism.

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Q1(c) · 10 marks

Critical perspective on avoidance and joking relationship

Anthropology GS 1 · 2024 · The Nature of Culture

Revision summary

Avoidance prescribes reserve; joking licenses teasing between named kin categories.

Radcliffe-Brown read both as complementary ways of regulating conjunction and separation.

Mother-in-law/son-in-law avoidance and cross-cousin or junior-affine joking are common patterns.

Symmetrical joking permits reciprocity; asymmetrical joking protects one-sided licence.

Gluckman highlights ritualised expression of contradiction.

Critical analysis asks whether joking reproduces gendered power and whether rules match actual conduct.

Introduction

Avoidance and joking are patterned ways of regulating potentially tense kin relations. Avoidance prescribes distance, reserve or non-address; joking licenses familiarity, teasing or symbolic insult. **A. R. Radcliffe-Brown** treated them as complementary devices through which kinship manages conjunction and separation.

Body

Forms and functions

Avoidance commonly marks relations where intimacy could threaten hierarchy or sexual propriety: son-in-law and mother-in-law, daughter-in-law and father-in-law, or siblings after puberty. It may regulate eye contact, speech, names, food sharing or physical proximity.

Joking relationships permit mockery and familiarity between specified categories-often cross-cousins, grandparents and grandchildren, or affinal kin such as a man and his wife's younger siblings. In parts of India, **devar-bhabhi** and **jija-sali** joking contrasts with respect or avoidance toward senior affines.

Radcliffe-Brown distinguished symmetrical joking, where both parties tease, from asymmetrical joking, where one may mock and the other must not take offence. His African material showed joking alliances extending beyond families to clans or peoples. The institutions:

- dissipate hostility where marriage creates competing loyalties;
- mark generation and rank;
- permit criticism in a protected idiom;
- keep affinal groups connected without collapsing boundaries.

Critical perspective

The functionalist account can make every joke socially useful and every silence harmonious. **Max Gluckman's** idea of ritualised rebellion better captures licensed disrespect that expresses contradiction without necessarily changing structure. Feminist analysis asks who is compelled to endure the joke: sexual teasing may reproduce male privilege rather than release equal tension.

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Actual conduct varies by personality, migration, household form and media. A prescribed avoidance term does not prove everyday distance, and jocularity can become harassment. Alliance, descent and residence explain the relation more fully than "tension reduction" alone. Comparison must therefore join the rule to observed interaction and local meanings.

Flow diagram

Potentially tense kin tie -> Avoidance: respect and distance

Potentially tense kin tie -> Joking: licensed familiarity

Avoidance: respect and distance -> Maintains boundary

Joking: licensed familiarity -> Expresses solidarity or criticism

Maintains boundary -> Read through gender and power

Expresses solidarity or criticism -> Read through gender and power

Conclusion

Avoidance creates disciplined distance; joking creates licensed proximity. Their classic value is the management of affinal and generational ambiguity. A critical reading adds power, gender and practice, asking whose tension is relieved and whose speech is constrained.

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Q1(d) · 10 marks

Lethal and sublethal genes

Anthropology GS 1 · 2024 · Mendelian genetics in man-family study, single factor, multifactor, lethal, sub-lethal and polygenic inheritance in man.

Revision summary

A lethal genotype causes death before reproduction; a sublethal genotype substantially lowers viability or fertility.

Recessive lethals hidden in carriers can produce a 2:1 ratio among survivors.

Tay-Sachs illustrates a recessive lethal; homozygous FGFR3 achondroplasia is lethal while heterozygotes live.

Huntington persists partly because onset is often after reproduction.

HbSS is severely deleterious, while HbAS can be favoured in falciparum-malaria regions.

Endogamy changes homozygosity and health care changes the fitness effect.

Introduction

A lethal allele causes death in a particular genotype, usually before reproduction; a sublethal allele markedly lowers survival or reproductive fitness without invariably causing death. The allele itself is not lethal in every carrier: dominance, age of onset, penetrance, environment and medical care determine its effect.

Body

Genetic patterns

Most lethal alleles are recessive because a normal heterozygote can transmit them. When two heterozygotes mate, the lethal homozygote may disappear before observation, changing the surviving Mendelian ratio from 3:1 to 2:1. **Tay-Sachs disease** is an autosomal-recessive example historically lethal in early childhood without effective supportive care.

Some alleles are dominant for a visible trait but homozygous lethal. In **achondroplasia**, one altered FGFR3 allele causes short-limbed dwarfism, while two altered copies usually cause lethal skeletal dysplasia. Two affected heterozygous parents therefore face a 1/4 homozygous-lethal conception risk.

Dominant lethals can persist when expression follows reproduction. **Huntington disease**, caused by a HTT CAG expansion, reduces survival but often has adult onset; it is better described as a late-acting deleterious dominant than as an invariably pre-reproductive lethal.

Sublethal effects form a continuum. Untreated **beta-thalassaemia major**, cystic fibrosis and **HbSS sickle-cell disease** sharply reduce viability, but outcome varies with environment and treatment. Their persistence cannot be explained by lethality alone. HbS and some thalassaemia alleles are maintained in malarial regions because heterozygotes receive protection against severe Plasmodium falciparum malaria-**balanced polymorphism**, demonstrated for sickle-cell trait by **A. C. Allison**.

Anthropological significance

Small populations, endogamy and consanguinity can increase homozygosity of rare recessives. Pedigree analysis and population screening inform non-directive counselling, while modern treatment changes selection coefficients. Labels must not stigmatise communities or imply

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that carriers are diseased.

Flow diagram

Aa: viable carrier x Aa: viable carrier -> AA: viable: viable

Aa: viable carrier x Aa: viable carrier -> Aa: viable carrier: viable carrier

Aa: viable carrier x Aa: viable carrier -> aa: lethal genotype: lethal genotype

aa: lethal genotype -> Survivors often show 2 to 1 ratio

Environment and treatment -> Observed fitness

Conclusion

Lethal and sublethal describe genotype-specific fitness effects, not morally defective people or permanently fixed outcomes. Altered ratios reveal the genetics; age, malaria, endogamy and health care reveal the population-anthropological context.

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Q1(e) · 10 marks

Hemoglobin in health and disease.

Anthropology GS 1 · 2024 · Epidemiological Anthropology

Revision summary

HbA is α2β2; HbF is α2γ2 and has higher oxygen affinity.

Haemoglobin carries oxygen and participates in carbon-dioxide and acid-base physiology.

HbS polymerises when deoxygenated; HbSS causes disease while HbAS may protect against severe falciparum malaria.

Thalassaemia is deficient globin-chain production, not an abnormal iron molecule.

HbE, HbC and thalassaemia distributions record selection, drift and migration.

Anaemia also has nutritional, infectious and inflammatory causes, so genotype is not the whole diagnosis.

Introduction

Haemoglobin is the iron-containing tetramer in red blood cells that transports oxygen and contributes to carbon-dioxide and acid-base regulation. Its molecular variants connect physiology, Mendelian inheritance, malaria ecology, migration and public health, making it a classic marker in biological anthropology.

Body

Normal function and variation

Adult HbA is mainly two alpha and two beta globin chains (α2β2), each carrying haem. HbA2 is α2δ2, while fetal HbF (α2γ2) has higher oxygen affinity and supports placental transfer. After birth, globin-chain expression switches from gamma toward beta. Iron deficiency reduces haemoglobin concentration but is not a globin-gene disorder.

Health and disease

- **Sickle-cell disease:** A missense variant in HBB substitutes valine for glutamic acid in beta-globin. Deoxygenated HbS polymerises, distorting cells and causing haemolysis, vaso-occlusion and organ injury. HbSS is disease; HbAS is usually a healthy trait.
- **Thalassaemias:** Reduced alpha- or beta-chain production causes imbalance, anaemia and ineffective erythropoiesis. Severity ranges from silent carrier states to transfusion-dependent beta-thalassaemia major.
- **Other variants:** HbE is frequent in parts of eastern and Southeast Asia and may interact severely with beta-thalassaemia. HbC occurs especially in West Africa. Their geographic distributions reflect mutation, drift, migration and selection.
- **Acquired states:** Anaemia may follow iron, folate or B12 deficiency, malaria, hookworm, inflammation or blood loss. Excess haemoglobin or erythrocytosis at altitude can aid oxygen carriage but also increase blood viscosity.

J. B. S. Haldane proposed that thalassaemia geography related to malaria; **A. C. Allison** supplied direct evidence for HbAS advantage against severe falciparum malaria. This does not mean "malaria causes sickle mutation": malaria changes the fitness of pre-existing variants.

In India, sickle variants occur in several central, western and southern populations, while beta-thalassaemia and HbE have different regional concentrations. Screening must combine

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electrophoresis or HPLC with counselling and must avoid turning population association into caste or tribal stigma.

Flow diagram

Globin genes -> Haemoglobin tetramer

Haemoglobin tetramer -> Oxygen transport

Globin genes -> HbS HbE HbC variants

Globin genes -> Thalassaemia: reduced chain output

Malaria nutrition altitude -> Population pattern and health

Conclusion

Haemoglobin is simultaneously a respiratory molecule and an evolutionary record. Chain switching, structural variants and production defects explain disease; malaria, migration, nutrition and care explain their unequal distribution and consequences.

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Q2(a) · 20 marks

Discuss historical particularism as a critical development to the classical evolutionism.

Anthropology GS 1 · 2024 · Classical evolutionism (Tylor, Morgan and Frazer)

Revision summary

Classical evolutionism arranged societies on universal stages using decontextualised comparison.

Boas argued that similar traits may have different causes and histories.

His 1896 critique required fieldwork, language, distribution and chronology before comparison.

The Boasian school separated race, language and culture and advanced cultural relativism.

Baffin Island and Northwest Coast research replaced armchair sequence with documented context.

Its limits were anti-generalisation, salvage assumptions and insufficient attention to colonial power.

Introduction

Nineteenth-century classical evolutionists such as **Tylor, Morgan and Frazer** arranged societies along universal stages inferred by comparison. **Franz Boas's historical particularism** replaced this speculative ladder with the proposition that each cultural configuration must first be explained through its own documented history.

Body

The critical break

- **Classical evolutionism assumed psychic unity but ranked institutions from simple to complex:** Morgan's savagery-barbarism-civilisation and Frazer's magic-religion-science are famous examples. "Survivals" in contemporary societies supposedly revealed earlier stages. The method detached traits from context and treated living colonised peoples as Europe's past.

In **"The Limitations of the Comparative Method of Anthropology" (1896)** Boas argued that similar traits need not have the same origin. A clan, mask or myth may arise through invention, diffusion, ecological adjustment or a distinct sequence of events. Before comparison, anthropology must reconstruct distribution, local meaning and historical connection.

His programme included:

- intensive fieldwork, language recording and oral history;
- the four-field combination of archaeology, linguistics, biological and cultural evidence;
- cultural relativism against ranking by Victorian standards;
- separation of race, language and culture;
- attention to diffusion and culture areas without assuming one centre or one universal path.

Boas's Baffin Island work related Inuit knowledge to lived geography. His Northwest Coast research and **Kwakiutl/Kwakwaka'wakw** materials challenged armchair portraits. His immigrant head-form study-methodologically debated today-was intended to demonstrate bodily plasticity against fixed racial typology.

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- **Students extended the programme: A. L. Kroeber** studied culture areas and the superorganic, **Robert Lowie** criticised unilinear schemes, **Ruth Benedict** analysed configurations, and **Margaret Mead** investigated enculturation.

Critical assessment

Historical particularism sometimes accumulated facts while avoiding causal generalisation. Salvage ethnography could freeze Indigenous peoples as vanishing, underplay colonial power and privilege the ethnographer's textual authority. Later ecological, political-economic and postcolonial approaches restored process and power. Yet multilinear evolution and controlled comparison became stronger precisely because Boas forced them to demonstrate history rather than presume it.

Flow diagram

Classical evolutionism -> One universal sequence

One universal sequence -> Ranked comparison

Boas -> Particular histories

Particular histories -> Fieldwork language distribution

Fieldwork language distribution -> Comparison after context

Comparison after context -> Later multilinear synthesis

Conclusion

- **Historical particularism was critical development, not simple anti-evolutionism:** it made chronology, language, diffusion and context prior to grand comparison. Its own anti-generalising tendency needed correction, but the Boasian demand for empirical history permanently ended the innocence of the unilinear ladder.

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Q2(b) · 15 marks

Describe the evidences of food production and domestication of animals with special reference to Mehrgarh. Throw light on its significance.

Anthropology GS 1 · 2024 · Neolithic

Revision summary

Mehrgarh on the Kachi plain begins as an aceramic farming village around the seventh millennium BCE.

Wheat, barley, sickle gloss, grinding stones and storage together demonstrate cultivation.

Sheep, goat and cattle management is inferred from morphology, kill profiles and changing abundance.

Later phases add pottery, specialised crafts, ornaments and wider exchange.

The site shows both western connections and strong local development, especially around zebu cattle.

Mehrgarh is a long predecessor to Indus urbanism, not an early Harappan city.

Introduction

Mehrgarh, excavated by the French Archaeological Mission led by **Jean-François Jarrige** on the Kachi plain of Baluchistan, records a long transition from early aceramic farming around the seventh millennium BCE to craft-rich Chalcolithic village life. It is the clearest north-west South Asian bridge between foraging and the later Indus tradition.

Body

Evidence of food production

Mehrgarh Period I had mud-brick, compartmented buildings, storage facilities, grinding stones and chipped-stone blades with sickle gloss. Carbonised plant remains include domesticated wheat and barley, while later phases broadened cultivation and processing. The combined evidence-crop morphology, harvesting tools, storage and sedentary architecture-is stronger than any grain found alone.

Burials beneath or near settlement floors, repeated rebuilding and demographic growth indicate durable village residence. In later ceramic Neolithic and Chalcolithic levels, wheel-made pottery, larger storage, terracotta figurines and specialised crafts in shell, stone and beads show intensification. Cotton fibres/seeds are reported from early Mehrgarh and are important for the history of textile production, though their scale is uncertain.

Evidence of animal domestication

Faunal assemblages include sheep, goat and cattle. Domestication is inferred from changing horn-core and body size, age-sex kill profiles, increasing frequency through time and management within a settled economy-not from species presence alone. Sheep and goats likely reflect connections with western Asian domesticates. Zebu cattle (Bos indicus) became increasingly important and are often argued to include local domestication or strong local management; the precise wild-to-domestic pathway remains debated.

Significance

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- It demonstrates that food production in South Asia began well before Harappan urbanism.
- Indigenous development and westward contacts interacted; diffusion versus independent invention is too simple.
- Craft specialisation, dental drilling, ornaments and differentiated grave goods reveal technical skill and emerging social distinctions.
- Its wheat-barley-herding package, mud-brick architecture and craft networks supplied foundations later transformed within the Indus civilisation.
- **Skeletal and dental evidence also records the costs of sedentism:** workload, disease and dietary change accompanied surplus.

Mehrgarh is not a miniature Harappa and no straight ethnic line can be assumed. Flooding, uneven preservation and chronological revision require phase-specific claims.

Flow diagram

Aceramic Mehrgarh -> Wheat barley storage

Aceramic Mehrgarh -> Sheep goat cattle management

Wheat barley storage -> Sedentary mud-brick village

Sheep goat cattle management -> Sedentary mud-brick village

Sedentary mud-brick village -> Pottery and craft specialisation

Pottery and craft specialisation -> Long background to Indus urbanism

Conclusion

At Mehrgarh, plants, faunal profiles, tools, storage and settlement reinforce one another as evidence of production and herd management. Its significance lies in a long, locally worked transition-not a sudden imported revolution-from village farming to the economic and craft base of the greater Indus world.

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Q2(c) · 15 marks

Critically comment on the lifestyle diseases and their impact on human health.

Anthropology GS 1 · 2024 · Epidemiological Anthropology

Revision summary

Lifestyle diseases include cardiovascular disease, type-2 diabetes, obesity, chronic respiratory disease and some cancers.

Omran describes epidemiological transition, but India often carries infectious and chronic burdens together.

Barker links early-life nutrition to adult risk; Neel's thrifty-genotype hypothesis is limited.

Popkin's nutrition transition and Singer's syndemics put behaviour inside social change.

Food markets, work, housing and care access constrain "choice".

Prevention requires structural policy, culturally informed care and individual risk reduction together.

Introduction

Lifestyle diseases are chronic non-communicable conditions whose risk is shaped by diet, physical activity, tobacco, alcohol, sleep and stress. The phrase is convenient but dangerous: it can convert constrained environments into individual "choices". Anthropology relocates behaviour inside evolution, culture, class and political economy.

Body

Pattern and mechanisms

Cardiovascular disease, type-2 diabetes, obesity, chronic respiratory disease and several cancers dominate the category. Energy-dense diets, tobacco, sedentary work, air pollution, hypertension and metabolic dysregulation interact with age and genetic susceptibility. **Abdel Omran's epidemiological transition** describes the population shift from infectious mortality toward chronic and degenerative disease, but many low- and middle-income populations face both simultaneously.

Evolutionary accounts propose mismatch between earlier environments and rapid urban-industrial change. **James Neel's "thrifty genotype"** was influential but is neither a proven single genotype nor an adequate explanation of population differences. **David Barker's developmental-origins hypothesis** is better supported: fetal and early-life undernutrition can alter later cardiometabolic risk. Biology therefore carries a life history.

Anthropological critique

- **Nutrition transition: Barry Popkin** describes shifts toward processed foods, fats and sugars alongside declining activity.
- **Ethnographic change:** Turkana moving from pastoral settings to towns experienced altered diet, activity and stress; such cases show transition, not a timeless ethnic predisposition.
- **Political economy:** Cheap ultra-processed food, unsafe walking space, long work hours, advertising and unequal preventive care structure behaviour. Tobacco or diabetes cannot be reduced to willpower.

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- **Syndemics: Merrill Singer's** concept explains mutually reinforcing disease under inequality-for example diabetes with tuberculosis, depression or food insecurity.

In India, urbanisation and changing work coexist with persistent anaemia, undernutrition and infection. A low-birth-weight child may later encounter caloric abundance: the "double burden" can occur in one household. Tribal and migrant populations may face market displacement from traditional diets without gaining reliable care.

Impact

Chronic disease produces premature mortality, disability, renal and vascular complications, catastrophic household spending and long-term care burdens. Gendered caregiving and late diagnosis magnify effects. Prevention must combine tobacco control, food and urban policy, primary screening and culturally intelligible care-not only advice to exercise.

Flow diagram

Early-life biology -> NCD risk

Diet activity tobacco stress -> NCD risk

Markets work class urban form -> Diet activity tobacco stress

NCD risk -> Disability and household cost

Policy plus primary care -> Reduced risk and complications

Conclusion

Lifestyle matters, but lifestyles are socially produced. A critical account joins behaviour to developmental plasticity, commercial food systems, work and inequality. Effective prevention changes environments and care pathways as well as individual habits.

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Q3(a) · 20 marks

What is meant by karyotype? How does its analysis help in diagnosis of the chromosomal aberrations in man?

Anthropology GS 1 · 2024 · Numerical and structural aberrations (disorders).

Revision summary

Karyotype means chromosome complement; karyogram is its ordered image.

Metaphase arrest, hypotonic spreading and G-banding permit homologous pairing and notation.

It diagnoses trisomy 21, Turner, Klinefelter and other numerical aberrations.

It also finds large deletions, inversions and balanced or unbalanced translocations.

Multiple cells must be examined for mosaicism.

A normal karyotype does not exclude microdeletions or single-gene disease; use FISH, microarray or sequencing appropriately.

Introduction

A karyotype is an individual's chromosome complement described by number, size, centromere position and banding pattern; a karyogram is its ordered visual display. Conventional analysis examines condensed metaphase chromosomes and is especially useful for whole-chromosome changes and large structural rearrangements.

Body

Preparation and reading

Dividing cells from blood, amniotic fluid, chorionic villi, marrow or tumour are cultured where necessary. Colchicine/colcemid arrests metaphase; hypotonic treatment spreads chromosomes; fixation, staining and microscopy follow. G-banding produces reproducible light and dark bands. Homologues are paired from chromosome 1 to 22 plus sex chromosomes, producing notations such as 46,XX or 46,XY.

Analysis checks:

1. total chromosome number;
2. homologous size and centromere position;
3. missing, duplicated or rearranged bands;
4. several cells to identify mosaicism.

Diagnostic value

• **Numerical aberrations:** meiotic nondisjunction may produce trisomy 21 (47,XX,+21), trisomy 18, trisomy 13, Turner syndrome (45,X) or Klinefelter syndrome (47,XXY). Polyploid conceptions can also be recognised.

• **Structural aberrations:** large deletions such as 5p deletion in cri-du-chat syndrome, duplications, inversions, ring chromosomes and reciprocal or Robertsonian translocations are visible when above the banding resolution.

• **Reproductive diagnosis:** A phenotypically normal parent may carry a balanced translocation. Karyotyping can explain recurrent miscarriage or a child with an unbalanced rearrangement and guide recurrence-risk counselling.

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- **Cancer cytogenetics:** acquired rearrangements, classically the Philadelphia chromosome t(9;22) in chronic myeloid leukaemia, can classify disease.

Targeted **FISH** detects specified loci and rearrangements; chromosomal microarray detects smaller copy-number changes; sequencing detects nucleotide variants. These complement rather than make every karyotype obsolete.

Limits

Conventional resolution is usually several megabases and depends on band quality. It misses most single-gene mutations, small copy-number variants and many low-level mosaics. A normal karyotype therefore does not mean a normal genome, while a prenatal abnormality requires careful, non-directive interpretation rather than deterministic prediction.

Flow diagram

Dividing cells -> Metaphase arrest

Metaphase arrest -> Spread stain band

Spread stain band -> Ordered karyogram

Ordered karyogram -> Numerical change

Ordered karyogram -> Large rearrangement

Ordered karyogram -> FISH microarray sequencing if needed

Conclusion

Karyotyping converts chromosome morphology into a diagnosis of aneuploidy and major rearrangement. Its strength is the genome-wide view of large changes; its limit is resolution. Sound diagnosis combines clinical findings, adequate cell sampling and the appropriate molecular follow-up.

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Q3(b) · 15 marks

Define urbanization and discuss its impact on family in India with examples.

Anthropology GS 1 · 2024 · Family

Revision summary

Urbanization combines population concentration with urban occupations and institutions.

Housing and mobility favour smaller households, delayed marriage and lower fertility.

Desai distinguishes residence from jointness; Shah highlights the household developmental cycle.

Indian families may be residentially nuclear but functionally joint through property, care, ritual and remittance.

Women's paid work can increase autonomy while adding a domestic double burden.

Class, caste and migration diversify outcomes, so urbanization does not mechanically destroy the joint family.

Introduction

Urbanization is the increasing concentration of population in towns and cities together with the spread of urban occupations, institutions and ways of life. **Louis Wirth** stressed size, density and heterogeneity; Indian evidence shows that these conditions reorganise family residence and authority without automatically dissolving kinship.

Body

Structural changes

Migration, expensive housing and occupational mobility encourage smaller residential units, delayed marriage and neolocal households. Fertility falls and education lengthens dependence of children. Inter-caste, inter-regional and companionate marriages become more visible, although arranged marriage and caste-matrimonial networks adapt through education, apps and diaspora connections.

The census household must not be confused with the family. **A. M. Shah** showed that household dimensions expand and contract through a developmental cycle. **I. P. Desai's studies distinguished co-residence from jointness: brothers in different cities may retain shared property, ritual obligations, remittances and decision-making. Urbanization often produces a functionally joint, residentially nuclear** family.

Functional and relational changes

- Production moves out of the household, while family remains a unit of consumption, care, inheritance and social capital.
- Women's education and paid work can increase bargaining power and challenge patriarchal authority, but unpaid domestic work creates a double burden. Feminist movements also make violence and marital rights publicly contestable.
- Children gain school and peer influence; authority becomes more negotiated. At the same time, coaching, housing and employment often intensify parental investment.
- Longer life expectancy and migration create old-age care gaps. Multigenerational homes, paid carers and digital contact are new combinations rather than one replacement form.

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- Urban poor and migrant families may be split across village and city. Slum housing can force dense extended residence, while circular migrants depend heavily on rural kin.

M. S. A. Rao emphasised networks and social organisation in Indian urban anthropology; **M. N. Srinivas's** ideas of Westernisation and Sanskritisation also show that urban change is mediated by caste and aspiration. Caste associations, regional hostels and neighbourhood communities can strengthen kin-like support in cities.

Critical assessment

Class, caste, religion, gender and city size produce multiple urban family forms. The idealised rural joint family was never universal, and the isolated Western nuclear family is not the inevitable destination. New autonomy may coexist with surveillance, dowry, elder dependence and digital kinship.

Flow diagram

Urbanization -> Smaller residence

Urbanization -> Wage work and mobility

Urbanization -> Education and lower fertility

Smaller residence -> Residential nuclearity

Wage work and mobility -> Remittances and kin networks

Residential nuclearity -> Plural family forms

Remittances and kin networks -> Plural family forms

Conclusion

Urbanization changes where families live, who earns, when people marry and how care is negotiated. Its dominant effect is diversification and networked jointness, not a simple march from joint to nuclear. Indian families remain adaptive institutions inside unequal cities.

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Q3(c) · 15 marks

Discuss the contemporary challenges in fieldwork method in anthropological research.

Anthropology GS 1 · 2024 · Fieldwork tradition in anthropology

Revision summary

Classical fieldwork assumed a bounded site; present fields are mobile, institutional and digital.

Marcus offers multi-sited ethnography, but breadth can cost immersive depth.

Consent must be ongoing; genomic, visual and online data create re-identification risks.

Writing Culture made textual authority and representation explicit.

Positionality, researcher safety and unequal risk to local assistants require planning.

Collaborative design, data minimisation, language competence and return of findings strengthen-not dilute-participant observation.

Introduction

Classical fieldwork imagined one ethnographer, one bounded community and prolonged co-residence, canonised by **Malinowski** in the Trobriands. Contemporary fields are mobile, digital, regulated and politically unequal. The challenge is not that fieldwork has become impossible, but that presence, consent and representation require redesign.

Body

Contemporary challenges

Access and scale: States, corporations, hospitals, conflict zones and online platforms restrict access. Migrants and supply chains exceed a village boundary. **George Marcus's multi-sited ethnography** follows people, objects and metaphors, but breadth can reduce the depth that gives ethnography its force.

Consent and data: Consent is a continuing relationship, not a one-time signature. Visual media, GPS, genomic samples and searchable quotations can re-identify people. Cloud storage and AI-assisted transcription create new privacy and ownership risks. Community consent cannot erase individual dissent, and a gatekeeper cannot consent for everyone.

Power and representation: Writing Culture by **James Clifford and George Marcus** exposed how ethnographers construct authoritative texts. Feminist, Dalit, Indigenous and decolonial scholars ask who defines the question, receives the archive and benefits. Translation can flatten local categories; "giving voice" can still leave editorial control with the researcher.

Positionality and emotion: Caste, race, gender, nationality and institutional affiliation affect rapport and danger. Researchers may face harassment, surveillance, moral distress or vicarious trauma; local assistants often bear greater risk but receive less credit.

Digital and hybrid fields: Online identities are multiple, bots and algorithms mediate interaction, and public posts are not automatically ethically free data. Platform terms and deleted content also destabilise reproducibility.

Time and audit pressure: Short grants, ethics deadlines and publication incentives conflict with language learning and reciprocity. The observer effect, strategic answers and "research

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fatigue" intensify in over-studied communities.

Indian fieldwork among PVTGs, in border/conflict regions, hospitals or caste-sensitive settings requires special attention to administrative brokerage, stigma and return of findings.

Responses

Reflexive diaries, local-language competence, collaborative design, fair payment and authorship, secure data minimisation, staged consent and member discussion improve accountability. Mixed methods and multi-sited work should retain sustained observation. Open science must yield to confidentiality where disclosure harms participants.

Flow diagram

Contemporary fieldwork -> Access and mobility

Contemporary fieldwork -> Consent privacy risk

Contemporary fieldwork -> Representation and power

Contemporary fieldwork -> Digital hybrid fields

Access and mobility -> Collaborative reflexive design

Consent privacy risk -> Collaborative reflexive design

Representation and power -> Collaborative reflexive design

Digital hybrid fields -> Collaborative reflexive design

Conclusion

The contemporary field is neither bounded nor innocent. Rigorous fieldwork now means long-term relational evidence plus reflexivity, data protection, collaboration and care. These safeguards deepen participant observation; they do not replace it with remote extraction.

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Q4(a) · 20 marks

Critically discuss the characteristics of the psychological types in the cultures of the American South-West as observed by Ruth Benedict.

Anthropology GS 1 · 2024 · Culture and personality (Benedict, Mead, Linton, Kardiner and Cora-du Bois)

Revision summary

Benedict's configurationalism treats culture as a selective, integrated ethos.

Her American South-West example is Zuni/Pueblo Apollonian restraint, cooperation and ceremonial order.

Dionysian cultures value intensity, ordeal and self-assertion.

Plains and Kwakiutl cases are comparative contrasts; Kwakiutl is Northwest Coast, not South-West.

The model challenged racial determinism and universal normality.

Critics identify selective evidence, group-personality reification, Western labels and neglect of gender, colonialism and internal variation.

Introduction

In Patterns of Culture (1934), **Ruth Benedict** argued that a culture selects from the "great arc" of human potential and integrates selected traits into a characteristic configuration or ethos. Her American South-West exemplar was the **Zuni/Pueblo Apollonian** pattern, understood through contrast with Dionysian cultures.

Body

The psychological types

Borrowing Nietzsche's terms, Benedict described Pueblo life, especially Zuni, as **Apollonian**: moderation, restraint, cooperation, ceremonial order and suspicion of individual excess. Ritual office was distributed and disciplined; achievement was absorbed into collective form. Altered states, violent competition and self-glorification were muted in her portrait. Child training and social sanctions produced a personality congruent with this ethos.

The **Dionysian** contrast sought intensity, excess, ordeal, vision and conspicuous self-assertion. Benedict drew comparative material especially from Plains vision quests and the Northwest Coast Kwakiutl/Kwakwaka'wakw potlatch. The latter are not South-West Pueblo; they are comparative cases used to sharpen the type. Her Dobu "paranoid" configuration likewise came from Melanesia, not the American South-West.

The approach was **configurational**, not a claim that every Zuni person had one clinical personality. Institutions selected and reinforced compatible motives, producing a cultural "style". This rejected evolutionist ranking and expressed the Boasian separation of cultural difference from race.

Critical examination

- **The type is elegant but selective:** counterexamples and ordinary variation can be filtered out to preserve coherence.
- It treats named peoples as bounded personalities and risks the ecological fallacy-moving from a cultural pattern to each individual psyche.

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• Gender, faction, colonial violence, missionisation and economic history receive too little attention.

• **Edward Sapir** warned that culture is differently experienced by persons; later practice theory emphasises strategic and contradictory action.

• "Apollonian" and "Dionysian" are Western aesthetic categories imposed on Indigenous worlds. They are interpretive metaphors, not measured psychological diagnoses.

• **Yet Benedict's moral contribution remains important:** normality is culturally organised, and no cultural configuration is biologically destined or inherently superior.

Flow diagram

Great arc of human potential -> Cultural selection

Cultural selection -> Apollonian Pueblo: restraint

Cultural selection -> Dionysian contrast: excess

Apollonian Pueblo: restraint -> Personality and institutions

Dionysian contrast: excess -> Personality and institutions

Personality and institutions -> Critique: variation history power

Conclusion

Benedict's South-West type is the restrained, ceremonially ordered Pueblo/Zuni Apollonian configuration. Its comparative power lies in showing cultural selection of temperament; its danger lies in turning a selective pattern into a homogeneous group mind. Use it as a heuristic, not a diagnosis of a people.

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Q4(b) · 15 marks

Discuss the Acheulian and Oldowan traditions of Indian Paleolithic cultures with suitable illustrations.

Anthropology GS 1 · 2024 · Paleolithic

Revision summary

Oldowan/Mode 1 uses simple cores and sharp flakes; Acheulian/Mode 2 adds shaped large cutting tools.

Indian Acheulian is rich in handaxes, cleavers and picks, often made on large quartzite flakes.

Foote discovered a handaxe at Pallavaram in 1863.

Attirampakkam has Acheulian occupation around 1.5 million years ago; Isampur preserves quarry-workshop behaviour.

Riwat, Bori and Masol figure in early Mode 1 debates, but context and dating are contested.

Soanian is not automatically Oldowan, and tools alone cannot identify the hominin maker.

Introduction

Oldowan and Acheulian name two Lower Palaeolithic technological organisations, not two fixed ethnic cultures. Oldowan or **Mode 1** centres on flakes struck from simple cores; Acheulian or **Mode 2** adds deliberately shaped large cutting tools. India has a rich Acheulian record, while claims for very early Oldowan-equivalent occupation are less secure.

Body

Oldowan or Mode 1

The African Oldowan begins about 2.6 million years ago and includes cores, choppers, polyhedrons, hammerstones and sharp flakes produced by direct hard-hammer percussion. The flake edge was often the principal tool; "crude chopper culture" understates planning and raw-material selection.

In South Asia, simple core-and-flake or pebble industries occur in Siwalik and peninsular contexts. Riwat and the Pabbi Hills in present-day Pakistan, Bori in Maharashtra and Masol in the Chandigarh Siwaliks have yielded claims of very early occupation, but artefact status, context or dating is disputed in important cases. The Soanian of the north-west is pebble-and-flake based, yet much of it is younger and should not automatically be equated with African Oldowan.

Acheulian or Mode 2 in India

Acheulian knappers prepared large flakes or cobbles into bifacial **handaxes, cleavers and picks**, with symmetry and edge maintenance. Indian assemblages often emphasise cleavers on large flakes. Quartzite is common, but limestone, dolerite and other local stones were used.

Robert Bruce Foote's 1863 handaxe discovery at Pallavaram founded Indian prehistory and produced the old term "Madrasian". Major localities include:

- **Attirampakkam** in Tamil Nadu, where cosmogenic burial dating places Acheulian occupation around 1.5 million years ago;
- the **Hunsgi-Baichbal valley** and **Isampur** quarry-workshop in Karnataka, showing raw-material procurement and manufacture;

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- Bhimbetka, Didwana, the Narmada valley, Chirki-Nevasa and other riverine landscapes.
- **Technological illustration:** Mode 1 removes a few flakes from a core; Mode 2 first conceives a large blank, shapes both faces and regularises a durable cutting edge. Later Acheulian assemblages may become thinner and more symmetrical, but variation also reflects stone and task.

Interpretation and limits

Early Indian Acheulian implies rapid hominin dispersal across suitable corridors, probably by Homo erectus or related populations, but tools cannot name a species. India lacks maker fossils securely associated with these assemblages; the Narmada hominin is much later and taxonomically debated. Surface collections can mix periods, and absence of handaxes does not by itself prove an Oldowan age.

Flow diagram

Mode 1 core -> Direct flakes

Direct flakes -> Sharp flake edges and chopper

Large blank -> Biface shaping

Biface shaping -> Handaxe

Biface shaping -> Cleaver

Biface shaping -> Pick: Acheulian Mode 2

Conclusion

India's firm Lower Palaeolithic signature is a widespread, technologically varied Acheulian anchored by Attirampakkam and quarry-workshops such as Isampur. Mode 1 evidence exists, but its earliest claims require stratigraphic caution. Technology, context and dating-not apparent crudeness-must carry the classification.

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Q4(c) · 15 marks

What is genetic counseling? Briefly discuss various steps involved in it.

Anthropology GS 1 · 2024 · Genetic imprints in human disease, genetic screening, genetic counseling, human DNA profiling, gene mapping and genome study.

Revision summary

Genetic counselling helps families understand hereditary and psychosocial implications and choose voluntarily.

The sequence is referral, pedigree, diagnosis, risk assessment, consented testing, communication, options and follow-up.

Screening estimates risk; a positive screen is not automatically a diagnosis.

Risk explanations must include penetrance, variable expression and uncertainty.

Thalassaemia and sickle-cell programmes require confirmatory tests and non-stigmatising counselling.

Privacy, coercion, sex selection and unequal access are central ethical concerns.

Introduction

Genetic counselling is a communication process that helps individuals and families understand the medical, hereditary and psychosocial implications of genetic conditions and make informed decisions. **Sheldon Reed**, who introduced the term, stressed counselling rather than eugenic command; modern practice is non-directive and autonomy-centred.

Body

Steps in genetic counselling

1. **Referral and contract:** Clarify the client's concern-affected child, family history, recurrent pregnancy loss, carrier screening or prenatal finding-and the limits of confidentiality.
2. **History and pedigree:** Record a three-generation pedigree, diagnoses, ancestry where medically relevant, consanguinity, reproductive history and exposures. Social genealogy must not be assumed to equal biological parentage.
3. **Clinical diagnosis:** Review records and phenotype; involve relevant specialists. A precise diagnosis precedes meaningful recurrence risk.
4. **Risk assessment:** Identify Mendelian, chromosomal, mitochondrial or multifactorial inheritance. Calculate risk from the pedigree and population data while explaining penetrance, variable expression and uncertainty.
5. **Testing discussion and consent:** Explain no-test, screening and diagnostic options; possible results include positive, negative, uncertain and incidental findings. Choose karyotype, biochemical assay, targeted variant test, panel, microarray or sequencing according to the question.
6. **Communication:** Use plain language and absolute risk, check understanding and distinguish a carrier from an affected person. Provide a written summary.
7. **Options and decision support:** Discuss treatment, surveillance, cascade testing and reproductive choices such as natural conception, prenatal diagnosis, IVF with PGT, donor gametes or adoption where available. The counsellor informs but does not prescribe.

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8. **Psychosocial care and follow-up:** Address guilt, family disclosure, grief, insurance or marriage stigma; revisit uncertain variants as knowledge changes and refer to support services.

Indian and anthropological relevance

Thalassaemia and sickle-cell programmes illustrate carrier screening followed by confirmatory testing and counselling. Consanguineous or endogamous populations may have elevated frequencies of particular recessives, but community labels are poor substitutes for testing. Prenatal screening such as NIPT estimates probability; CVS or amniocentesis can provide diagnostic material.

Counselling must guard against coerced testing, sex selection, caste/tribal stigmatisation, breach of genomic privacy and pressure to terminate pregnancy. Limited laboratories and uncertain variants can make "choice" unequal. Family benefit must be balanced with the client's confidentiality.

Flow diagram

Referral -> History and three-generation pedigree

History and three-generation pedigree -> Clinical diagnosis

Clinical diagnosis -> Risk assessment

Risk assessment -> Testing options and consent

Testing options and consent -> Communicate results

Communicate results -> Support voluntary choices

Support voluntary choices -> Follow-up and family care

Conclusion

Good genetic counselling is not a laboratory result delivered with advice. It is a cycle of verified diagnosis, transparent risk, voluntary testing, supported choice and follow-up. Its anthropological quality lies in joining inheritance to kinship, stigma, language and unequal access without reviving eugenics.

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Q5(a) · 10 marks

Chronometric dating

Anthropology GS 1 · 2024 · Principles of Prehistoric Archaeology. Chronology

Revision summary

Chronometric dating gives an age in years; relative dating only orders remains.

Radiocarbon dates organic material to about 50,000 years and requires calibration.

K-Ar/Ar-Ar dates volcanic layers associated with early hominins.

TL dates last heating; OSL dates last light exposure.

U-series and ESR extend the cave and tooth record.

Every date belongs to a sample and event and must fit association and stratigraphy.

Introduction

Chronometric dating assigns an age in calendar years, with an error range, to an archaeological event or deposit. Unlike relative dating, which only orders layers or artefacts, it uses a measurable physical clock. No method dates "the site" in the abstract: it dates a particular sample and event.

Body

Principal clocks

- **Radiocarbon (Willard Libby):** decay of carbon-14 dates once-living charcoal, bone collagen or seed, normally to about 50,000 years. Calibration against tree rings is essential; contamination and reservoir effects can mislead.
- **Potassium-argon and argon-argon:** decay of potassium-40 dates volcanic minerals from roughly 100,000 years into geological time. Tuffs bracketing Olduvai and East African hominins are classic applications; the dated eruption is not automatically the fossil's death.
- **Uranium-series:** radioactive disequilibrium dates carbonates, corals, cave speleothems and sometimes teeth, broadly from thousands to several hundred thousand years. Open-system uranium movement is the chief danger.
- **Luminescence:** thermoluminescence dates the last heating of pottery or burnt flint; optically stimulated luminescence dates the last sunlight exposure of quartz or feldspar sediment. Incomplete zeroing produces old ages.
- **Electron-spin resonance:** trapped electrons in tooth enamel or carbonate can reach into the Middle Pleistocene, but dose-rate reconstruction is demanding.
- **Dendrochronology**, pioneered by **A. E. Douglass**, gives annual precision where preserved wood and a regional master sequence exist.

Indian prehistory often combines radiocarbon for Neolithic charcoal, as at Mehrgarh-related contexts, with luminescence for older alluvial Palaeolithic deposits. A secure date also requires association, stratigraphy and preferably a second clock.

Flow diagram

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Sample and event -> Choose clock

Choose clock -> C-14: organic death-14: organic death

Choose clock -> K-Ar: volcanic eruption-Ar: volcanic eruption

Choose clock -> TL or OSL: heat or light reset

Choose clock -> U-series or ESR-series or ESR

C-14: organic death -> Calibrate and cross-check

K-Ar: volcanic eruption -> Calibrate and cross-check

TL or OSL: heat or light reset -> Calibrate and cross-check

U-series or ESR -> Calibrate and cross-check

Conclusion

Chronometric dating transformed prehistory from a sequence into a timescale. Its anthropological value lies in matching the clock to the sample and behavioural event, then testing the result against stratigraphy rather than treating a laboratory number as self-validating.

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WRAP Exams

Q5(b) · 10 marks

Cultural relevance of the Kula

Anthropology GS 1 · 2024 · The Nature of Culture

Revision summary

Malinowski described Kula exchange among the Massim in Argonauts of the Western Pacific.

Soulava necklaces move clockwise and mwali armbands counter-clockwise.

Temporary possession yields prestige; valuables must circulate.

Kula creates delayed reciprocity, trust, leadership and inter-island integration.

Gimwali barter accompanies but is distinguished from ceremonial exchange.

Weiner corrected Malinowski's male bias by documenting women's wealth and exchange.

Introduction

The Kula is the ceremonial circulation of shell valuables among communities of the Massim region of Papua New Guinea. In Argonauts of the Western Pacific (1922), Bronislaw Malinowski used it to show that exchange is simultaneously economic, political, magical and moral.

Body

The ring and its meanings

Red shell necklaces, **soulava**, move clockwise; white shell armbands, **mwali**, move counter-clockwise. Named partners exchange them as gifts over long sea voyages. A valuable brings prestige through temporary possession, but it must continue to circulate. Ordinary barter, **gimwali**, accompanies expeditions but remains conceptually distinct.

The Kula's cultural relevance is wider than shells:

- **Reciprocity and trust:** delayed return creates durable obligations between otherwise separate islands. It anticipates **Marcel Mauss's** argument that gifts carry social persons and demand return.
- **Rank and biography:** famous valuables have names and histories; access to partners converts circulation into reputation and leadership.
- **Integration:** canoe building, gardening surplus, navigation, magic and feasting mobilise whole communities. Malinowski therefore explained an institution through the needs it serves.
- **World-view:** spells, danger and myth make the voyage a cultural drama, not market transport.

Later work by **Annette Weiner** on Trobriand women's banana-leaf bundles and skirts corrected Malinowski's male-centred account. **Maurice Godelier** likewise stressed that exchange systems also depend on things kept outside exchange. Kula is therefore neither irrational barter nor a harmonious circle free of gender and power.

Flow diagram

WRAP Exams

Soulava necklaces -> clockwise Island partners

Island partners -> Prestige and obligation

Prestige and obligation -> Trust and integration

Trust and integration -> Soulava necklaces

Mwali armbands -> counter-clockwise Island partners

Gimwali barter -. accompanies . -> Island partners

Conclusion

Kula valuables have little utilitarian use but great relational value. Their movement creates partners, rank, memory and inter-island peace. Malinowski revealed the institutional whole; Mauss and Weiner expose reciprocity, inalienability and the gendered limits of his view.

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WRAP Exams

Q5(c) · 10 marks

Heritability and its estimation

Anthropology GS 1 · 2024 · Mendelian genetics in man-family study, single factor, multifactor, lethal, sub-lethal and polygenic inheritance in man.

Revision summary

Heritability is a population-and-environment-specific share of phenotypic variance.

Broad H^2 includes all genetic variance; narrow h^2 includes additive variance.

Fisher's variance partition underlies the concept.

Twin, adoption, pedigree and parent-offspring designs estimate familial resemblance.

Equal-environment assumptions and gene-environment correlation limit twin estimates.

High heritability does not mean immutability or explain group differences.

Introduction

Heritability is the proportion of observed phenotypic variance in a specified population and environment attributable to genetic variance. It does not measure how genetic an individual's trait is, nor does a high value make a trait unchangeable.

Body

Concept and estimation

Quantitative genetics partitions phenotypic variance as **V(P) = V(G) + V(E) + interactions**. Broad-sense heritability, **H^2 = V(G)/V(P)**, includes additive, dominance and epistatic variance. Narrow-sense heritability, **h^2 = V(A)/V(P)**, retains additive variance and best predicts response to selection; **R. A. Fisher** supplied the variance framework.

Estimation uses resemblance among relatives:

- parent-offspring regression and sibling correlations estimate additive familial resemblance;
- classical twin studies compare monozygotic with dizygotic twins, often using **$h^2 \approx 2(rMZ - rDZ)$** under restrictive assumptions;
- adoption studies separate resemblance to biological and rearing relatives;
- pedigrees and modern genomic relatedness methods estimate variance components in large samples.

Height is highly heritable in many well-nourished populations, yet mean stature can rise rapidly with nutrition. IQ estimates similarly vary by age, class and environment. Twin estimates assume comparable environments and may be inflated by gene-environment correlation, assortative mating or shared prenatal conditions. Population stratification can also distort genomic estimates.

Thus heritability is local to population, age, environment and measurement. It says nothing directly about between-population causes.

Flow diagram

WRAP Exams

Phenotypic variance -> Genetic variance

Phenotypic variance -> Environmental variance

Genetic variance -> Additive

Genetic variance -> Dominance and epistasis

Additive -> Narrow h squared

Genetic variance -> Broad Narrow h squared squared

Conclusion

Heritability converts family resemblance into a variance estimate. Used carefully, it clarifies polygenic variation; used as destiny, it revives biological determinism. The anthropological answer must always specify whose population and which environment.

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WRAP Exams

Q5(d) · 10 marks

Authority and forms of political organization

Anthropology GS 1 · 2024 · Political Organization and Social Control

Revision summary

Authority is legitimate command; power is capacity to produce outcomes.

Weber distinguished traditional, charismatic and legal-rational authority.

Bands rely mainly on persuasive, situational leaders.

Nuer segmentary lineages coordinate without a central ruler.

Chiefdoms join hereditary rank, redistribution and ritual.

States centralise territory, law, tax and coercion; Service's sequence is typology, not destiny.

Introduction

Authority is socially recognised legitimacy to command; power is the capacity to secure an outcome even without consent. Political anthropology asks how both are organised where no formal government exists as well as in states.

Body

Authority and political scale

Max Weber distinguished traditional, charismatic and legal-rational authority. Anthropologists add that legitimacy may rest in kinship, ritual knowledge, age, generosity or control of coercion.

- **Band:** small, mobile and egalitarian; leadership is situational and persuasive. Among Ju/'hoansi foragers, skilled persons influence but cannot routinely compel. **Richard Lee's** "insulting the meat" shows levelling against boastful hunters.
- **Tribe or segmentary system:** dispersed communities coordinate through kin groups, councils, age sets and ritual offices. In **E. E. Evans-Pritchard's Nuer**, balanced lineage opposition supplies order without a central sovereign; the leopard-skin chief mediates rather than rules.
- **Chiefdom:** hereditary rank and an office of chief integrate several communities through redistribution, tribute and ritual. Polynesian chiefdoms illustrate ranked descent and mana, though **Elman Service's** evolutionary sequence should not be treated as inevitable.
- **State:** central government claims territory, taxation, law and specialised coercion. **Fortes and Evans-Pritchard** contrasted centralised African kingdoms such as the Zulu with stateless lineage systems.

Indian examples range from village councils and Naga customary institutions to the constitutionally sovereign state. Colonial indirect rule often hardened fluid chiefs into offices. Gender, class and dissent also reveal that proclaimed legitimacy never eliminates contested power.

Flow diagram

WRAP Exams

Band: persuasion -> Tribe: kin and councils

Tribe: kin and councils -> Chiefdom: hereditary rank

Chiefdom: hereditary rank -> State: law and coercion

Authority -> Legitimacy

Power -> Capacity to secure outcomes

Conclusion

Authority varies from earned influence to hereditary office and bureaucratic law. Bands, segmentary lineages, chiefdoms and states are comparative types, not a ladder every society must climb. Legitimacy, material control and resistance must be studied together.

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WRAP Exams

Q5(e) · 10 marks

Single-gene mutation disorders in man.

Anthropology GS 1 · 2024 · Mendelian genetics in man-family study, single factor, multifactor, lethal, sub-lethal and polygenic inheritance in man.

Revision summary

Single-gene disorders chiefly arise from a pathogenic variant at one locus.

Autosomal recessive examples include sickle-cell disease, PKU and cystic fibrosis.

Autosomal dominant examples include Huntington disease and achondroplasia.

Haemophilia A and Duchenne muscular dystrophy are X-linked recessive.

Allison linked sickle-cell carrier advantage with malaria.

Penetrance, expressivity, new mutations and environment prevent simplistic genetic determinism.

Introduction

A single-gene disorder arises mainly from a pathogenic variant at one locus and therefore tends to show a recognisable Mendelian pedigree. Its expression can still vary with penetrance, modifier genes, environment and reproductive fitness.

Body

Major inheritance patterns

- **Autosomal recessive:** disease usually appears in homozygotes while heterozygotes are carriers. Sickle-cell disease results from a missense variant in **HBB**; phenylketonuria commonly involves **PAH**; cystic fibrosis involves **CFTR**. Sickle-cell heterozygote advantage in malarial regions, identified by **A. C. Allison**, connects mutation to natural selection.
- **Autosomal dominant:** one altered allele can suffice. Huntington disease is caused by a CAG-repeat expansion in **HTT** and often appears after reproduction; achondroplasia commonly involves **FGFR3** and many cases are new mutations.
- **X-linked recessive:** males are more often affected because they have one X chromosome. Haemophilia A involves **F8**, and Duchenne muscular dystrophy involves **DMD**. Carrier mothers transmit risk; fathers do not pass X-linked traits to sons.
- **X-linked dominant and mitochondrial:** these are single-locus patterns too, though the latter is cytoplasmic. Mitochondrial disorders pass through mothers, not affected fathers.

Founder effect and endogamy can raise particular alleles in small populations, making community-sensitive screening useful in India. Yet "one gene" does not mean one fixed outcome: variable expressivity, incomplete penetrance and allelic heterogeneity complicate counselling. Chromosomal syndromes such as Down syndrome are not single-gene disorders.

Flow diagram

WRAP Exams

Single-gene mutation -> Autosomal recessive

Single-gene mutation -> Autosomal dominant

Single-gene mutation -> X-linked

Single-gene mutation -> Mitochondrial

Autosomal recessive -> Sickle cell / PKU

Autosomal dominant -> Huntington / achondroplasia

X-linked -> Haemophilia / DMD

Conclusion

Single-gene disorders make Mendelian rules visible in human pedigrees, while sickle cell demonstrates their evolutionary ecology. Diagnosis should combine pedigree and molecular evidence without converting communities into genetic stereotypes.

Open WRAP page — https://wrapexams.com/upsc/mains-answers/anthropology-gs-1/2024/single-gene-mutation-disorders-in-man/

WRAP Exams

Q6(a) · 20 marks

Discuss the geographical distribution of Homo erectus. Taking into account its physical features, where does it fit in human evolutionary line?

Anthropology GS 1 · 2024 · Homo erectus

Revision summary

Early Homo erectus/ergaster occurs in East Africa by about 1.9 million years ago.

Dmanisi records an early dispersal; Java and Zhoukoudian anchor the Asian record.

Nariokotome Boy shows long legs and a near-modern terrestrial body plan.

The skull is long and low with thick bone, brow torus and occipital torus.

Hathnora's Narmada fossil has disputed taxonomic placement.

African erectus is near the ancestry of later Homo; Asian populations need not be direct modern ancestors.

Introduction

Homo erectus sensu lato was the first hominin with a near-modern body plan to spread widely beyond Africa. From about 1.9 million years ago into the later Pleistocene, its regional fossils show both a coherent adaptive grade and enough variation to generate taxonomic debate.

Body

Distribution

- **Africa preserves early forms often called Homo ergaster:** KNM-ER 3733 and 3883 at Koobi Fora, Olduvai remains, and the approximately 1.5-1.6-million-year-old Nariokotome or Turkana Boy described by **Richard Leakey's** team. Dmanisi in Georgia, around 1.8 million years old, records an early small-brained dispersal.

In Asia, **Eugène Dubois's** Trinil Java Man established Pithecanthropus erectus; Sangiran and Ngandong extend the Indonesian record. Zhoukoudian "Peking Man", associated with **Davidson Black** and **Franz Weidenreich**, represents China, alongside Lantian and Hexian. European Middle Pleistocene fossils are usually classified as H. antecessor or H. heidelbergensis, not secure classic erectus.

- **India's Hathnora calvarium from the Narmada valley is important but disputed:** it has been assigned to H. erectus, archaic H. sapiens or H. heidelbergensis. It should not be presented as taxonomically settled.

Form and evolutionary place

The skull is long and low, with thick vault bones, a continuous supraorbital torus, receding forehead, occipital torus and often a sagittal keel. Cranial capacity commonly spans roughly 600-1,100 cc across time and regions. Teeth and prognathism are reduced from earlier Homo. Nariokotome shows long legs, modern-like terrestrial bipedal proportions and larger body size.

An Acheulean biface tradition appears early in Africa and western Eurasia, while eastern assemblages are more variable. Fire claims at Zhoukoudian are debated; stronger evidence comes from later sites such as Gesher Benot Ya'aqov.

WRAP Exams

Phylogenetically, African early erectus/ergaster plausibly follows early Homo and contributes to later H. heidelbergensis and H. sapiens. Asian erectus populations are generally treated as long-lived side branches, although multiregionalists such as **Milford Wolpoff** emphasised regional continuity. Mosaic traits and Dmanisi variation reject a simple ladder.

Flow diagram

Early Homo in Africa -> Early erectus or ergaster

Early erectus or ergaster -> Dmanisi dispersal

Dmanisi dispersal -> Asian erectus: Java and China

Early erectus or ergaster -> Middle Pleistocene Homo

Middle Pleistocene Homo -> Homo sapiens

Asian erectus: Java and China -> Long-lived regional branches

Conclusion

H. erectus occupies a pivotal grade: efficient obligate biped, expanded brain, wider range and more planned technology. It is broadly ancestral near the African root of later Homo, but not every Asian erectus fossil can be placed on a direct line to living populations.

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WRAP Exams

Q6(b) · 15 marks

Discuss the applications of forensic anthropology with suitable examples.

Anthropology GS 1 · 2024 · Applications of Anthropology

Revision summary

Forensic anthropology applies skeletal biology and archaeological recovery to medico-legal problems.

Sex, age, stature and population affinity form a probabilistic biological profile.

Trauma must be separated from taphonomic damage.

Dental records, implants and STR DNA can confirm identity.

Clyde Snow and the Argentine team show its human-rights role.

Indian cases require local standards, chain of custody, dignity and explicit error ranges.

Introduction

Forensic anthropology applies biological anthropology and archaeology to human remains in legal and humanitarian contexts. It does not merely 'identify a skeleton': it recovers context, builds a biological profile, interprets post-mortem history and assists identification.

Body

Applications

Scene recovery: Archaeological mapping, controlled excavation and chain of custody establish whether remains are human, their minimum number, position and association. **William Bass's** Anthropology Research Facility helped make decomposition and taphonomy experimentally testable.

Biological profile: Pelvic and cranial traits estimate sex; pubic symphysis, auricular surface, epiphyseal union and teeth estimate age; long-bone equations estimate stature. Metric and morphoscopic ancestry estimates are probabilistic reference-sample affinities, not biological race labels. **T. Dale Stewart** and **Wilton Krogman** systematised much of this osteology.

Individualisation: Dental records, healed fractures, implants and radiographs can identify. Autosomal STRs provide stronger confirmation; mtDNA assists with hair shafts or degraded bone. **Alec Jeffreys's** DNA profiling transformed personal identification. Facial approximation may generate leads but is not positive identification.

Trauma and cause-related evidence: Perimortem blunt, sharp and firearm trauma may be distinguished from post-mortem breakage. Taphonomy analyses burning, weathering, carnivore damage, burial and post-mortem interval. Cause and manner of death remain the medical examiner's legal conclusions.

Mass disaster and human rights: Disaster Victim Identification combines anthropology, odontology, fingerprints and DNA after crashes, floods or tsunamis. **Clyde Snow** and the Argentine Forensic Anthropology Team documented the disappeared, showing how skeletons can test state narratives. In India, unidentified railway deaths, disaster recovery and commingled remains are practical fields; local reference data are needed because imported equations may misclassify Indian populations.

WRAP Exams

Error ranges, observer variation, consent, family dignity, repatriation and secure genetic data are method, not afterthought.

Flow diagram

Recovery and context -> Biological profile

Biological profile -> Possible identity

Recovery and context -> Trauma and taphonomy

Possible identity -> DNA dental or medical confirmation

Trauma and taphonomy -> Legal and humanitarian interpretation

DNA dental or medical confirmation -> Legal and humanitarian interpretation

Conclusion

- **Forensic anthropology is strongest as a team science:** archaeology preserves context, osteology narrows identity, trauma and taphonomy reconstruct events, and DNA or dental records may confirm a name. Its conclusions should be transparent probabilities, not racial certainty.

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WRAP Exams

Q6(c) · 15 marks

How does Lévi-Strauss look at the Tsimshian myth of Asdiwal? Critically discuss Lévi-Strauss' theory of structuralism in the light of his study of mythologies.

Anthropology GS 1 · 2024 · Structuralism (Lévi-Strauss and E. Leach)

Revision summary

Lévi-Strauss treats the Asdiwal myth as transformations among relations, not failed history.

Mountain/sea, hunting/fishing and residence rules form linked oppositions.

Mythemes gain meaning through position, following Saussurean linguistics.

Different versions transform one structural problem rather than copy one original.

The method reveals patterned classification and contradiction.

Critics argue that analyst-chosen binaries neglect performance, history, agency and power.

Introduction

For Claude Lévi-Strauss, myth is not an inferior historical chronicle but a machine for thinking contradictions. His analysis of the Tsimshian story of Asdiwal reads successive versions as transformations of relations-high/low, land/sea, nature/culture and matrilocal/patrilocal.

Body

Asdiwal as structural analysis

Asdiwal, born through the intervention of a supernatural helper, travels vertically and horizontally, hunts, marries women from different domains, and ultimately fails to reconcile the worlds he crosses. Lévi-Strauss maps geography, subsistence and marriage together. Mountain versus sea, hunting versus fishing, east versus west and matrilocal versus patrilocal residence form homologous oppositions. Mediating figures and journeys temporarily bridge them.

The myth does not simply mirror Tsimshian society. Its ending exposes contradictions between ideal and lived social arrangements that cannot be permanently solved. Different versions are therefore not corrupt copies; each transforms a common relational matrix.

Structuralist theory illustrated

Borrowing from **Saussurean linguistics**, Lévi-Strauss argues that meaning lies in relations, not isolated motifs. Minimal relational units or "mythemes" combine like language. Binary oppositions reflect unconscious classificatory structures; transformation explains variation across myths. In The Structural Study of Myth and the Mythologiques, he sought a comparative science of thought.

Critical assessment

The method rescued myth from evolutionist fantasy and showed patterned variation across ecology, kinship and symbolism. It is replicable in asking what relations transform.

Yet **Edmund Leach** warned that neat binaries can be selected by the analyst. Historical colonial change, performance, emotion and the narrator's purpose recede. **Pierre Bourdieu** objected more generally to rule-like structures detached from practice, while post-structuralists question a universal stable code. Some critics also dispute whether

WRAP Exams

Asdiwal's variants support all the geographic alignments assigned to them.

A stronger use joins structure to who tells a version, on what occasion, and under which historical conditions.

Flow diagram

Asdiwal variants -> Binary oppositions

Binary oppositions -> Mountain versus sea

Binary oppositions -> Hunting versus fishing

Binary oppositions -> Matrilocal versus patrilocal

Mountain versus sea -> Transformations and mediation

Hunting versus fishing -> Transformations and mediation

Matrilocal versus patrilocal -> Transformations and mediation

Transformations and mediation -> Contradiction expressed not finally solved

Conclusion

- **Asdiwal demonstrates structuralism at its best:** myth transforms stubborn social and ecological contradictions rather than reporting events. Its weakness is the same abstraction-relations become elegant while speakers, history and unequal power can disappear.

Open WRAP page — https://wrapexams.com/upsc/mains-answers/anthropology-gs-1/2024/how-does-l-vi-strauss-look-at-the-tsimshian-myth-of-asdiwal-critically-discuss-l-vi-strauss-theory-of-structuralism-in-the-light-of-his-study-of-mythologies/

WRAP Exams

Q7(a) · 20 marks

Critically explain the notion of 'deconstruction' in the light of the postmodern works of Jacques Derrida.

Anthropology GS 1 · 2024 · Post-modernism in anthropology.

Revision summary

Derridean deconstruction is a close reading of unstable hierarchical oppositions.

Différance means that signs differ and final meaning is deferred.

Trace marks the excluded term within the privileged one; aporia is an internal impasse.

Derrida exposed contradictions in Lévi-Strauss's nature/culture and speech/writing contrasts.

Clifford, Marcus and Abu-Lughod brought reflexive textual critique into anthropology.

Its limit is textualism unless linked to history, institutions and material inequality.

Introduction

Jacques Derrida's deconstruction is not destruction or the claim that any reading is equally true. It is a close reading that shows how a text depends on unstable oppositions and on meanings it excludes, so its claim to a single self-present centre cannot hold.

Body

Core moves

Western thought often organises hierarchical binaries-speech/writing, reason/emotion, civilised/primitive, male/female-privileging the first term. Deconstruction first identifies the hierarchy, then reverses or displaces it to show mutual dependence.

Différance names both difference and deferral: a sign means through differences from other signs, while final meaning is continually postponed. A supposedly absent term leaves a trace in the present one. An **aporia** is an impasse where a text's own premises prevent a stable resolution. Derrida's reading of Lévi-Strauss in "Structure, Sign and Play" showed that even a critique of ethnocentrism could reproduce the nature/culture and speech/writing oppositions it questioned.

Anthropological relevance

Postmodern anthropologists such as **James Clifford and George Marcus** treated ethnographies as authored, partial texts rather than transparent windows. **Lila Abu-Lughod's** "writing against culture" unsettles the bounded culture/individual binary; **Edward Said's** Orientalism exposes how West/East representation constituted imperial authority. In India, deconstructing tribe/caste, traditional/modern or literate/illiterate can reveal administrative power and hybrid lives.

Critique

Deconstruction enables reflexivity, attention to silences and recovery of marginal voices. But textual indeterminacy can underplay land, labour and violence. **Eric Wolf's** political economy and feminist or subaltern ethnography remind us that unequal meanings are backed by institutions. The method also risks becoming an analyst's wordplay unless grounded in language, history and field evidence.

Flow diagram

WRAP Exams

Hierarchical binary -> Reverse the privilege

Reverse the privilege -> Displace both terms

Displace both terms -> Find trace and différance

Find trace and différance -> Aporia: no final centre

Aporia: no final centre -> Reflexive ethnographic reading

Conclusion

Deconstruction makes anthropology ask how its categories manufacture the other they claim merely to describe. Its best use is disciplined and empirical: destabilise false binaries, identify exclusions, then reconnect representation to material power.

Open WRAP page — https://wrapexams.com/upsc/mains-answers/anthropology-gs-1/2024/critically-explain-the-notion-of-deconstruction-in-the-light-of-the-postmodern-works-of-jacques-derrida/

WRAP Exams

Q7(b) · 15 marks

What is a multifactorial trait? Illustrate your answer with suitable human examples.

Anthropology GS 1 · 2024 · Mendelian genetics in man-family study, single factor, multifactor, lethal, sub-lethal and polygenic inheritance in man.

Revision summary

A multifactorial trait combines many genetic variants with environment and development.

Fisher explained continuous variation through many small Mendelian effects.

Height, pigmentation, BMI and blood pressure are continuous examples.

Cleft lip, neural-tube defects, diabetes and hypertension can use a liability-threshold model.

Twin, family and GWAS designs estimate components but depend on population and environment.

Yajnik's thin-fat phenotype illustrates developmental and nutritional interaction in India.

Introduction

A multifactorial trait results from many genetic variants acting with environmental and developmental factors. It usually lacks a simple Mendelian pedigree: the phenotype may be continuously distributed, like stature, or cross a liability threshold, like cleft lip.

Body

Architecture and examples

R. A. Fisher's quantitative genetics showed how many Mendelian loci of small additive effect can generate a continuous curve. Phenotypic variance includes genetic, environmental and interaction terms. Height, body mass, skin pigmentation and blood pressure are continuous multifactorial traits. Height reflects polygenic potential plus childhood nutrition and infection; pigmentation combines variants including **SLC24A5** and **MC1R** with UV-related selection and tanning.

For dichotomous conditions, the **liability-threshold model** proposes an unobserved continuous liability. Disease appears when genetic and environmental load crosses a threshold. Cleft lip/palate, neural-tube defects, type 2 diabetes and essential hypertension are standard examples. Recurrence is higher among close relatives and after a severe or multiple case, but no 3:1 ratio follows.

Twin, adoption and family studies estimate recurrence and heritability; genome-wide association studies identify many loci, usually of small effect. **C. S. Yajnik's** Indian "thin-fat" phenotype research illustrates developmental mismatch: constrained foetal growth combined with later calorie abundance raises metabolic risk. Lactase persistence and dairying offer a longer-term gene-culture interaction, though the phenotype has major-locus effects and should not be confused with a purely polygenic trait.

Multifactorial does not mean vaguely "many causes". Models must specify exposure and population. Heritability changes with environment, polygenic scores transfer poorly across ancestries, and social inequality can be mislabelled genetic risk.

Flow diagram

WRAP Exams

Many genetic variants -> Liability or quantitative value

Environment and development -> Liability or quantitative value

Gene-environment interaction -> Liability or quantitative value

Liability or quantitative value -> Continuous trait

Liability or quantitative value -> Threshold crossed?

Threshold crossed? -> yes Disease phenotype

Conclusion

- **Multifactorial traits are the normal terrain of human biological variation:** many alleles, development and lived environment jointly make the phenotype. Their study requires quantitative and biocultural models, not Mendelian determinism or a genes-versus-culture choice.

Open WRAP page — https://wrapexams.com/upsc/mains-answers/anthropology-gs-1/2024/what-is-a-multifactorial-trait-illustrate-your-answer-with-suitable-human-examples/

WRAP Exams

Q7(c) · 15 marks

Discuss the applicability of various sampling techniques in selecting the study group.

Anthropology GS 1 · 2024 · Marriage

Revision summary

Simple random and systematic sampling require a usable frame.

Stratification ensures analytically important minorities are represented.

Cluster and multistage designs suit dispersed regional surveys but need design-effect adjustment.

Purposive sampling selects information-rich cases; theoretical sampling develops concepts.

Snowball sampling reaches hidden groups but carries network bias.

Anthropological sampling should combine transparent inference, ethnographic depth, non-response analysis and ethics.

Introduction

Sampling selects cases from a defined population so that fieldwork is feasible. Its quality depends not on one universally best technique but on fit among research question, sampling frame, mobility, social boundaries and the inference claimed.

Body

Probability designs

- **Simple random sampling** gives every listed unit a known equal chance; suitable for a complete village household register, but costly over dispersed terrain.
- **Systematic sampling** takes every kth unit after a random start; efficient in settlement lists, unless periodic ordering creates bias.
- **Stratified sampling** samples within relevant strata such as sex, age, caste or ecological zone. It ensures small subgroups are represented and can improve precision.
- **Cluster and multistage sampling** first select villages or census blocks, then households and persons. This is practical for regional nutrition or morbidity surveys, though intra-cluster similarity enlarges sampling error.

Probability designs support estimable sampling error and population inference, provided non-response and frame omissions are addressed.

Non-probability and adaptive designs

Purposive sampling selects information-rich ritual specialists, healers or fossil collections; **quota sampling** fills categories without random selection; **convenience sampling** is fast but weak for generalisation. **Snowball sampling**, associated with referral chains, reaches stigmatised or hidden groups such as migrants, sex workers or drug users, but over-represents network hubs. Respondent-driven sampling attempts to model referral probabilities under strong assumptions. **Theoretical sampling** in grounded theory selects new cases to develop emerging concepts until saturation.

Classic intensive ethnography-Malinowski in the Trobriands or **M. N. Srinivas** in Rampura-often chose a site purposively, then used a census, genealogy and case studies within it. Statistical representativeness and ethnographic depth answer different questions.

WRAP Exams

Gatekeeper access, seasonal absence, household definitions, refusal and digital exclusion can bias any design. Tribal or vulnerable populations require community consent and protection from re-identification; oversampling a small group must not become extractive surveillance.

Flow diagram

Research question -> Population frame exists?

Population frame exists? -> yes Probability sample

Probability sample -> Random stratified or multistage

Population frame exists? -> no or hidden Non-probability or adaptive

Non-probability or adaptive -> Purposive snowball theoretical

Random stratified or multistage -> Population inference

Purposive snowball theoretical -> Depth or network access

Conclusion

Use random, stratified or multistage designs when estimating population patterns; use purposive, theoretical or network designs when mechanisms, rare expertise or hidden populations are the object. Triangulation and honest limits matter more than calling every sample representative.

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WRAP Exams

Q8(a) · 20 marks

Examine critically the concept of social stratification as a basis for sustaining social inequality.

Anthropology GS 1 · 2024 · The Nature of Society

Revision summary

Stratification is institutional ranking that produces unequal resources, honour and power.

Marx stresses property; Weber separates class, status and party.

Bourdieu explains reproduction through several forms of capital and habitus.

Dumont highlighted purity hierarchy; Ambedkar highlighted endogamy, graded inequality and coercion.

Srinivas showed Sanskritisation and dominant caste, mobility that need not end hierarchy.

Intersectionality, law and movements show both compounded inequality and resistance.

Introduction

Social stratification is the durable, institutional ranking of categories of people into unequal life chances, honour, resources and power. Difference becomes inequality when it is inherited, justified and reproduced through institutions.

Body

How hierarchy reproduces itself

Karl Marx located class inequality in ownership of productive property: dominant classes control labour and ideology. **Max Weber** separated class, status and party, explaining why ritual honour or political power need not follow income exactly. **Davis and Moore** claimed unequal rewards motivate socially necessary roles; **Melvin Tumin** replied that inherited privilege restricts talent and lets elites define which work is valuable.

Pierre Bourdieu shows reproduction through economic, cultural, social and symbolic capital. Schools can convert a dominant group's language and habitus into apparently neutral merit. **Louis Dumont's** Homo Hierarchicus interpreted caste through purity and pollution, while **B. R. Ambedkar** centred graded inequality, endogamy and coercion. **M. N. Srinivas's** Sanskritisation demonstrates mobility, but often mobility within rather than abolition of hierarchy. Dominant caste links number, land and political office.

Endogamy transmits status and property; occupational closure restricts opportunity; ideology naturalises privilege; law and everyday discrimination enforce boundaries. Gendered unpaid care and control of marriage reproduce caste and class together. Dalit women's location shows **Kimberlé Crenshaw's** intersectional insight: axes of inequality combine rather than simply add.

Stratification is not perfectly closed. Reservation, urbanisation, social movements, education and democratic politics create mobility and counter-power. Yet wealth, networks, English-medium credentials, residential segregation and digital access can remake old advantage in new forms. Functional integration cannot excuse unequal dignity, and a purely ritual account misses land and violence.

Flow diagram

WRAP Exams

Unequal resources -> Institutions

Institutions -> Endogamy education occupation

Endogamy education occupation -> Legitimating ideology

Legitimating ideology -> Unequal life chances

Unequal life chances -> Unequal resources

Movements law and mobility -. challenge . -> Institutions

Conclusion

Stratification sustains inequality by turning resources into inherited status and then naming the result merit, purity or tradition. Marx, Weber, Bourdieu and Ambedkar together reveal material, cultural and political reproduction; agency and constitutional justice reveal that it is never uncontested.

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WRAP Exams

Q8(b) · 15 marks

Describe the genetics and inheritance patterns of the ABO and Rh blood groups in man.

Anthropology GS 1 · 2024 · Mendelian genetics in man-family study, single factor, multifactor, lethal, sub-lethal and polygenic inheritance in man.

Revision summary

ABO lies on chromosome 9 and encodes glycosyltransferases acting on H antigen.

I^A and I^B are codominant; both dominate common O.

Bombay phenotype hh lacks H antigen and demonstrates epistasis.

Rh is a chromosome-1 complex centred on RHD and RHCE, not literally one allele pair.

Maternal IgG anti-D can cause haemolytic disease after sensitisation; prophylaxis prevents most cases.

Blood-group frequencies trace populations but cannot define races or prove unique paternity.

Introduction

ABO and Rh are inherited red-cell antigen systems and classic markers of human variation. ABO illustrates multiple alleles and codominance; Rh, especially the D antigen, illustrates a genetically complex system with major maternal-foetal significance.

Body

ABO system

Karl Landsteiner discovered ABO agglutination. The **ABO** locus on chromosome 9 encodes glycosyltransferases. I^A adds N-acetylgalactosamine to the H antigen; I^B adds galactose; common i/O alleles produce inactive enzyme. I^A and I^B are codominant and both dominate O:

- **A phenotype:** I^AI^A or I^Ai; anti-B in plasma.
- **B:** I^BI^B or I^Bi; anti-A.
- **AB:** I^AI^B; both antigens and neither antibody.
- **O:** ii; neither A nor B antigen and both antibodies.

A and B parents can therefore have an O child only if both are heterozygous; paternity can sometimes be excluded, never uniquely proved, by ABO alone. Bombay phenotype (**hh**), first reported in Mumbai, lacks H antigen and can type deceptively as O-an important epistatic exception.

Rh system

The Rh complex lies on chromosome 1, principally **RHD** and **RHCE**. Presence of D usually defines Rh-positive; absence or inactivation defines Rh-negative. "Positive dominant over negative" is a useful pedigree shorthand, but C/c and E/e antigens, variant D alleles and gene structure make Rh more complex than one two-allele locus.

Unlike naturally occurring ABO antibodies, anti-D usually follows sensitisation. An Rh-negative mother carrying an Rh-positive foetus may form IgG anti-D; in a later incompatible pregnancy it can cross the placenta and cause haemolytic disease of the foetus/newborn. Anti-D immunoglobulin prophylaxis greatly reduces this risk.

WRAP Exams

ABO and Rh frequencies helped early population anthropology map clines and affinity, including Indian caste and tribal samples. Drift, founder effect, selection and gene flow shape frequencies, but no blood group defines a race. DNA markers now provide finer histories.

Flow diagram

H antigen antigen -> IA adds IA adds A sugar sugar

H antigen -> IB adds IB adds B sugar sugar

H antigen -> i inactive

RHD present -> Rh positive

RHD absent or inactive -> Rh negative

Rh negative -> Maternal sensitisation

Maternal sensitisation -> IgG anti-D haemolysis

Conclusion

ABO is a clean example of multiple allelism, codominance and epistasis; Rh is a multi-antigen system whose D incompatibility matters in pregnancy. Both remain valuable teaching and clinical markers, but population frequencies are not racial essences.

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WRAP Exams

Q8(c) · 15 marks

Critically discuss the synergistic effect of biological and cultural factors in human evolution.

Anthropology GS 1 · 2024 · Biological and Cultural factors in human evolution.

Revision summary

Biocultural evolution is reciprocal feedback among genes, development, behaviour and constructed environments.

Bipedalism enabled new carrying and tool behaviours; technology then changed foraging and cooperation.

Cooking may raise energy return, but its chronology cannot alone explain early Homo.

Dairying/lactase persistence and malaria/HbS are gene-culture-ecology examples.

Yajnik's thin-fat phenotype shows developmental mismatch in India.

Hrdy, Hawkes and niche-construction theory connect cooperative care, long childhood and cumulative culture.

Introduction

- **Human evolution is biocultural:** inherited bodies create cultural possibilities, while learned behaviour modifies diet, disease, mating and ecology, thereby altering development and natural selection. The relationship is recursive, not biology first and culture later.

Body

Feedbacks that made humans

Bipedalism and technology: Mosaic habitats selected habitual bipedalism before large brains, as Laetoli footprints show. Freed hands could carry food and infants and later make tools; tool-assisted foraging then favoured learning and cooperation. This is feedback, not the discarded claim that tools alone caused upright posture.

Diet, fire and brains: Stone cutting expanded access to meat and marrow. **Richard Wrangham's** cooking hypothesis argues that fire increased digestibility and reduced chewing and gut costs, supporting an energy-expensive brain. Yet secure habitual cooking is later than the earliest Homo, so cooking cannot alone explain initial encephalisation. Teeth, isotopes and Oldowan cut marks provide independent evidence.

Gene-culture coevolution: Dairying created selection for adult lactase persistence in several pastoral populations through different regulatory variants. Starch-rich diets are associated at population level with higher **AMY1** copy numbers, though causality and effect size are debated. Agriculture increased population density and infectious exposure; malaria ecology plus settlement helped maintain HbS in some regions. Allison's sickle-cell case links gene, pathogen and subsistence landscape.

Developmental plasticity: Culture changes bodies within a lifetime. Childhood nutrition, workload and disease affect stature and pelvic growth. Barker's developmental-origins work and **C. S. Yajnik's** Indian thin-fat phenotype show how foetal constraint can meet later urban abundance to raise metabolic risk.

Social brain and life history: Long childhood, alloparenting, language and cumulative learning form a cooperative package. **Sarah Hrdy's** cooperative-breeding model and **Kristen**

WRAP Exams

Hawkes's grandmother hypothesis connect care networks to survival and longevity. Culture supplies information beyond one genome; biology supplies plastic brains and prolonged dependence.

- **Niche-construction theorists such as** F. John Odling-Smee **formalise this reciprocity:** organisms modify selective environments. But not every cultural practice is adaptive, and genetic stories require population evidence. Cultural diffusion can outpace genes, while inequality distributes biological costs unevenly.

Flow diagram

Biological variation and plasticity -> Cultural innovation

Cultural innovation -> Constructed diet disease and social niche

Constructed diet disease and social niche -> Development and selection

Development and selection -> Biological variation and plasticity

Cultural innovation -> Cumulative learning

Cumulative learning -> Cultural innovation

Conclusion

Humans did not escape evolution through culture; culture became a major evolutionary environment. Tools, cooking, dairying, farming and cooperative care repeatedly changed selection and development. A biocultural model explains the feedback without reducing culture to genes or biology to custom.

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WRAP Exams

Compiled answer key

Last pages of this pack. Each question links to the WRAP model answer on wrapexams.com.

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Q1(a) **10 marks**	**Q1(b)** **10 marks**	**Q1(c)** **10 marks**	**Q1(d)** **10 marks**
Q1(e) **10 marks**	**Q2(a)** **20 marks**	**Q2(b)** **15 marks**	**Q2(c)** **15 marks**
Q3(a) **20 marks**	**Q3(b)** **15 marks**	**Q3(c)** **15 marks**	**Q4(a)** **20 marks**
Q4(b) **15 marks**	**Q4(c)** **15 marks**	**Q5(a)** **10 marks**	**Q5(b)** **10 marks**
Q5(c) **10 marks**	**Q5(d)** **10 marks**	**Q5(e)** **10 marks**	**Q6(a)** **20 marks**
Q6(b) **15 marks**	**Q6(c)** **15 marks**	**Q7(a)** **20 marks**	**Q7(b)** **15 marks**
Q7(c) **15 marks**	**Q8(a)** **20 marks**	**Q8(b)** **15 marks**	**Q8(c)** **15 marks**

Question-wise key

Q1(a) · 10 marks Solution
Q1(b) · 10 marks Solution
Q1(c) · 10 marks Solution
Q1(d) · 10 marks Solution
Q1(e) · 10 marks Solution
Q2(a) · 20 marks Solution
Q2(b) · 15 marks Solution
Q2(c) · 15 marks Solution
Q3(a) · 20 marks Solution
Q3(b) · 15 marks Solution
Q3(c) · 15 marks Solution
Q4(a) · 20 marks Solution
Q4(b) · 15 marks Solution
Q4(c) · 15 marks Solution
Q5(a) · 10 marks Solution
Q5(b) · 10 marks Solution
Q5(c) · 10 marks Solution
Q5(d) · 10 marks Solution
Q5(e) · 10 marks Solution
Q6(a) · 20 marks Solution
Q6(b) · 15 marks Solution
Q6(c) · 15 marks Solution
Q7(a) · 20 marks Solution
Q7(b) · 15 marks Solution

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Q7(c) · 15 marks Solution

Q8(a) · 20 marks Solution

Q8(b) · 15 marks Solution

Q8(c) · 15 marks Solution

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