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Q4(a)

What are the ethical concerns in biological and socio-cultural anthropology because of recent advances in AI and genetic research?

UPSC Civil Services Mains 2024 · Anthropology GS 2 · 20 marks · Indigenous and exogenous processes of socio-cultural change in Indian society

5.3 Indigenous and exogenous processes of socio-cultural change in Indian society: Sanskritization, Westernization, Modernization; Inter-play of little and great traditions; Panchayati Raj and social change; Media and Social change.

Core demand of the question

- Separate biological from socio-cultural ethical issues
- **On genetics:** consent, community, privacy, ancestry claims, enhancement debates - no weapon or exploit instructions
- **On artificial intelligence:** classification, surveillance, biased models, ethnographic data, authorship
- Cite anthropological codes and Indian regulators at a high level

Revision summary

- **Genetic ethics:** informed and **community consent**, privacy, no racial misuse of ancestry or aDNA, voluntary medical screening, strict control of heritable genome editing.
- **Artificial intelligence ethics:** biased classification, surveillance, loss of ethnographic anonymity, deepfakes and false cultural authority.

ICMR, IRB, AAA and Nagoya-type benefit-sharing are the working rules.

Do not treat genomes or models as a new Risley.

Communities must be able to refuse sampling and recording.

Introduction

Recent **genetic research** and **artificial intelligence** enlarge what anthropologists can know about bodies, faces, voices and social groups. They also enlarge the chance of harm. Ethics here is about **consent, stigma, ownership of data and the refusal to revive race science**. This answer discusses principles and institutional rules, not laboratory or weapon methods.

Body

Biological anthropology

Human genetics, ancient DNA, and medical genomics need **informed consent** that a village can actually give. A signed form in English is not consent among a PVTG. **Community consent** (after Nuu-chah-nulth, Havasupai, and Indian debates on tribal sampling) sits beside individual consent because a genome is never only one person's secret: relatives and future children are implicated. **Benefit-sharing** and the spirit of the **Nagoya Protocol** require that if a community's genetic or associated traditional knowledge is used, the community is a

partner, not a raw-material site.

- **Privacy and re-identification:** even "anonymised" genomic files can be linked. Databases must limit access. Ancestry tests sold to the public can freeze colonial racial types (**Risley, Guha's** older taxonomy) as commercial identity. Anthropologists must not treat a PCA plot as a caste origin certificate. **Rakhigarhi aDNA** is a scientific result; using it to police who is "indigenous" is a political misuse.
- **Medical genetics:** counselling, not coercion. Sickle-cell and other screening in tribal belts is ethical when it is voluntary, confidential, and tied to care. It is unethical when it becomes a condition of marriage or of a government benefit. Human genome editing for heritable change is under international moratoria and Indian review (ICMR, Department of Biotechnology, ethics boards) because of uncertain harm to descendants and because enhancement could deepen class inequality. This is a **governance** issue. It is not a recipe.
- **Collections:** skeletal and blood archives from colonial and ASI contexts need repatriation or restricted use when communities object. The **Helsinki** tradition, **CIOMS**, and **ICMR National Ethical Guidelines** are the Indian working texts.

Socio-cultural anthropology

Artificial intelligence here means machine systems that classify images, speech, text and behaviour. Ethnographic fieldnotes, photographs and interview recordings, if scraped or donated without permission, can train models that later identify activists, migrants or minorities. **Anonymity**, a classic field ethic (**AAA, ASA**, Indian university IRBs), is harder when faces and voices are searchable.

Biased training data reproduce caste, gender and racial stereotype as if they were nature. Predictive policing and welfare-fraud scoring can punish the poor for being poor. Anthropologists who advise such systems share responsibility. **Deepfakes** of ritual or of a person damage reputation and sacred secrecy (some Australian and Indian communities already restrict images of the dead).

- **Authorship and labour:** students and informants who clean data for a model must be credited and paid. A chatbot that answers as if it were a tribe's elder is a **representation harm**.

Shared duties

Do not collect DNA or digital traces because it is possible. State a research question, a storage limit, a destruction date, and a community veto. Refuse projects whose purpose is covert surveillance or the ranking of peoples. The **Ghurye-Elwin** lesson still applies: knowledge that only serves the state against a vulnerable group is not autonomous anthropology.

National Digital Health and Aadhaar-linked records raise the same consent problem at population scale. Anthropology's contribution is to insist that **groups**, not only individuals, can be harmed.

Flow diagram

Genetic research -> Consent privacy benefit
 Artificial intelligence -> Bias surveillance representation
 Consent privacy benefit -> Community veto
 Bias surveillance representation -> Community veto

Conclusion

Genetic research and artificial intelligence are ethical problems of consent, privacy, stigma and power. Biological anthropology must not revive race; socio-cultural anthropology must not feed surveillance. Codes already exist. The test is whether communities can refuse and still be respected.

Facts & figures

ICMR ethical guidelines

India's principal biomedical and health-research ethics framework, including consent, vulnerability and stored samples.

Community consent

Used when genetic or ethnographic data implicate a whole tribe or village, not only a signatory.

AAA / ASA codes

Professional rules on do-no-harm, informed consent, and protection of sources in fieldwork.

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