

WRAP Exams · wrapexams.com

Prelims PYQ, Mains model answers, and copy evaluation. Write to the desk for this paper, a doubt, or the AI waitlist.

ask@wrapexams.com · +91 85951 84903 · wrapexams.com

Q8(b)

Critically analyse the role of science and technology in bringing about social change

UPSC Civil Services Mains 2017 · Sociology GS 1 · 20 marks · Social Change in Modern Society

Social Change in Modern Society: Sociological theories of social change; Development and dependency; Agents of social change; Education and social change; Science, technology and social change.

Core demand of the question

- Critically analyse the role of science and technology in bringing about social change
- Keep the analysis within a 20-mark length

Revision summary

Science and technology remake production, health, and communication.

Marx embedded tools in class relations; **Ogburn** named cultural lag.

Weber treated science as a cultural order, not a neutral engine.

Green Revolution, unpaid care, and platforms show unequal effects.

Beck's risk society names manufactured uncertainties.

Introduction

Science and technology change how people produce, communicate, and die. They do not change society by themselves. Social relations decide who invents, who owns, and who is displaced. A critical analysis treats tools as socially embedded.

Body

How they change society

- **Karl Marx** treated new productive forces as unsettling old relations, from the hand-mill to the steam-mill in a famous formula, always inside class.
- **William Ogburn's cultural lag**: material culture moves first, norms trail, producing strain.
- Medical and contraceptive technologies reshaped fertility, which NFHS still tracks. Digital networks reshape publics.

Critical limits

- Technological determinism forgets **Max Weber's** point that rational science itself is a cultural order of disenchantment.
- Labour-saving tools can cheapen labour or throw it out, as Braverman argued about machines and management.
- **Green Revolution** raised yields and also differentiated rural classes and groundwater stress.
- Digital platforms create gig informality as well as access to information.

Gender and caste

- Ann Oakley's unpaid care is not automatically cut by gadgets; standards of housework may rise.
- Caste can follow into labs, IITs, and algorithmically sorted jobs.

State and science

- Big science is a state and corporate project. The Indian nuclear, space, and Aadhaar stacks are political technologies.
- Risk society, after Ulrich Beck, names manufactured uncertainties that science both causes and is asked to fix.

Verdict

- Science and technology are powerful levers of change in production, health, and communication.
- Direction of change follows property, state, and honour, not the gadget alone.

Flow diagram

Science technology -> Productive forces
Science technology -> Communication health
Class state gender -> Direction of change
Productive forces -> Direction of change
Communication health -> Direction of change

Conclusion

Science and technology bring change by remaking production, bodies, and publics. Marx, Ogburn, Weber, and Beck prevent a hymn to gadgets. Indian agriculture, care, and digital stacks show both gain and new inequality.

Facts & figures

Ogburn

Cultural lag: norms trail material invention.

Marx

Productive forces unsettle relations of production; tools are not class-neutral.

Green Revolution

Yield and market change with class and ecological costs in rural India.

Beck

Risk society: modern science produces hazards it is then asked to manage.