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**PAPER- IV (A,B & C) (4)
HISTORY OF SCIENCE AND TECHNOLOGY
IN PRE-COLONIAL INDIA**

M.M. 100

Unit-I

Science and Technology- the beginnings.

- a. Science and technology - meanings, scope and importance. Interaction of Science, Universalism of Science. Sources of history of science and technology.
- b. Origins and development of technology in prehistoric period. Beginning of agriculture and its impact on the growth of science and technology.

Unit-II

Science and technology during Vedic and later Vedic

- a. Times including physical and biological sciences.
- b. An outline of the development of concepts: doctrine of five elements, theory of atomism and attributes of matter in ancient India.

Unit-III

Development in Science and Technology in India, A.D. 1st century to 17th century.

- a. Major development in the history of science and technology from AD 1st century to c.1200.
- b. Developments in astronomy with special reference to Aryabhatta, Varahmihira and Bhaskara.

Unit-IV

- a. Development in medicine and surgery: Charaka and Sushruta Samhitas and Subsequent developments in Human anatomy, Physiology and materia medica.
- b. Development of Mathematics: geometry of the sulva sutra; mathematics of Bakshali Manuscript, mathematics of the classical period.
- c. Concept of rationality and scientific ideas in Arab thought and its reception in India

Unit-V

- a. New developments in technology- Persian wheel; gunpowder; textiles; bridge building; etc.
- b. Developments in medical knowledge and interaction between unani and ayurveda and alchemy.
- c. Astronomy in the Arab world and its impact on Indian with special reference to Sawai Jaisingh

Books Readings :

1. Michael Adas, 1992: Machine as the Measure of Men: Science, Technology and ideological of western dominance, OUP, Delhi.
2. David Arnold, 1993: Colonizing the Body, Delhi.
3. 1999, Science, Technology and Medicine in colonial India, The New Cambridge History of the Indian Series, OUP, Cambridge.

4. Grovw, R.: 1994, Green Imperialism, OUP, Delhi.
5. Headrick, D.R.: 1981, The tools of Empire Technology and European Imperialism in the Nineteenth Century, OUP, New York.
6. Kumar Anil : 1998, Medicine and the Raj, Sage, Delhi.
7. Kumar Deepak : 1995, Science and the Raj. OUP, Delhi.
8.,2000. Disease and Medicine in India: A Historical overview, Tulika Publications, Delhi.
9. Macleod, Roy and Kumar Deepak : (eds.) 1995, Technology and the Raj, Sage, Delhi.
10. Patitjean Petal. (eds.): 1992, Science and empires, kluwer, Dordrecht.
11. Prakash Gyan: 2000, Another Reason: Science and the Imagination of modern, OUP., Delhi.
12. Oaisar, A.J.: 1982, The Indian Response to European Technology and Culture, OUP. Delhi.
13. Raina D. and Habib I. : (eds.) 1999, Situating History of Science : Dialogues with Joseph Needham, OUP, Delhi.
14. Sangwan S.: 1990, Science, Technology and Colonisation: Indian experience Amamika. Delhi.
15. Sen, S.N.: 1991, Scientific & Technical Education in India INSA, New Delhi.
16. Vishwanathan S.: 1985, Organising for Science, OUP, Delhi.