

**GENERAL KNOWLEDGE****Time Allowed : Three Hours****Maximum Marks : 300****Question Paper Specific Instructions**

***Please read each of the following instructions carefully before attempting questions :***

***All the questions are to be attempted.***

***The number of marks carried by a question/part is indicated against it.***

***Attempt of a part/question shall be counted in sequential order. Unless struck off, attempt of a part/question shall be counted even if attempted partly. Any page or portion of the page left blank in the Question-cum-Answer Booklet must be clearly struck off.***

***Answers must be written in ENGLISH only.***

**Q1. Answer all the following questions within the word limits indicated in the brackets at the end of the questions :**

(a)      Describe the characteristic features of Mughal Architecture. (200 words)	15
(b)      Trace the main events of Modern Indian History from the Cripps Mission to Independence of India. (200 words)	15
(c)      Enumerate the causes for the rise of Buddhism and Jainism during ancient times. (125 words)	10
(d)      Discuss the contribution of various organisations in the Social and Religious Reform Movement during the nineteenth century. (125 words)	10

**Q2. Answer all the following questions within the word limits indicated in the brackets at the end of the questions :**

(a) How does increase in current account deficit of India influence the fall in the value of rupee against the US Dollar ? What remedial measures have been suggested ? (200 words) 15

(b) India is going to experience the situation of demographic dividend in the near future, roughly around 2025. Is India capable to reap the benefits of demographic dividend ? Give reasons for your answer. (200 words) 15

(c) What is black income ? Examine the recent policy efforts by the Government of India to tackle the problem. (125 words) 10

(d) How do rising oil prices fuel inflation ? What measures would you suggest to contain it in context of the Indian scenario in the recent past ? (125 words) 10

**Q3. Answer all the following questions within the word limits indicated in the brackets at the end of the questions :**

(a) What do you understand by the term 'Judicial Governance' ? Do you think the judiciary in India has started exercising overarching powers in the name of judicial governance ? Comment citing recent examples. (200 words) 15

(b) Communal-Secular debate in Indian polity seems to be dissipating under the ambit of 'Government-Governance' discourse. Comment. (200 words) 15

(c) Though the right to life as enshrined in Part III of the Constitution includes rights to food, shelter and employment, these rights remain non-justiciable. Examine. (125 words) 10

(d) Providing constitutionality to the backward classes will ensure their legitimate empowerment and integration. Give arguments in light of the passage of the recent Constitution (123<sup>rd</sup> Amendment) Bill for backward classes. (125 words) 10

**Q4. Answer all the following questions within the word limits indicated in the brackets at the end of the questions :**

(a) Write on the vertical distribution of natural vegetation of Himalayas. (200 words) 15

(b) Discuss the importance of off-shore oil and gas resources for India. (200 words) 15

(c) Examine the economic and strategic importance of the Island regions of India. (125 words) 10

(d) Write on the problematic soils formed due to poor management of irrigation in India. (125 words) 10

**Q5. Answer all the following questions within the word limits indicated in the brackets at the end of the questions :**

(a) What are the basis for using micro-organisms in a manufacturing industry ? Describe the various ways in which micro-organisms are involved with the petroleum industry. Also put a brief note on how industrial microbiology has been affected by the new biotechnology (applied genetics) ? (200 words) 15

(b) What are patents ? Briefly describe the various requirements and the process of award of a patent. Discuss the pros and cons of patenting life forms. What is the status of India in this context ? Also write your views on effects of patenting on commercialization of biotechnological products, with justification. (200 words) 15

(c) Why are enzymes important to a cell ? Describe two most striking characteristics of enzymes. Describe three specific types of regulation of enzyme activity. Also differentiate between constitutive and induced enzymes. (100 words) 10

(d) How do garden peas stand up to the requirements for good experimental organisms for genetic breeding ? Basically, how does the first division of meiosis differ from mitosis ? (100 words) 10

**Q6. Answer all the following questions within the word limits indicated in the brackets at the end of the questions :**

(a) Define a "Polymer" and "Degree of Polymerisation". Discuss the advantages and disadvantages of the usage of polymers over metals in modern industries. (200 words) 15

(b) What is Bose-Einstein condensate ? Discuss in brief how the first Bose-Einstein condensate was created. Mention its significance in Modern Physics. (200 words) 15

(c) Write down the full form of the acronym SQUID. Where does one use SQUID ? Mention the important applications of SQUID in medical sciences. (100 words) 10

(d) How does a quantum computer differ from a digital electronic computer ? Mention in brief the working of the quantum computer. (100 words) 10