

**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