

**PAPER-III**  
**ELECTRONIC SCIENCE**

**Signature and Name of Invigilator**

1. (Signature) \_\_\_\_\_  
(Name) \_\_\_\_\_
2. (Signature) \_\_\_\_\_  
(Name) \_\_\_\_\_

Roll No. 

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(In figures as per admission card)

Roll No. \_\_\_\_\_  
(In words)

**J 8 8 1 1**

Time : 2 1/2 hours]

[Maximum Marks : 200

Number of Pages in this Booklet : 32

Number of Questions in this Booklet : 19

**Instructions for the Candidates**

- Write your roll number in the space provided on the top of this page.
- Answer to short answer/essay type questions are to be given in the space provided below each question or after the questions in the Test Booklet itself.

**No Additional Sheets are to be used.**

- At the commencement of examination, the question booklet will be given to you. In the first 5 minutes, you are requested to open the booklet and compulsorily examine it as below :
  - To have access to the Question Booklet, tear off the paper seal on the edge of this cover page. Do not accept a booklet without sticker-seal and do not accept an open booklet.
  - Tally the number of pages and number of questions in the booklet with the information printed on the cover page. Faulty booklets due to pages/questions missing or duplicate or not in serial order or any other discrepancy should be got replaced immediately by a correct booklet from the invigilator within the period of 5 minutes. Afterwards, neither the Question Booklet will be replaced nor any extra time will be given.**
- Read instructions given inside carefully.
- One page is attached for Rough Work at the end of the booklet before the Evaluation Sheet.
- If you write your Name, Roll Number, Phone Number or put any mark on any part of the Answer Sheet, except for the space allotted for the relevant entries, which may disclose your identity, or use abusive language or employ any other unfair means, you will render yourself liable to disqualification.
- You have to return the test booklet to the invigilators at the end of the examination compulsorily and must not carry it with you outside the Examination Hall.
- Use only Blue/Black Ball point pen.
- Use of any calculator or log table etc., is prohibited.

**परीक्षार्थियों के लिए निर्देश**

- पहले पृष्ठ के ऊपर नियत स्थान पर अपना रोल नम्बर लिखिए ।
- लघु प्रश्न तथा निबंध प्रकार के प्रश्नों के उत्तर, प्रत्येक प्रश्न के नीचे या प्रश्नों के बाद में दिये हुए रिक्त स्थान पर ही लिखिये ।  
**इसके लिए कोई अतिरिक्त कागज का उपयोग नहीं करना है ।**
- परीक्षा प्रारम्भ होने पर, प्रश्न-पुस्तिका आपको दे दी जायेगी । पहले पाँच मिनट आपको प्रश्न-पुस्तिका खोलने तथा उसकी निम्नलिखित जाँच के लिए दिये जायेंगे, जिसकी जाँच आपको अवश्य करनी है :
  - प्रश्न-पुस्तिका खोलने के लिए उसके कवर पेज पर लगी कागज की सील को फाड़ लें । खुली हुई या बिना स्टीकर-सील की पुस्तिका स्वीकार न करें ।
  - कवर पृष्ठ पर छपे निर्देशानुसार प्रश्न-पुस्तिका के पृष्ठ तथा प्रश्नों की संख्या को अच्छी तरह चेक कर लें कि वे पूरे हैं । दोषपूर्ण पुस्तिका जिनमें पृष्ठ/प्रश्न कम हों या दुबारा आ गये हों या सीरियल में न हों अर्थात् किसी भी प्रकार की त्रुटिपूर्ण पुस्तिका स्वीकार न करें तथा उसी समय उसे लौटाकर उसके स्थान पर दूसरी सही प्रश्न-पुस्तिका ले लें । इसके लिए आपको पाँच मिनट दिये जायेंगे । उसके बाद न तो आपकी प्रश्न-पुस्तिका वापस ली जायेगी और न ही आपको अतिरिक्त समय दिया जायेगा ।**
- अन्दर दिये गये निर्देशों को ध्यानपूर्वक पढ़ें ।
- उत्तर-पुस्तिका के अन्त में कच्चा काम (Rough Work) करने के लिए मूल्यांकन शीट से पहले एक पृष्ठ दिया हुआ है ।
- यदि आप उत्तर-पुस्तिका पर नियत स्थान के अलावा अपना नाम, रोल नम्बर, फोन नम्बर या कोई भी ऐसा चिह्न जिससे आपकी पहचान हो सके, अंकित करते हैं अथवा अभद्र भाषा का प्रयोग करते हैं, या कोई अन्य अनुचित साधन का प्रयोग करते हैं, तो परीक्षा के लिये अयोग्य घोषित किये जा सकते हैं ।
- आपको परीक्षा समाप्त होने पर उत्तर-पुस्तिका निरीक्षक महोदय को लौटाना आवश्यक है और इसे परीक्षा समाप्ति के बाद अपने साथ परीक्षा भवन से बाहर न लेकर जायें ।
- केवल नीले/काले बाल प्वाइंट पेन का ही इस्तेमाल करें ।
- किसी भी प्रकार का संगणक (केलकुलेटर) या लॉग टेबल आदि का प्रयोग वर्जित है ।

**ELECTRONIC SCIENCE**  
**PAPER – III**

**Note :** This paper is of **two hundred (200)** marks containing **four (4)** sections. Candidates are required to attempt the questions contained in these sections according to the detailed instructions given therein.

**SECTION – I**

**Note :** This section consists of **two** essay type questions of **twenty (20)** marks each, to be answered in about **five hundred (500)** words each. **(2 × 20 = 40 marks)**

1. With a neat functional diagram explain the function of various sections in the 8086 Microprocessor.

**OR**

What is superheterodyne principle ? Explain with block diagram the working of an AM receiver.







2. What are various optical sources used in fiber optic communication systems ? Compare their features and give their construction details.

**OR**

What are various types of transducers ? Explain three different types of transducers with their basic principles.









**SECTION – II**

**Note :** This section contains **three (3)** questions of **fifteen (15)** marks each to be answered in about **three hundred (300)** words. **(3 × 15 = 45 marks)**

3. Describe the circuit diagram of bistable multivibrator and derive necessary expressions.
  
4. Explain how a stepper motor can be interfaced with the microprocessor.
  
5. Draw a block diagram of an optical communication system. Explain the function of each block also list advantages of optical fiber cable over co-axial cable.



















**SECTION – III**

**Note :** This section contains **nine (9)** questions of **ten (10)** marks, each to be answered in about **fifty (50)** words. **(9 × 10 = 90 marks)**

6. Describe the action of the following filter circuit :
- (a) Shunt capacitor filter.
  - (b) Series inductor filter.

7. Describe the Thevenin and Superposition theorems.

8. Explain the operation of MOSFET with neat diagram. What do you mean by pinch-off voltage ?

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9. Discuss different interrupts in 8085.

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11. Compare and discuss FSK and PSK digital modulation technique.

12. Explain different types of optical fibers.





14. Describe different storage classes in C.





18. What is flash memory ?

19. Briefly explain different types of PROMs.

**Space For Rough Work**

<b>FOR OFFICE USE ONLY</b>	
Marks Obtained	
Question Number	Marks Obtained
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	

Total Marks Obtained (in words) .....

(in figures) .....

Signature & Name of the Coordinator .....

(Evaluation)

Date .....