PAPER-II
ELECTRONIC SCIENCE

Signature and Name of Invigilator

1. (Signature) _____

   (Name) _____

2. (Signature) _____

   (Name) _____

OMR Sheet No. : ....

(To be filled by the Candidate)

Roll No. [ ][ ][ ][ ][ ][ ][ ][ ]

(In figures as per admission card)

Roll No._____

(In words)

| D | 8 | 8 | 1 | 3 |

Time : 1 ¼ hours]

[Maximum Marks : **100**

Number of Pages in this Booklet : **8**	Number of Questions in this Booklet : **50**

Instructions for the Candidates	**परीक्षार्थियों के लिए निर्देश**

Instructions for the Candidates

1. Write your roll number in the space provided on the top of this page.
2. This paper consists of fifty multiple-choice type of questions.
3. 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 :
   (i) 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.
   (ii) **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.**
   (iii) After this verification is over, the OMR Sheet Number should be entered on this Test Booklet.
4. Each item has four alternative responses marked (A), (B), (C) and (D). You have to darken the circle as indicated below on the correct response against each item.
   Example : Ⓐ Ⓑ ● Ⓓ
   where (C) is the correct response.
5. Your responses to the items are to be indicated in the **OMR Sheet given inside the Paper I Booklet only.** If you mark at any place other than in the circle in the OMR Sheet, it will not be evaluated.
6. Read instructions given inside carefully.
7. Rough Work is to be done in the end of this booklet.
8. If you write your Name, Roll Number, Phone Number or put any mark on any part of the OMR 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 such as change of response by scratching or using white fluid, you will render yourself liable to disqualification.
9. You have to return the test question booklet and Original OMR Sheet to the invigilators at the end of the examination compulsorily and must not carry it with you outside the Examination Hall. You are, however, allowed to carry duplicate copy of OMR Sheet on conclusion of examination.
10. **Use only Blue/Black Ball point pen.**
11. **Use of any calculator or log table etc., is prohibited.**
12. **There is no negative marks for incorrect answers.**

परीक्षार्थियों के लिए निर्देश

1. इस पृष्ठ के ऊपर नियत स्थान पर अपना रोल नम्बर लिखिए ।
2. इस प्रश्न-पत्र में पचास बहुविकल्पीय प्रश्न हैं ।
3. 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 :
   (i) 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 ।
   (ii) कवर पृष्ठ पर छपे निर्देशानुसार प्रश्न-पुस्तिका के पृष्ठ तथा प्रश्नों की संख्या को अच्छी तरह चैक कर लें कि ये 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 ।
   (iii) इस जाँच के बाद OMR पत्रक की क्रम संख्या इस प्रश्न-पुस्तिका पर अंकित कर दें ।
4. प्रत्येक प्रश्न के लिए चार उत्तर विकल्प (A), (B), (C) तथा (D) दिये गये हैं । आपको सही उत्तर के वृत्त को पेन से भरकर काला करना है जैसा कि नीचे दिखाया गया है ।
   उदाहरण : Ⓐ Ⓑ ● Ⓓ
   जबकि (C) सही उत्तर है ।
5. प्रश्नों के उत्तर **केवल प्रश्न पत्र I के अन्दर दिये गये OMR पत्रक पर ही** अंकित करने हैं । यदि आप OMR पत्रक पर दिये गये वृत्त के अलावा किसी अन्य स्थान पर उत्तर चिह्नांकित करते हैं, तो उसका मूल्यांकन नहीं होगा ।
6. अन्दर दिये गये निर्देशों को ध्यानपूर्वक पढ़ें ।
7. कच्चा काम (Rough Work) इस पुस्तिका के अन्तिम पृष्ठ पर करें ।
8. यदि आप OMR पत्रक 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, जैसे कि अंकित किये गये उत्तर को मिटाना या सफेद स्याही से बदलना तो परीक्षा के लिये अयोग्य घोषित किये जा सकते हैं ।
9. आपको परीक्षा समाप्त होने पर प्रश्न-पुस्तिका एवं मूल OMR पत्रक निरीक्षक महोदय को लौटाना आवश्यक है और परीक्षा समाप्ति के बाद उसे अपने साथ परीक्षा भवन से बाहर न लेकर जायें । हालांकि आप परीक्षा समाप्ति पर OMR पत्रक की डुप्लीकेट प्रति अपने साथ ले जा सकते हैं ।
10. केवल नीले/काले बाल प्वाईंट पेन का ही इस्तेमाल करें ।
11. किसी भी प्रकार का संगणक (कैलकुलेटर) या लाग टेबल आदि का प्रयोग वर्जित है ।
12. गलत उत्तरों के लिए कोई नकारात्मक अंक नहीं हैं ।

ELECTRONIC SCIENCE
Paper – II

Note : This paper contains **fifty (50)** objective type questions of **two (2)** marks each. **All** questions are compulsory.

1. The current i_1 in the following network is given by
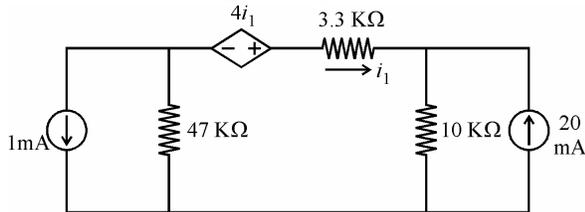
(A) $i_1 = -40.96$ mA

(B) $i_1 = -4.096$ mA

(C) $i_1 = +4.096$ mA

(D) $i_1 = +40.96$ mA

2. The velocity of propagation in a rectangular metallic waveguide is given by the relation

(A) $\upsilon_p = \dfrac{\omega}{\sqrt{\omega^2\mu\in - \left(\dfrac{m\pi}{a}\right)^2 - \left(\dfrac{n\pi}{b}\right)^2}}$

(B) $\upsilon_p = \dfrac{\upsilon_g}{\sqrt{\omega^2\mu\in - \left(\dfrac{m\pi}{a}\right)^2 - \left(\dfrac{n\pi}{b}\right)^2}}$

(C) $\upsilon_p = \dfrac{\upsilon_g}{\sqrt{\omega^2\mu\in + \left(\dfrac{m\pi}{a}\right)^2 + \left(\dfrac{n\pi}{b}\right)^2}}$

(D) $\upsilon_p = \dfrac{\omega}{\sqrt[2\pi]{\omega^2\mu\in - \left(\dfrac{m\pi}{a}\right)^2 - \left(\dfrac{n\pi}{b}\right)^2}}$

3. The radiative and non-radiative life times of the minority carriers in the active region of a double hetero-junction LED are 60 ns and 100 ns respectively. The internal quantum efficiency is given by :

(A)   60%   (B)   62.5%

(C)   37.5%   (D)   82.5%

4. In a p type silicon sample, the hole concentration is $2.25 \times 10^{15}/cm^3$. If the intrinsic carrier concentration is $1.5 \times 10^{10}/cm^3$, the electron concentration is given by

(A)   zero

(B) $10^{10}/cm^3$

(C) $10^5/cm^3$

(D) $1.5 \times 10^{25}/cm^3$

5. A signal $m(f) = 5 \sin (2\pi\,100t)$ frequency modulates a carrier. The resulting FM signal is $\{10 \cos (2\pi\,10^5 t) + 15 \sin (2\pi\,100\,t)\}$. The approximate bandwidth of FM signal is

(A)   0.1 kHz   (B)   1 kHz

(C)   3.2 kHz   (D)   4 kHz

6. What is the Octal equivalent of the binary number 11111001 ?

(A)   761   (B)   762

(C)   371   (D)   372

7. The block diagram given below :
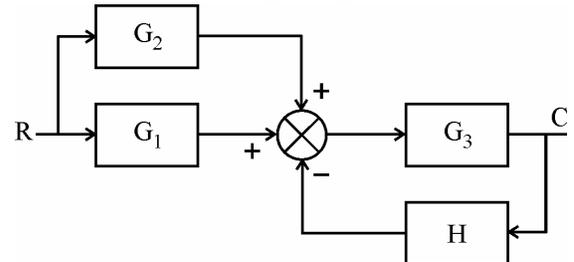
is equivalent to

(A) $R \longrightarrow \dfrac{(G_1 + G_3)G_2}{1 + G_3 H} \longrightarrow C$

(B) $R \longrightarrow \dfrac{G_1 G_2 + G_3}{1 + G_3 H} \longrightarrow C$

(C) $R \longrightarrow \dfrac{G_1 G_2 G_3}{1 + G_3 H} \longrightarrow C$

(D) $R \longrightarrow \dfrac{(G_1 + G_2)G_3}{1 + G_3 H} \longrightarrow C$

8. The gauge factor of a resistance wire strain gauge is a measure of
(A) Sensitivity of the gauge
(B) Resolution
(C) Dynamic range of displacement measurement capability
(D) Variable inductance

9. In an LVDT, the two secondary wind map are connected in differential to obtain
(A) higher output voltage
(B) an output voltage which is phase sensitive, i.e., the o/p voltage has a phase which can lead up to a conclusion whether the displacement of the core took place from right to left or from left to right.
(C) in order to establish a null or the reference point for the replacement of the core.
(D) both (B) and (C)

10. Microprocessor is also known as CPU. What is CPU ?
(A) Control Processing Unit
(B) Central Processing Unit
(C) Central Progressing Unit
(D) Control Progressing Unit

11. If 'i' is a variable, i^{++} denotes
(A) 'i' is incremented twice
(B) 'i' is incremented once
(C) 'i' is replaced with $i + 2$
(D) 'i' is multiplied by 2

12. For a SMF, following characteristic are given by
1. $0 \leq v < 2.405$
2. $v >> 2.405$
3. Core radius is less than $10 \ \mu m$
4. Attenuation is of the order of 1 dB/km
Which of the following statement is true ?
(A) 1 and 4 is correct.
(B) 2 and 3 is correct.
(C) 1 and 3 is correct.
(D) 3 and 4 is correct.

13. In a directional coupler, the power is applied at port 1 and output is taken from the port 2. For this following statements are given :
1. Coupling coefficient is given by $C = 10 \log_{10} \dfrac{P_1}{P_4}$.
2. Coupling coefficient is $C = 10 \log_{10} \dfrac{P_4}{P_1}$.
3. Directivity is given by $D = 10 \log_{10} \dfrac{P_4}{P_3}$.
4. Directivity is given by $D = 10 \log \dfrac{P_2}{P_1}$.

Which of the following statement is true ?
(A) 1 and 3 is correct.
(B) 2 and 3 is correct.
(C) 2 and 4 is correct.
(D) 1 and 4 is correct.

14. An AM demodulator can be implemented with
1. A linear multiplier followed by low pass filter.
2. A linear multiplier followed by high-pass filter.
3. A diode followed by low pass filter.
4. A linear multiplier followed by band-stop filter.
Which one of the following is correct ?
(A) 1 only   (B) 3 only
(C) 1 and 3   (D) 4 only

15. NAND Gate can also be represented by
1. AND – invert Gate
2. OR – Invert Gate
3. Bubbled OR
4. Bubbled AND
Which of the following is correct ?
(A) 1, 2 and 3   (B) 1 & 2
(C) 2 & 4   (D) 1 & 3

16. In 8085 processor,
1. $AD_0 - AD_7$ are treated as input as well as output signals.
2. HLDA is a output signal.
3. HOLD is a output signal.
4. SOD is a output signal.
(A) 1, 2 and 3 are output signals.
(B) 2, 3 and 4 are output signals.
(C) 1, 2 and 4 are output signals.
(D) 1, 3 and 4 are output signals

17. A variable type 'char' indicates the range and the no. of bytes.
1. 1 byte 2. 2 bytes
3. −127 to + 128 4. −128 to +127
(A) 1 & 3 (B) 2 & 3
(C) 1 & 4 (D) 2 & 4

18. The hygrometer is an instrument used to measure
1. rainfall 2. altitude
3. relative humidity 4. temperature
Which of the following is true ?
(A) 1 and 2 is true.
(B) 1 and 4 is true.
(C) 3 is true.
(D) 3 and 4 is true

19. Hall effect can be used to measure
1. conductivity of the charge carrier.
2. mobility of the charge carrier.
3. the number of valence electrons per atom.
4. band gap of the material.
Which of the following is correct ?
(A) 1 and 2 are true (B) 2 and 3 are true
(C) 3 and 4 are true (D) 1 and 4 are true

20. In a JFET, the amplification factor μ, transconductance g_m, and the dynamic drain resistance (r_d) are related as

(A) $\mu = \dfrac{g_m}{r_d}$ (B) $\mu = \dfrac{r_d}{g_m}$

(C) $\mu = r_d \times g_m$ (D) $\mu = g_m \cdot r_d^2$

21. Consider the following materials used for fabrication of Photonic Ics.
1. Ga P 2. In As
3. Ga As 4. Si
The correct sequence of the ascending order in terms of band gap energies is
(A) 1, 4, 2 and 3 (B) 4, 1, 2 and 3
(C) 2, 3, 1 and 4 (D) 2, 4, 3 and 1

22. Consider the following :
1. Quantization 2. Sampling
3. Encoding 4. Low-pass filter
The correct sequence for converting a low-pass analog signal to Digital signal is
(A) 4, 3, 1, 2 (B) 4, 1, 2, 3
(C) 4, 2, 1, 3 (D) 4, 3, 2, 1

23. Consider the following circuit configurations :
1. Common emitter
2. Common base
3. Emitter follower
4. Emitter follower using Darlington pair
The correct sequence in increasing order of the input resistances of these configurations is
(A) 2, 1, 4, 3 (B) 1, 2, 4, 3
(C) 2, 1, 3, 4 (D) 1, 2, 3, 4

24. 8085 microprocessor has a flag register. The following flags are there, keep them in the ascending order starting from LSB to MSB.
1. Parity flag 2. Zero flag
3. Carry flag 4. Sign flag
(A) 1, 2, 3 and 4 (B) 2, 4, 1 and 3
(C) 3, 2, 1 and 4 (D) 3, 1, 2 and 4

25. The following logic families have their propagation delay. Arrange them from lowest propagation delay to highest propagation delay.
1. TTL (Standard) 2. ECL
3. Low power CMOS 4. DTL
(A) 2, 1, 4 and 3 (B) 2, 4, 1 and 3
(C) 4, 2, 3 and 1 (D) 1, 2, 3 and 4

26. Match List-I with List-II and select the correct answer using codes given below :

List – I	List – II
(a) Indirect band gap	(i) Ga As
(b) Direct band gap	(ii) Cavity
(c) Laser diode	(iii) Spontaneous emission
(d) LED	(iv) Si

Codes :

	(a)	(b)	(c)	(d)
(A)	(ii)	(i)	(iii)	(iv)
(B)	(iii)	(iv)	(i)	(ii)
(C)	(i)	(iv)	(ii)	(iii)
(D)	(iv)	(i)	(ii)	(iii)

27.

List – I	List – II
(a) Poisson's equation	(i) $\nabla^2 V = 0$
(b) Laplace equation	(ii) $\oint H.dl = I$
(c) Ampere's Law	(iii) $\nabla \cdot E = \rho_v / \epsilon_0$
(d) Divergence of the field	(iv) $\nabla^2 V = -\rho_v / \epsilon$

Codes :

	(a)	(b)	(c)	(d)
(A)	(iv)	(ii)	(i)	(iii)
(B)	(ii)	(iii)	(i)	(iv)
(C)	(iv)	(i)	(ii)	(iii)
(D)	(i)	(iv)	(ii)	(iii)

28.

	List – I		List – II
(a)	Frequency Modulation	(i)	Balanced Modulator
(b)	Double sideband suppressed carrier	(ii)	Companding
(c)	PCM	(iii)	Pre-emphasis and De-emphasis
(d)	AM	(iv)	Envelope Detection

Codes :

	(a)	(b)	(c)	(d)
(A)	(i)	(ii)	(iii)	(iv)
(B)	(iv)	(iii)	(ii)	(i)
(C)	(iii)	(i)	(ii)	(iv)
(D)	(ii)	(iv)	(i)	(iii)

29.

	List – I		List – II
(a)	Non-Weighted Code	(i)	8421
(b)	Error-Detecting Code	(ii)	Gray Code
(c)	Weighted Code	(iii)	Hamming Code
(d)	Error-Correcting	(iv)	Parity Check

Codes :

	(a)	(b)	(c)	(d)
(A)	(ii)	(i)	(iii)	(iv)
(B)	(ii)	(iv)	(i)	(iii)
(C)	(i)	(ii)	(iii)	(iv)
(D)	(i)	(iii)	(iv)	(ii)

30.

	List – I (Transducers)		List – II (Measured Quantity)
(a)	Capacitive transducer	(i)	Temperature
(b)	Thermocouple	(ii)	Power
(c)	Bourdon gauge	(iii)	Displacement
(d)	Solar cell	(iv)	Pressure

Codes :

	(a)	(b)	(c)	(d)
(A)	(i)	(iii)	(ii)	(iv)
(B)	(iii)	(i)	(iv)	(ii)
(C)	(ii)	(iv)	(i)	(iii)
(D)	(iv)	(i)	(iii)	(ii)

31.

	List – I		List – II
(a)	Voltage regulated IC	(i)	Figure of merit
(b)	Bistable multivibrator	(ii)	CMRR
(c)	OPAMP	(iii)	Capture range and locking range
(d)	Phase Locked Loop	(iv)	flip-flop

Codes :

	(a)	(b)	(c)	(d)
(A)	(i)	(iii)	(iv)	(ii)
(B)	(i)	(iv)	(ii)	(iii)
(C)	(iv)	(iii)	(i)	(ii)
(D)	(iii)	(ii)	(iv)	(i)

32.

	List – I		List – II
(a)	ASK	(i)	Uses two frequencies, mark and space.
(b)	FSK	(ii)	Baud rate is same as bit rate.
(c)	BPSK	(iii)	On-off keying
(d)	QPSK	(iv)	Baud rate is half of bit rate

Codes :

	(a)	(b)	(c)	(d)
(A)	(iii)	(i)	(ii)	(iv)
(B)	(ii)	(iii)	(i)	(iv)
(C)	(iii)	(ii)	(i)	(iv)
(D)	(i)	(iv)	(ii)	(iii)

33.

	List – I		List – II
(a)	if statement	(i)	case
(b)	do statement	(ii)	return
(c)	switch statement	(iii)	while
(d)	main statement	(iv)	else

Codes :

	(a)	(b)	(c)	(d)
(A)	(iii)	(iv)	(ii)	(i)
(B)	(iv)	(iii)	(ii)	(i)
(C)	(iii)	(i)	(iv)	(ii)
(D)	(iv)	(iii)	(i)	(ii)

34.

	List – I (Amplifier type)		List – II (Circuit/property)
(a)	RC coupling	(i)	Higher voltage gain and impedence matching.
(b)	Inductive coupling	(ii)	Ability to amplify dc and low frequency signal.
(c)	Transformer coupling	(iii)	Minimum possible non-linear distortion
(d)	Direct coupling	(iv)	Low collector supply voltages can be used.

Codes :

	(a)	(b)	(c)	(d)
(A)	(iv)	(i)	(iii)	(ii)
(B)	(iii)	(iv)	(i)	(ii)
(C)	(i)	(ii)	(iii)	(iv)
(D)	(iv)	(iii)	(ii)	(i)

35.

List – I		List – II	
(a) assembler	(i)	executes program line by line.	
(b) compiler	(ii)	creates machine code.	
(c) interpreter	(iii)	finds faults during execution.	
(d) debugger	(iv)	creates object file.	

Codes :

	(a)	(b)	(c)	(d)
(A)	(iv)	(iii)	(i)	(ii)
(B)	(ii)	(i)	(iv)	(iii)
(C)	(ii)	(iv)	(i)	(iii)
(D)	(iii)	(iv)	(i)	(ii)

Directions : Q. Nos. **36** to **45** : The following items consist of two statements, one labelled the "Assertion" (A) and other labelled the "Reason" (R). You are to examine these two statements carefully and decide if the Assertion (A) and the Reason (R) are individually true and if so, whether the Reason is a correct explanation of the Assertion. Select your answers to these items using the codes given below and mark your answer accordingly.

Codes :
- (A) Both (A) and (R) are true and (R) is the correct explanation of (A).
- (B) Both (A) and (R) are true, but (R) is not the correct explanation of (A).
- (C) (A) is true, but (R) is false.
- (D) (A) is false, but (R) is true.

36. Assertion (A) : A reflex klystron makes use of a single cavity.

Reason (R) : The single cavity performs the functions of buncher as well as catcher cavity.

37. Assertion (A) : LP_{01} is basically HE_{11} mode.

Reason (R) : Linearly polarised modes are strongly guided modes, in which TE and TM modes do not have identical propagation constants.

38. Assertion (A) : Combinational circuits have no memory, timing or feed back loop.

Reason (R) : The output of combinational circuit depends on their input and previous output state.

39. Assertion (A) : Digital base band modulation is also referred to as TDM.

Reason (R) : Pulse analog modulation is first step in converting analog signal to Digital Signal.

40. Assertion (A) : Under certain conditions, one gets peak response at high frequency in transformer coupled amplifiers.

Reason (R) : High frequency model of transformer coupled amplifiers is a resonant circuit.

41. Assertion (A) : At high temperatures, the avalanche breakdown voltage of zener diode remains constant.

Reason (R) : At high temperatures, mean free paths of electrons and holes are shorter, therefore a larger field is required to cause ionization.

42. Assertion (A) : Piezoelectric transducers are not suitable for ultra-low frequency vibration measurement.

Reason (R) : Piezoelectric materials have a high dielectric constant.

43. Assertion (A) : The contents of Random Access memory is a volatile in nature. As soon as the power is removed to the IC, the contents are erased from the memory.

Reason (R) : The contents of Read-only Memory is a non-volatile in nature.

44. Assertion (A) : Logarithms are used to change a multiplication or division problem into a simpler addition and subtraction problem.

Reason (R) : The Laplace transform enables the circuit analyst to convert the set of integro differential equations describing a circuit to the complex frequency domain.

45. Assertion (A) : char str[] = "paper"
'str' acts as a constant pointer to a string.
Reason (R) : *P = "Paper"
"P" acts as a pointer to a constant string.

Read the passage and answer the Question Nos. **46** to **50** that follows based on your understanding of passage.

Power devices with pnpn layers such as SCR, SCS and GTO belong to thyrister series. However UJT is also a member of this group. The silicon controlled rectifier (SCR) is three terminal pnpn semiconductor switching device, which is probably most important circuit element after the diode and the transistor. An SCR can be used as a controlled switch to perform various functions such as rectification inversion and regulation of power flow. It is unidirectional power switch and being extensively used in switching ac and dc. It has capability to control power as high as 10 MW. The frequency range of its application has also been extended up to 50 kHz. SCR is a rectifier with control action. The third element called gate enables the controlled rectification gate is used to turn SCR 'ON' but not turn it 'OFF'. SCR is made of Si because it has to handle high power and high temperature.

There are many advantages of SCR as a switch i.e. the switching speed is very high up to 10^9 operation per second and it permits control over a large current (30-100 A) in the load by means of a small gate current of few mA. SCR has two states turn ON and turn OFF state. There are two ways to turn ON (i) keep the gate open and made the supply voltage equal to the breakover voltage (ii) operate SCR with supply voltage less than breakover voltage. The general methods used for turning the SCR OFF are (i) anode current interruption and (ii) force commutation. It is not advisable to turn the SCR 'ON' with zero gate signal.

Some of the applications of SCR are motor controls, relay controls, inverters, preventive circuits, regulated power supply

and phase control. Another pnpn device have characteristic similar to that of SCR is SCS (Silicon Controlled Switch).

A device that can control ac power to the load during the positive and negative cycle of input is called 'triac'. It is basically a diac with a gate terminal for bilateral turn ON. Gate Turn OFF (GTO) switch is one more pnpn device which can be turned ON or OFF with cathode gate. Some application of GTO are counters, pulse generators and multivibrators.

Light activated SCR (SASCR) is turned ON by the light falling on the gate. It is used as a relay, optical light controller, phase controller and motor control device.

46. If the applied voltage is increased further when an SCR is forward biased, then
(A) It becomes more forward biased.
(B) It becomes more reverse biased.
(C) It will come to 'ON' state.
(D) It will come to 'OFF' state.

47. The $\dfrac{d_i}{d_t}$ if an SCR in an ac voltage controller is high if the load is
(A) A pure inductance
(B) An induction motor
(C) A pure resistance
(D) A combination of resistance and inductance.

48. Triac can be considered as
(A) Two SCRs connected in antiparallel with common gate.
(B) Two SCRs connected in parallel with common gate.
(C) Two Resisters connected in anti parallel.
(D) Two GTOs connected in parallel with common cathode gate.

49. Forced commutation is employed when anode voltage is
(A) AC   (B) DC
(C) Pulsating   (D) Triangular

50. Diac is
(A) Two terminal bidirectional switch.
(B) Two terminal Unilateral switch.
(C) Three terminal bidirectional switch.
(D) Three terminal unilateral switch.

Space For Rough Work