

BOOKLET NUMBER : 77080

G. PULLAIAH COLLEGE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)

Nandikotkur Road, Kurnool - 518452

INTERNAL EXAMINATION ANSWER BOOK

Hall Ticket Number

20A T 1 A 0 4 4 3

Regulations : A 20

Program : B. Tech / M. Tech / MBA

Semester : I / II / III / IV / V / VI / VII / VIII


Name : G. Hemanth Reddy

Branch : E.C.E

Name of the Subject : Applied physics

Date of Exam : 16/09/21

G. Hemanth (16/09/21)
Signature of the Student with Date


16/9/21
Signature of the Invigilator with Date

For Office Use Only

Candidates are required to read the instructions printed inside (Overleaf) very carefully.

Name of the Subject : Applied physics


To be filled in by the Examiner only

PART - A / PART - B							
MARKS AWARDED							
Q.No.	1	2	3	4	5	6	7
a		8		8	2		
b		0		8			
c							
d							
e							
f							
Total		8		8	2		
Total in Figures : 18							
Total in Words : One Eight							


Signature of the Examiner

INSTRUCTIONS TO THE CANDIDATES

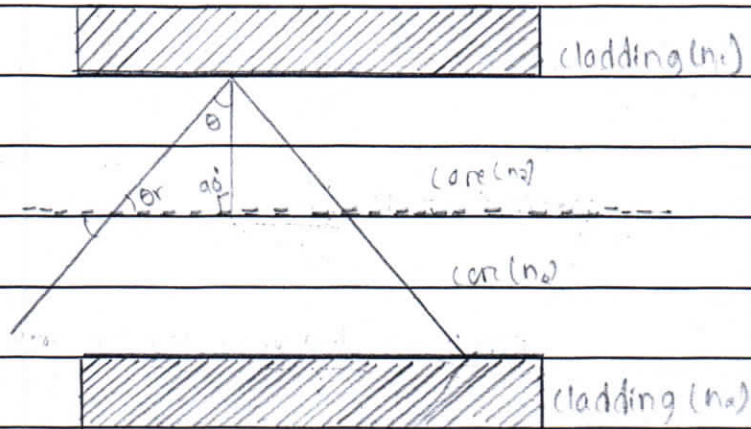
1. This booklet contains 22 pages, Candidates must ensure it before writing and in case a defective answer book is issued it must be returned to the invigilator and a new and defect free answer book must be obtained.
 2. All candidates must be present in the examination halls 15 minutes before the commencement of the examinations.
 3. Candidates are allowed to sit as per the seating plan only.
 4. Before the candidate begins to answer, hall ticket number, program, semester, subject name, branch, etc., are to be filled in. Failure to enter all or any of these particulars may disqualify the paper from valuation.
 5. Candidate is prohibited from
 - (a) writing :
 - Their hall ticket number in any part of their answer book, except in the space provided for on the title sheet of answer book,
 - Their name or any other matter or any symbol, which may lead to their identification in any part of the answer book.
 - Anything addressing the examiner in any manner whatsoever, in their answer book
 - Objectionable / obscene language in the answer book.
 - Anything other than their hall ticket number on the question paper.
 - (b) Either seeking or providing any assistance to the fellow candidates in the exam.
 - (c) Possessing a manuscript or a printed matter, in any form, in the examination hall.
 - (d) Bringing loose sheets or paper into the examination hall and detaching any paper from the answer book.
 - (e) Carrying Mobile Phone / Electronic Gadgets to Exam Hall.
- Violation of these instructions will be viewed as a case of malpractice, which is a punishable offence.**
6. Before beginning to answer any question, candidates must write the correct question number, in the margin only and should not write anything else in the margin.
 7. Answer must be written legibly on both sides of the paper. It is not necessary to start each answer on a fresh page. Candidates should not use any other color for writing, except BLACK or BLUE.
 8. All parts of the question must be answered in one place only.
 9. Rough work, if any, must be separated, from the subject matter, by a line and noted as rough work.
 10. The answer book, at the end of the examination, must be handed over to the Asst. Superintendent (Invigilator) by the candidate. This responsibility lies with the candidate only.
 11. Candidates should maintain absolute silence during the time of examination. Misbehavior, in any form, by the candidate, in the examination hall, will attract severe punishment.
 12. Candidates are permitted to leave the examination hall only after the expiry of half of the allotted time and candidates will be permitted to carry the question paper only when they are leaving the exam hall in the last half an-hour.
 13. No additional answer books will be supplied.


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START WRITING FROM HERE

Q.No.

- a). a). Acceptance angle: The maximum angle with which the light ray incident on the core such that it travels entire optical fibre is called as acceptance angle.



from the fig

$$\theta_r + \theta = 90^\circ$$

$$\theta_r = 90^\circ - \theta$$

we know that

$$n_2 \sin \theta_i = n_1 \sin \theta_r \quad ; \quad (\theta_r = 90^\circ - \theta)$$

$$n_2 \sin \theta_i = n_1 \sin(90^\circ - \theta)$$

$$n_2 \sin \theta_i = n_1 \cos \theta$$

If the incident angle θ_i becomes the acceptance angle θ_a then the θ becomes critical angle θ_c .

$$n_2 \sin \theta_a = n_1 \cos \theta_c \rightarrow \text{①} \quad \sin \theta_c = \frac{n_2}{n_1}$$

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Q.No.

$$\sin \theta_c = \sqrt{1 - \cos^2 \theta_c}$$

$$\text{i.e. } \cos \theta_c = \sqrt{1 - \sin^2 \theta_c}$$

$$\begin{aligned} \cos \theta_c &= \sqrt{1 - \left(\frac{n_2}{n_1}\right)^2} \\ &= \sqrt{\frac{n_1^2 - n_2^2}{n_1^2}} \end{aligned}$$

$$= \frac{\sqrt{n_1^2 - n_2^2}}{n_1} \quad \text{sub in (1)}$$

$$n_0 \sin \theta_a = n_1 \frac{\sqrt{n_1^2 - n_2^2}}{n_1}$$

$$\sin \theta_a = \frac{\sqrt{n_1^2 - n_2^2}}{n_0} \quad n_0 = 1$$

$$\sin \theta_a = \sqrt{n_1^2 - n_2^2}$$

$$\theta_a = \sin^{-1}(\sqrt{n_1^2 - n_2^2})$$

Numerical aperture: - The total light gathering capacity is known as the numerical aperture.

or h.T

$$A = \frac{n_1 - n_2}{n_1}$$

i.e.

$$A \sin \theta_c = \sqrt{n_1^2 - n_2^2}$$

$$\theta_c = \sqrt{(n_1 - n_2)(n_1 + n_2)}$$

$$A n_1 = n_1 - n_2$$

$$\theta_c = \sqrt{A n_1 (n_1 + n_2)}$$

$$\theta_c = \sqrt{A^2 n_1^2}$$

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Q.No.

$$NA = rD\sqrt{n_1}$$

The numerical aperture value is between

0.1 to 0.5.

b). refractive index of core = 1.48

refractive index of cladding = 1.45.

0

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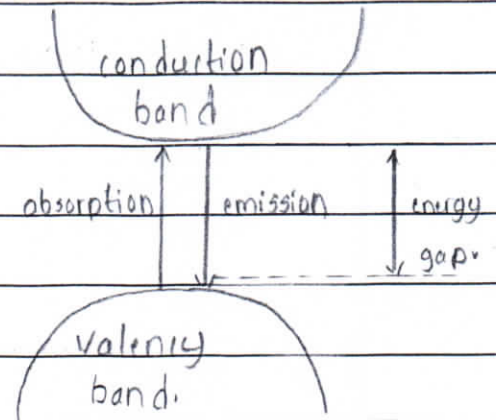
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Q.No.

4). a). The band gap semiconductors are of two types.

i). Direct band gap semiconductors:-

1). In direct band gap semiconductors the maximum energy level of valency band and the minimum energy level of conduction band is placed by one on another manner.



2). The life span of electron in conduction band is less.

3). when the recombination of holes and electron ^{occurs} $E = h\nu$

4). \Rightarrow The recombination of electron and hole occurs.

5). when the electron absorbs energy the electron will move from valency band to conduction.

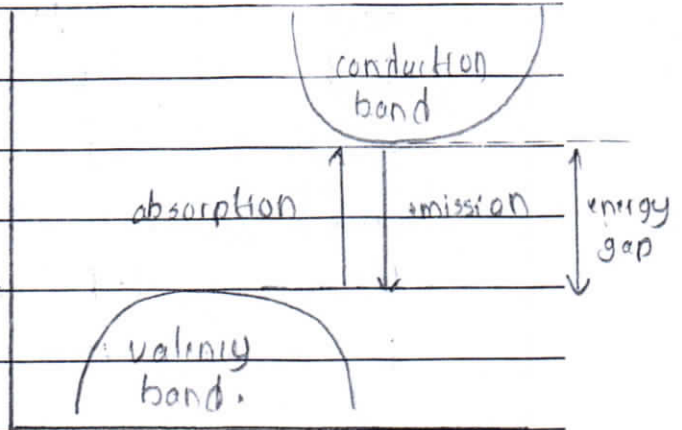
Eg Sn etc.

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Q.No.

ii) In-direct band gap semiconductors:-

1) In in-direct band gap semiconductors the maximum energy level of valency band and minimum energy level of conduction band is not placed by one on another manner.



2) The life span of electron in the conduction band is more.

3) when the recombination of electrons and holes occur $E = h\nu + E_{ph}$.

4) The recombination of electron and hole also occur.

5) when the electron releases energy it jumps from higher energy level to lower energy level.

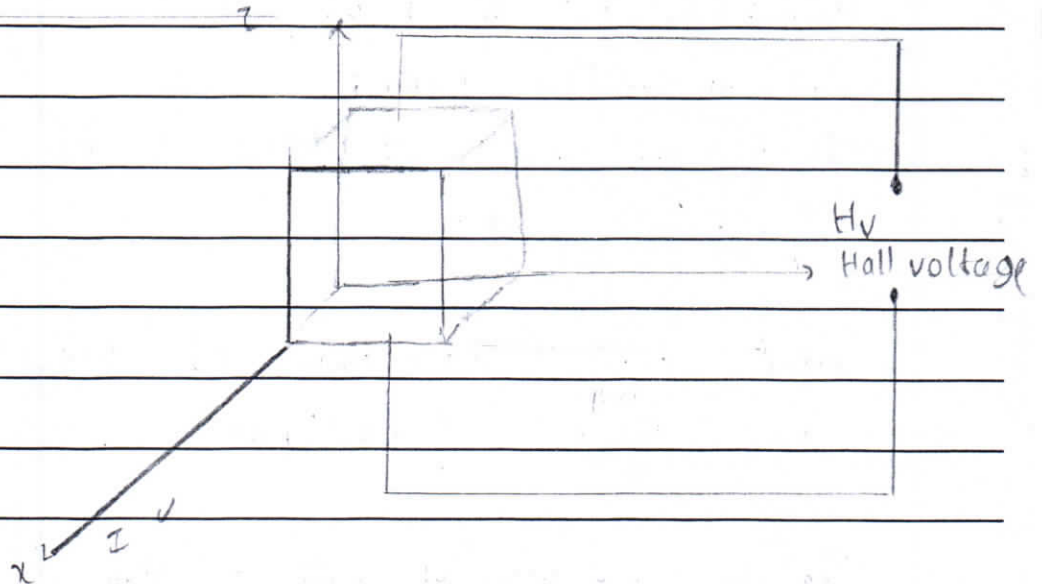
Eg: Si, Ge & etc.

C. Jiniya

PRINCIPAL

Q.No.

b). Hall Effect: when the semiconductor is placed in transverse magnetic field then the current will act through the x -axis and the magnetic field will act through the y -axis and the resultant field is perpendicular to both x -axis and y -axis and the potential difference occurs this is called Hall voltage and the effect is called Hall effect.



Application's:

- 1) when the Hall voltage value is negative then the semiconductor is n-type semiconductor
- 2) when the Hall voltage value is positive then the semiconductor is p-type semiconductor.

G. Prasad

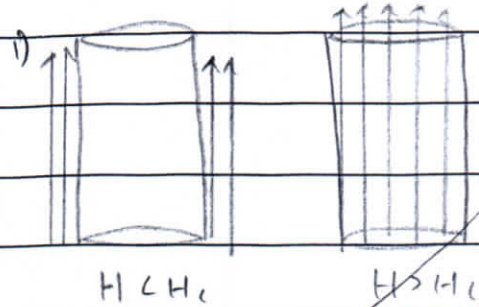
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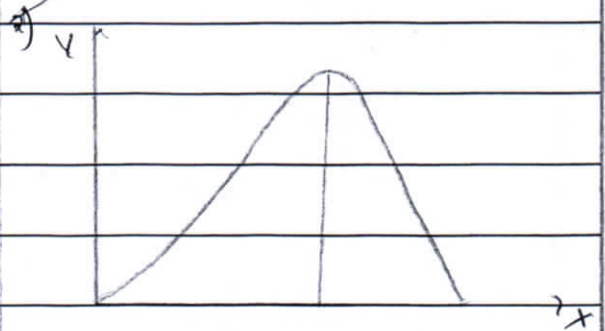
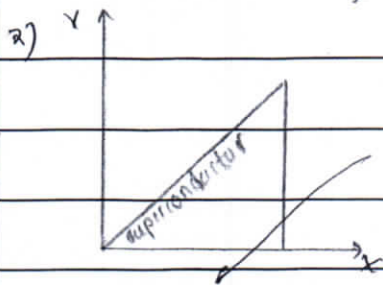
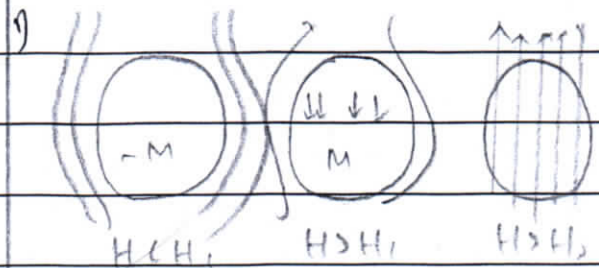
Q.No.

5) a)

Type-I



Type-II



2) In Type-II there will be only H_c

3) In Type II we have both H_{c1} , H_{c2} .

4) They are soft semiconductors

4) They are ~~smooth~~ hard semiconductor.

b) Meissner effect

Chinix

LETTER

Date: 28-08-2021

Kurnool

From

V. Bhavishya

19ATIA0424

ECE Dept.

GPCET

TO

The HOD

ECE Dept

GPCET

Respected sir,

Sub: Reevaluation of Internal marks.

I am V. Bhavishya (19ATIA0424) from II Btech ECE. I got 19 marks in EMTL subject. So, I am requesting you to reevaluate my answerscript in the above mentioned subject and please update it.

Thanking you sir

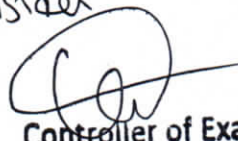
yours obediently

V. Bhavishya

19ATIA0424

To the Corresponding Staff.

Pl. Consider



Controller of Examinations
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Near Venkayapalli, Nandikotkur Road,
KURNOOL-518 452. A.P.

Forwarded TO CE sir

Thirupathi


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Nandikotkur Road, VENKAYAPALLI
KURNOOL-518 452 (A.P.)

LETTCO

Date : 1/09/2021

Kurnool

From

G. Nikhitha

19AT1A0493

ECE Dept.

GPCET

To

The HOD

ECE DEPT.

GPCET

Respected sir,

Sub: Recounting of internal Marks

I am G. Nikhitha (19AT1A0493) from II Btech
ECE. I got 25 marks in ECA Subject.
So, I am requesting you to recount
and update the marks in the above
mentioned Subject.

Thanking you sir

Yours obediently

G. Nikhitha

19AT1A0493

Forwarded to CE sir

Thrupa

To the Concerning Staff.

Please Consider the Request

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**G PULLAIAH COLLEGE OF ENGINEERING & TECHNOLOGY
(Autonomous)**

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Accredited by NBA (CSE, ECE & EEE) | Permanently Affiliated to JNTUA)
Nandikotkur Road, Venkayapalli (V), Kurnool - 518452, Andhra Pradesh

**Sub:GPCET - Examination Branch - II B.TECH II Semester (R19) I-Mid Examinations Aug 2021 - Revaluation
Notification Dated 20-08-2021**

The following are the results of the Recounting of the student:

S. No	Student Roll No.	Subject Name & Subject Code	Name of The Examination	Grade Before Revaluation	Grade After Revaluation
1	19AT1A0493	Electronic Circuit Analysis (A2411)	I-Mid Examinations	25	29


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Notification Dated 20-08-2021

The following are the results of the Revaluation of the student:

S. No	Student Roll No.	Subject Name & Subject Code	Name of The Examination	Grade Before Revaluation	Grade After Revaluation
1	19AT1A0424	Electromagnetic Theory and Transmission Lines (A2414)	I-Mid Examinations	19	23

U. Prasad
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KURNOOL-518 452 (A.P)

Controller of Examinations

