Late Dr. Dodla Ramachandra Reddy
Founder, Visvodaya.

1.1.2

The institution adheres to the academic calendar including for the conduct of CIE

Sample copies of:

- University Academic Calendars
- College Academic Calendars
- Subject allotment
- Class Time tables
- Lab Time tables
- Individual Time tables
- Lesson plan with OBE concept
- Syllabus coverage
- Internal Question Bank
- Scheme of evaluation
- Answer scripts
- External exam question paper

PARVATHAREDDY BABUL REDDY
VISVODAYA INSTITUTE OF TECHNOLOGY AND SCIENCE,
KAVALI - 524201 NELLORE DT. ANDHRA PRADESH
PHONE NO. 08626 243930 EMAIL: pbr_vits@rediffmail.com

Minutes of the College Academic Committee meeting held on 02/06/2019 at 10.00AM in the Principal's Chamber to discuss about 2019-20 I sem academic schedule.

Members present:

1	Dr N Seshaiah	Principal
2	Dr V V Sunil Kumar	Vice Principal
3	Dr B Konda Reddy	Vice Principal & HOD Mechanical
3	Dr D S C Reddy	HOD CSE
4	Dr A Maheswara Rao	HOD ECE
5	Mr Ch Srinivasulu Reddy	HOD EEE
6	Dr A Venkaiah	HOD MBA
7	Mr M Janardhan	HOD MCA
8	Mr P Eswaraiah	HOD I year

Agenda:

1. **Subject allocation for 2019-20 I Sem**
2. **Time table preparation for 2019-20 I Sem**
3. **Planning of curriculum and co curriculum for 2019-20 I Sem**

Resolution :-

HODs are requested to submit Subject allocation, time tables for 2019-20 I sem on or before 10.06.2019.

Principal

Principal
PARVATHAREDDY BABUL REDDY
VISVODAYA INSTITUTE OF TECHNOLOGY & SCIENCE
KAVALI-524201, SPSR Nellore Dist. Andhrapradesh.

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR, ANANTHAPURAMU

ACADEMIC CALENDAR

B.Tech I Year - I Semester (2018-2019)

I Spell of Instructions:	12.06.2018 to 01.09.2018	(12 weeks)
I Mid-term Examinations: (1^{st} Objective + 1^{st} descriptive)	04.09.2018 to 11.09.2018	(06 days)
II Spell of Instructions:	12.09.2018 to 09.11.2018	(09 weeks)
II Mid-term Examinations: (2^{nd} Objective + 2^{nd} descriptive)	12.11.2018 to 17.11.2018	(06 days)
Preparation and Practicals:	19.11.2018 to 24.11.2018	(05 days)
End Examinations:	29.11.2018 to 07.12.2018	(02 weeks)
Commencement of Class Work for B.Tech I Year II semester	**27.12.2018 (Thursday)**	

Note:

(i) The Mid-term Examinations should be conducted and completed as per the schedule given.

(ii) All the midterm examinations shall be of both objective and descriptive type as per the academic regulations.

DIRECTOR OF EVALUATION

Notified on 11.06.2018

Rectified on 10.08.2018

Rectified on 24.10.2018

Principal
PARVATHAREDDY BABUL REDDY
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KAVALI-524201, SPSR Nellore Dist. Andhrapradesh.

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR, ANANTHAPURAMU

ACADEMIC CALENDAR

B.Tech/B.Pharm II, III & IV Years - I Semester (2018-2019)

I Spell of Instructions:	02.07.2018 to 01.09.2018	(09 weeks)
I Mid-term Examinations: (1^{st} Objective + 1^{st} descriptive)	04.09.2018 to 11.09.2018	(06 days)
II Spell of Instructions:	12.09.2018 to 09.11.2018	(09 weeks)
II Mid-term Examinations: (2^{nd} Objective + 2^{nd} descriptive)	12.11.2018 to 17.11.2018	(06 days)
Preparation and Practicals:	19.11.2018 to 24.11.2018	(05 days)
End Examinations:	26.11.2018 to 07.12.2018	(02 weeks)
Commencement of Class Work for IV Year B.Tech II semester	**17.12.2018 (Monday)**	
Commencement of Class Work for II & III Year B.Tech - II semesters	**27.12.2018 (Thursday)**	

Note:

(i) The Mid-term Examinations should be conducted and completed as per the schedule given.

(ii) All the midterm examinations shall be of both objective and descriptive type as per the academic regulations.

(iii) II semester supplementary examinations will be conducted immediately after II semester regular and supplementary examinations

Notified on: 15.06.2018
Rectified on: 24.10.2018

Sd/-
DIRECTOR OF EVALUATION

Principal
PARVATHAREDDY BABUL REDDY
VISVODAYA INSTITUTE OF TECHNOLOGY & SCIENCE
KAVALI-524201, SPSR Nellore Dist. Andhrapradesh.

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR
ANANTHAPURAMU - 515002, A.P (INDIA)

ACADEMIC CALENDAR

for

Academic Year 2018-19

MBA / MCA

First Year

(For 2018-19 admitted batch)

First Semester		
First Unit of Instructions	16.08.2018 to 06.10.2018	(08 Weeks)
First Mid Examinations	08.10.2018 to 11.10.2018	(04 Days)
Second Unit of Instructions	12.10.2018 to 06.12.2018	(08 Weeks)
Second Mid Examinations	07.12.2018 to 12.12.2018	(04 Days)
Preparation and Practicals	13.12.2018 to 19.12.2018	(06 Days)
End Examinations	20.12.2018 to 05.01.2019	(13 Days)
Commencement of class work for II Semester:	**07.01.2019 (Monday)**	

- The midterm examinations are to be conducted during both forenoon and afternoon sessions and are to be completed as per the schedule given above.

Date: 10-08-2018

Sd/-
DIRECTOR OF EVALUATION

Principal
PARVATHAREDDY BABUL REDDY
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KAVALI-524201, SPSR Nellore Dist. Andhrapradesh.

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR
ANANTHAPURAMU - 515002, A.P (INDIA)

ACADEMIC CALENDAR

for

Academic Year 2018-19

M.C.A

Second Year

(For 2017 admitted batch)

Third Semester		
First Unit of Instructions	16.07.2018 to 07.09.2018	(08 Weeks)
First Mid Examinations	10.09.2018 to 15.09.2018	(05 Days)
Second Unit of Instructions	17.09.2018 to 09.11.2018	(08 Weeks)
Second Mid Examinations	12.11.2018 to 16.11.2018	(05 Days)
Preparation and Practicals	17.11.2018 to 24.11.2018	(06 Days)
End Examinations	26.11.2018 to 05.12.2018	(09 Days)
Commencement of IV Semester	20.12.2018 (Thursday)	

- The midterm examinations should be conducted and completed as per the schedule given above.

Date: 26-07-2018

DIRECTOR OF EVALUATION

Principal

PARVATHAREDDY BABUL REDDY
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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR
ANANTHAPURAMU - 515002, A.P (INDIA)

ACADEMIC CALENDAR

for

Academic Year 2018-19

M.B.A

Second Year

(For 2017 admitted batch)

Third Semester		
First Unit of Instructions	16.07.2018 to 07.09.2018	(08 Weeks)
First Mid Examinations	10.09.2018 to 18.09.2018	(07 Days)
Second Unit of Instructions	19.09.2018 to 12.11.2018	(08 Weeks)
Second Mid Examinations	13.11.2018 to 20.11.2018	(07 Days)
Preparation and Practicals	22.11.2018 to 24.11.2018	(03 Days)
End Examinations	26.11.2018 to 12.12.2018	(14 Days)
Commencement of IV Semester	20.12.2018 (Thursday)	

- The midterm examinations should be conducted and completed as per the schedule given above.

Date: 26-07-2018

DIRECTOR OF EVALUATION

Principal
PARVATHAREDDY BABUL REDDY
VISVODAYA INSTITUTE OF TECHNOLOGY & SCIENCE
KAVALI-524201, SPSR Nellore Dist. Andhrapradesh.

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR, ANANTHAPURAMU

Academic Calendar

B.Tech I Year - II Semester (2018-2019)

I Spell of Instructions:	27.12.2018 to 27.02.2019	(09 weeks)
I Mid-term Examinations: (1st Objective + 1st descriptive)	28.02.2019 to 06.03.2019	(05 days)
II Spell of Instructions:	07.03.2019 to 02.05.2019	(08 weeks)
II Mid-term Examinations: (2nd Objective + 2nd descriptive)	03.05.2019 to 08.05.2019	(05 days)
Preparation and Practicals:	09.05.2019 to 18.05.2019	(08 days)
End Examinations:	20.05.2019 to 01.06.2019	(02 weeks)
Commencement of Class Work for II year B.Tech I semester for AY 2019-20	27.06.2019 (Thursday)	

Note:

(i) The Mid-term Examinations should be conducted and completed as per the schedule given.

(ii) All the midterm examinations shall be of both objective and descriptive type as per the academic regulations.

(iii) I semester supplementary examinations will be conducted immediately after II semester end examinations

Date: 07.01.2019

Principal
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Director of Evaluation

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR, ANANTHAPURAMU

Academic Calendar

B.Tech/B.Pharm II & III Year - II Semester (2018-2019)

I Spell of Instructions:	27.12.2018 to 27.02.2019	(09 weeks)
I Mid-term Examinations: (1st Objective + 1st descriptive)	28.02.2019 to 07.03.2019	(06 days)
II Spell of Instructions:	08.03.2019 to 02.05.2019	(08 weeks)
II Mid-term Examinations: (2nd Objective + 2nd descriptive)	03.05.2019 to 09.05.2019	(06 days)
Preparation and Practicals:	10.05.2019 to 18.05.2019	(07 days)
End Examinations:	20.05.2019 to 01.06.2019	(02 weeks)
Commencement of Class Work for III & IV years B.Tech/B.Pharm. I semester for AY 2019-2020	27.06.2019 (Thursday)	

Note:

(i) The Mid-term Examinations should be conducted and completed as per the schedule given.

(ii) All the midterm examinations shall be of both objective and descriptive type as per the academic regulations.

(iii) I semester supplementary examinations will be conducted immediately after II semester end examinations

Date: 24.12.2018

Director of Evaluation

Principal
PARVATHAREDDY BABUL REDDY
VISVODAYA INSTITUTE OF TECHNOLOGY & SCIENCE
KAVALI-524201, SPSR Nellore Dist. Andhrapradesh.

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR, ANANTHAPURAMU

Academic Calendar

B.Tech IV Year II Semester (2018-2019)

First Unit of Instructions:	17.12.2018 to 02.02.2019	(07 weeks)
I Mid-term Examinations: (1^{st} Objective + 1^{st} descriptive)	04.02.2019 to 05.02.2019	(02 days)
Project work	06.02.2019 to 12.03.2019	(05 weeks)
II Unit of Instructions:	13.03.2019 to 10.04.2019	(04 weeks)
II Mid-term Examinations: (2^{nd} Objective + 2^{nd} descriptive)	11.04.2019 to 12.04.2019	(02 days)
End Examinations:	15.04.2019 to 18.04.2019	(04 days)
Project Viva Voce Examinations:	20.04.2019 to 30.04.2019	(09 days)

Note:

(i) The Mid-term Examinations should be conducted and completed as per the schedule given.

(ii) All the midterm examinations shall be of both subjective and objective type as per the academic regulations.

Date: 24.12.2018

DIRECTOR OF EVALUATION

Principal
PARVATHAREDDY BABUL REDDY
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KAVALI-524201, SPSR Nellore Dist. Andhrapradesh.

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR
ANANTHAPURAMU - 515002, A.P (INDIA)

ACADEMIC CALENDAR
For the Year 2018-19

FOR

M.C.A

Second Year

(For 2017-18 admitted batches)

Fourth Semester		
First Unit of Instructions	20.12.2018 to 13.02.2019	(08 Weeks)
First Mid Examinations	14.02.2019 to 19.02.2019	(05 Days)
Second Unit of Instructions	20.02.2019 to 16.04.2019	(08 Weeks)
Second Mid Examinations	17.04.2019 to 23.04.2019	(05 Days)
Preparation and Practicals	24.04.2019 to 04.05.2019	(10 Days)
End Examinations	06.05.2019 to 16.05.2019	(10 Days)
Commencement of class work for V Semester for the AY 2019-2020	27.05.2019 (Monday)	

- The midterm examinations should be conducted and completed as per the schedule given above.

Date: 24-12-2018

DIRECTOR OF EVALUATION

Principal
PARVATHAREDDY BABUL REDDY
VISVODAYA INSTITUTE OF TECHNOLOGY & SCIENCE
KAVALI-524201, SPSR Nellore Dist. Andhrapradesh.

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR
ANANTHAPURAMU - 515002, A.P (INDIA)

ACADEMIC CALENDAR
For the Year 2018-19

FOR

M.B.A

Second Year

(For 2017-18 admitted batches)

Fourth Semester		
First Unit of Instructions	20.12.2018 to 13.02.2019	(08 Weeks)
First Mid Examinations	14.02.2019 to 18.02.2019	(04 Days)
Second Unit of Instructions	19.02.2019 to 15.04.2019	(08 Weeks)
Second Mid Examinations	16.04.2019 to 20.04.2019	(04 Days)
Preparation and Project Work Viva Voce Examinations	22.04.2019 to 04.05.2019	(13 Days)
End Examinations	06.05.2019 to 14.05.2019	(08 Days)

- The midterm examinations should be conducted and completed as per the schedule given above.

Date: 24-12-2018

DIRECTOR OF EVALUATION

Principal
PARVATHAREDDY BABUL REDDY
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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR
ANANTHAPURAMU - 515002, A.P (INDIA)

ACADEMIC CALENDAR

for

Academic Year 2018-19

M.B.A

First Year

(For 2018-19 admitted batches)

Second Semester		
First Unit of Instructions	09.01.2019 to 02.03.2019	(08 Weeks)
First Mid Examinations	05.03.2019 to 08.03.2019	(04 Days)
Second Unit of Instructions	11.03.2018 to 04.05.2019	(08 Weeks)
Second Mid Examinations	06.05.2019 to 09.05.2019	(04 Days)
Preparation and Practicals	10.05.2019 to 18.05.2019	(07 Days)
End Examinations	20.05.2019 to 03.06.2019	(13 Days)
Summer Vacation	04.06.2019 to 26.06.2019	(03½ Weeks)
Commencement of class work for III Semester:	**27.06.2019 (Thursday)**	

- The midterm examinations are to be conducted during both forenoon and afternoon sessions and are to be completed as per the schedule given above.

Date: 08-01-2019

Sd/-
DIRECTOR OF EVALUATION

Principal
PARVATHAREDDY BABUL REDDY
VISVODAYA INSTITUTE OF TECHNOLOGY & SCIENCE
KAVALI-524201, SPSR Nellore Dist. Andhrapradesh.

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR
ANANTHAPURAMU - 515002, A.P (INDIA)

ACADEMIC CALENDAR
for
Academic Year 2018-19

M.C.A

First Year
(For 2018-19 admitted batches)

Second Semester		
First Unit of Instructions	07.01.2019 to 02.03.2019	(08 Weeks)
First Mid Examinations	05.03.2019 to 07.03.2019	(03 Days)
Second Unit of Instructions	08.03.2019 to 04.05.2019	(08 Weeks)
Second Mid Examinations	06.05.2019 to 08.05.2019	(03 Days)
Preparation and Practicals	09.05.2019 to 18.05.2019	(08 Days)
End Examinations	20.05.2019 to 29.05.2019	(09 Days)
Summer Vacation	30.05.2019 to 26.06.2019	(04 Weeks)
Commencement of class work for III Semester:	**27.06.2019 (Thursday)**	

- The midterm examinations are to be conducted during both forenoon and afternoon sessions and are to be completed as per the schedule given above.

Date: 09-01-2019

Sd/-
DIRECTOR OF EVALUATION

Principal
PARVATHAREDDY BABUL REDDY
VISVODAYA INSTITUTE OF TECHNOLOGY & SCIENCE
KAVALI-524201, SPSR Nellore Dist. Andhrapradesh.

PBR VISVODAYA INSTITUTE OF TECHNOLOGY AND SCIENCE, KAVALI
CONSOLIDATE ACADEMIC CALENDAR

2019-2020 IV B.TECH II SEM

S.No	Name of the Activity	Scheduled Date	Remarks
S.No	**Name of the Activity**	**Scheduled Date**	
1	Subject Allocation Process	25.11.2019	
2	Time Table Preparation	10.12.2019	
3	Course file preparation & Verification of Course Outcomes	13.12.2019	
4	Commencement of I spell instructions	16.12.2019	
5	Display of Course Outcomes in the class rooms	18.12.2019	
6	Guest Lecture	23.12.2019	4th week of December
7	Workshop	04.01.2020	1st week of January
7	Mailing of course files along with Course Outcomes	04.01.2020	
8	First feedback on Faculties	20.01.2020 to 22.01.2020	
9	PROJECT EXPO	25.01.2020	Last week of January
10	I - Midterm Question Papers Preparation	18.01.2020	
11	Auditing of I- Midterm Question Papers	23.01.2020	
12	Course Survey on Course Outcomes	28.01.2020	
13	End of I Spell Instructions	31.01.2020	
14	Commencement of I - Midterm Examinations	03.02.2020 TO 04.02.2020	
15	Project work	05.02.2020 to 11.03.2020	
16	Workshop	07.02.2020	1st week of February
17	TECHNO FEST	14.02.20220	2nd week of February
18	Auditing of I midterm Answer Scripts	10.02.2020	
19	Display of I - Midterm Marks	12.02.2020	
20	Course Outcomes Attainment Based on I-Midterm Examination	17.02.2020	
21	Personality Development Programme	19.02.2020	4th week of february
22	Guest Lecture	07.03.2020	1st week of March
23	Commencement of II spell of Instructions	12.03.2020	
24	Second Feedback on Faculties	16.03.2020	
25	Guest Lecture	19.03.2020	
26	Course End Survey	19.03.2020	
27	II- Midterm Question Papers Preparation	23.03.2020	
28	Auditing of II- Midterm Question Papers	25.03.2020	
29	End of II Spell of Instructions	09.04.2020	
30	Commencement of II - Midterm Examinations	13.04.2020 to 15.04.2020	
31	Auditing of II Midterm Answer Scripts	20.04.2020	
32	Display of II - Midterm &Final Internal Marks	23.04.2020	
33	End Examinations	16.04.2020 to 18.04.2020	
34	Updation of Course Files	19.04.2020	
35	Project viva-voce Exams	20.04.2020 to 30.04.2020	

Principal
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PBR VISVODAYA INSTITUTE OF TECHNOLOGY AND SCIENCE, KAVALI

CONSOLIDATE ACADEMIC CALENDAR

2019-2020 I SEM

S.No	Name of the Activity	Scheduled Date	
1	Subject Allocation Process	15.06.2019	
2	Time Table Preparation	01.07.2019	
3	Bridge Course on Fundamentals of ECE Subjects	01.07.2019	1st week of July
4	Course file preparation & Verification of Course Outcomes	03.07.2019	
5	Commencement of I spell instructions	08.07.2019	
6	Display of Course Outcomes in the class rooms	11.07.2019	
7	Industrial Visit	19.07.2019	3rd week on July
8	Mailing of course files along with Course Outcomes	25.07.2019	
9	Guest Lecture	27.07.2019	last week of July
10	Seminar	02.08.20119	1st week of August
11	Guest Lecture	09.08.2019	2nd week of August
12	First feedback on Faculties	12.08.2019 to 14.08.2019	
13	I - Midterm Question Papers Preparation	19.08..2019	
14	Guest Lecture	20.08.2019	3rd week of August
15	Auditing of I- Midterm Question Papers	23.08.2019	
16	DNF	28.08.2019	Last week of August
17	Course Survey on Course Outcomes	28.08.2019	
18	End of I Spell Instructions	31.08.2019	
19	Commencement of I - Midterm Examinations	03.09.2019 to 09.09.2019	
20	Commencement of II spell of Instructions	11.09.2019	
21	Auditing of I midterm Answer Scripts	16.09.2019	
22	Display of I - Midterm Marks	18.09.2019	
23	Guest Lecture	19.09.2019	3rd week of September
24	Course Outcomes Attainment Based on I-Midterm Examination	21.09.2019 to 24.09.2019	
25	Guest Lecture	04.10.2019	1st week of october
26	Seminar	14.10.2019	2st week of october
27	Seminar for both 2nd and 3rd year	24.10.2019	Last week of October
28	Second Feedback on Faculties	28.10.2019	
29	Course End Survey	30.10.2019	
30	II- Midterm Question Papers Preparation	01.11.2019	
31	Auditing of II- Midterm Question Papers	04.11.2019	
32	End of II Spell of Instructions	08.11.2019	
33	Commencement of II - Midterm Examinations	11.11.2019 to 16.11.2019	
34	Commencement of Practical Examinations	18.11.2019 to 23.11.2019	
35	Auditing of II Midterm Answer Scripts	28.11.2019	
36	Display of II - Midterm &Final Internal Marks	02.12.2019	
37	End Examinations	25.11.2019 to 07.12.2019	
38	Updation of Course Files	30.11.2019	
39	Certificate Course	23.12.2019	Last week of December

Principal

PARVATHAREDDY BABUL REDDY
VISVODAYA INSTITUTE OF TECHNOLOGY & SCIENCE
KAVALI-524201, SPSR Nellore Dist. Andhrapradesh.

PBR VISVODAYA INSTITUTE OF TECHNOLOGY & SCIENCE
(Affiliated to J.N.T.U.A, Approved by AICTE and Accredited by NAAC with 'A' Grade)
KAVALI – 524201, S.P.S.R Nellore Dist., A.P. India. Ph: 08626-243930

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

FACULTY WORKLOAD

ACADEMIC YEAR: 2019-2020 (I SEM)

S.No	STAFF NAME	SUBJECT	CLASS & SEC	Hrs.	LAB NAME	CLASS & SEC	Hrs.	TOTAL Hrs.
1	Dr. A MAHESWARA RAO	MWE	IV ECE A	5	MWOCLAB	IV ECE C	6	13
					WORKSHOP	I ECE D	2	
2	Dr. DODLA PRATHYUSHA REDDI	LICA	III ECE A	5				5
3	Dr. S V SUBBA RAO	RS	IV ECE C	4	SEM	IV ECE C	1	5
4	Dr. A.S.V. SHARMA	DIP	IV ECE A	5				5
5	RAMARAJSINGH PRATHAP SINGH	ACA	VLSID	4	EDC LAB	II EEE A	6	14
					WORKSHOP	I ECE A,D	4	
6	ARAVA SUMAN KUMAR REDDY	ES	IV ECE A,B,C	15	EDC LAB	II EEE A	6	21
7	VEMURU PHANI BHUSHAN	EDC	II EEE B	5	EDC LAB	II EEE B	6	20
		LDICA	III EEE	5	WORKSHOP	I ECE B,C	4	
8	NOSINA KRISHNA CHAITANYA	EDC	II ECE A,C	10	EDC LAB	II ECE A	6	16
9	MODI PAVITRA	LICA	III ECE B,D	10	ICA LAB	III ECE B	6	16
10	V PRASANNANJANEYA REDDY	LICA	III ECE C	5	DSP LAB	IV EEE A,B	12	17
11	M SUREKHA	EDC	II ECE B,D	10	EDC LAB	II ECE B	6	16
12	SK SABHIHA BEGAM	OFC	IV ECE A,B,C	15	EDC LAB	II EEE B	6	21
13	V BHARATH KUMAR	APT	II ECE A,B,C,D	4				11
		APT	III ECE A,B,C,D	4				
		APT	IV ECE A,B,C	3				
14	M RAMMOHAN REDDY	PTSP	II ECE A,C	10				14
		DICD	VLSID	4				
15	K KIRANMAYEE JYOTHI	PTSP	II ECE B,D	10	EDC LAB	II ECE D	6	16
16	L M L NARAYANA REDDY	AWP	III ECE B,D	10	VSD LAB	VLSID	3	16
					BEE LAB	II CSE A	3	
17	ALLA VENKA REDDY	DSD	III ECE A,C,D	12	WORKSHOP	I ECE B,C	4	19
					SEMINAR	III ECE A,C,D	3	
18	SADA MADHURI	DCS	III ECE B,D	10	ICA LAB	III ECE A, D	12	22
19	DUNIDI UMAMAHESWARA REDDY	DCS	III ECE A,C	10	VLSI & ES LAB	IV ECE B	6	22
					BEE LAB	II CSE A,C	6	

S.No	STAFF NAME	SUBJECT	CLASS & SEC	Hrs.	LAB NAME	CLASS & SEC	Hrs.	TOTAL Hrs.
20	AKURATHI SRINIVASA RAO	AMM	VLSID	4	DCS LAB	III ECE B,C,D	18	22
21	J. SUJITHA	RS	IV ECE A,B	8	MWOCLAB	IV ECE A	6	16
					SEM	IV ECE A,B	2	
22	G NAGESWARA RAO	AWP	III ECE A,C	10	VLSI & ES LAB	IV ECE A	6	16
23	REDDY BOINA SATEESH	DCN	IV ECE C	5	VLSI & ES LAB	IV ECE C	6	14
					BEE LAB	II CSE B, C	3	
24	V NARAYANA REDDY	DSD	III ECE B	4	SDSD LAB	VLSID	3	15
					SEM	III ECE B	1	
		SDSD	VLSID	4	BEE LAB	II CSE B	3	
25	T GOWRI KISHORE	DIP	IV ECE B,C	10	EDC LAB	II ECE C	6	16
26	K ASHOK KUMAR	DCN	IV ECE A	5	DSP LAB	IV EEE A,B	12	17
27	M VENKATA RATHNAM	STLD	II ECE A,C	10	DCS LAB	III ECE A	6	23
		DSP	IV EEE A	5	WORKSHOP	I ECE A	2	
28	SK RASOOL	SS	II ECE B,D	10				19
		AICD	VLSID	4				
		DSP	IV EEE B	5				
29	MUKKARA MADHULIKA	STLD	II ECE B,D	10	ICA LAB	III ECE B	6	21
		EDC	II EEE A	5				
30	RAYALA RANJIT KUMAR	DCN	IV ECE B	5	ICA LAB	III ECE C	6	16
		EDC	II EEE B	5				
31	CH AMARNATHA SARMA	MWE	IV ECE B,C	10	MWOCLAB	IV ECE B	6	20
		CFGA	VLSID	4				
32	N V SAI CHAND	SS	II ECE A,C	10	EDC LAB	II ECE C	6	16
33	DOSAKAYALA YALAMANDA				ET & BS LAB	II ECE A,B,C,D	24	24
34	NALATHOTI CHINA BABU				EDC LAB	II ECE A,B,D	18	18
35	B MADHAVI				ICA LAB	III ECE A,C,D	18	18
36	K VINAY KUMAR				ET & BS LAB	II ECE A,B,C,D	24	24
37	L VASU				VLSI&ES LAB	IV ECE A,B,C	18	18
38	GAJULAPALLE SIVANJANEYA REDDY				MWOC LAB	IV ECE A,B,C	18	18
39	M SREEHARI				DCS LAB	III ECE A,B,C,D	24	24
				308			356	664

Faculty Incharge

Head of the Department
Head of the Department
Electronics & Communication Engineering
PBR Visvodaya Institute of
Technology & Science
KAVALI - 524 201

S.No	STAFF NAME	SUBJECT	CLASS & SEC	Hrs.	LAB NAME	CLASS & SEC	Hrs.	TOTAL
1	V GOWRI SANDANA	ET	II ECE A	5	ET LAB	II ECE A,C,D	18	23
2	PASUPULETI RAJYALAKSHMI	ET	II ECE B,D	10	ET LAB	II ECE A,B	12	22
3	CH SWAPNA	ET	II ECE C	5	ET LAB	II ECE B,C,D	18	23
4	P KAMALAKAR	COA	III ECE D	4				4
5	G SRAVANTHI	COA	III ECE A	4				4
6	J ARUN KUMAR	COA	III ECE B,C	8				8
7	BOLIGARLA MURALI KRISHNA	LPS	III ECE B	4				4
8	J VAMSINATH	LPS	III ECE D	4				4
9	P SRINIVASULU	LPS	III ECE A,C	8				8
10	V KRISHNA VENI	M III	II ECE A,B,C,D	16	SEM	II ECE A,B,C,D	4	20
11	Dr P RAJ KUMAR	SOFT SKILLS	IIECE A,B,C,D	4				11
			IIIECE A,B,C,D	4				
			IV ECE A,B,C	3				
				79			52	131

Faculty Incharge

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Principal
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Visvodaya Campus, Udayagiri Road, Kavali-524201, Nellore Dt.

DEPARTMENT OF E.C.E.

DEPARTMENT WORKLOAD FOR 2019 - 20 (II SEM)

S.No	STAFF NAME	SUBJECT	CLASS & SEC	Hrs.	LAB NAME	CLASS & SEC	Hrs.	TOTAL Hrs.
1	Dr. A MAHESWARA RAO	ACS	II ECE C	5	ACS LAB	II ECE A	6	11
2	DODLA PRATHYUSHA REDDI	DSP	III ECE A	4				4
3	Dr. S V SUBBA RAO	RFIC	IV ECE A	5				5
4	Dr. A.S.V. SHARMA	DSP	III ECE B	4				4
5	RAMARAJSINGH PRATHAP SINGH	RFIC	IV ECE B	5	ECA LAB	II ECE B	6	15
		IOT	VLSID	4				
6	ARAVA SUMAN KUMAR REDDY	MPMC	III ECE A	5	SEMINAR	IV ECE C	5	15
		MPMC	III EEE A	5				
7	VEMURU PHANI BHUSHAN	EMTL	II ECE C	5	ACS LAB	II ECE C,D	12	17
8	NOSINA KRISHNA CHAITANYA	ECA	II ECE A,C	10	ACS LAB	II ECE C	6	16
9	MODI PAVITRA	VLSID	III ECEA	5	SEMINAR	IV ECE B	5	14
		LPVD	VLSID	4				
10	K UMA	EMI	III ECE B,D	8	MPMCLAB	III ECE A	3	11
11	M SUREKHA	MPMC	III ECE B,D	10	MPMC LAB	III ECE B	3	13
12	Dr N SATHEESH KUMAR	IE	III ECE B,D	8	SEMINAR	III ECE B	1	12
					VLSID LAB	VLSID	3	
13	M RAMMOHAN REDDY	EMI	III ECE A,C	8	DSP LAB	III ECE A,B	6	15
					SEMINAR	III ECE A	1	
14	K KIRANMAYI JYOTHI	DSP	III ECE C	4	DSP LAB	III ECE A,C,D	9	13
15	V PRASANNANJANEYA REDDY	LPVLSID	IV ECE B	5	SEMINAR	IV ECE B	5	13
					DSP LAB	III ECE B	3	
16	L M L NARAYANA REDDY	EMTL	II ECE B	5	SEMINAR	IV ECE A	5	13
					MPMC LAB	III ECE C	3	
17	ALLA VENKA REDDY	DSP	III ECE D	4	SEMINAR	III ECE D	1	17
					ECA LAB	II ECE B,C	12	
18	SADA MADHURI	VLSID	III ECE B,D	10	MPMC LAB	III EEE B	3	13
19	DUNIDI UMAMAHESWARA REDDY	MPMC	III ECE C	5				13
		MPMC	III EEE B	5	ESDLAB	VLSID	3	

S.No	STAFF NAME	SUBJECT	CLASS & SEC	Hrs.	LAB NAME	CLASS & SEC	Hrs.	TOTAL Hrs.
20	AKURATHI SRINIVASA RAO	TT	VLSID	4				19
		LPVLSID	IV ECE A,C	10	SEMINAR	IV ECE A	5	
21	R SATEESH	IE	III ECE A,C	8	DSP LAB	III ECE C,D	6	14
22	Dr M R ARUN	ESD	VLSID	4	ESD LAB	VLSID	3	17
		EMTL	II ECE A,D	10				
23	C REDDY USHA	VLSID	III ECE C	5	MPMCLAB	III ECE C,D	6	17
					ECA LAB	II ECE A	6	
24	V NARAYANA REDDY	CMD	VLSID	4	SEMINAR	IV ECE C	5	14
		AEC	II EEE A	5				
25	J SUJITHA							
26	K ASHOK KUMAR				ECA LAB	II ECE B,C,D	18	18
27	M VENKATA RATHNAM	CSE	II ECE B,D	10	ACS LAB	II ECE B	6	16
28	SK RASOOL	AEC	II EEE B	5				22
		ACS	II ECE D	5	ACS LAB	II ECE C,D	12	
29	MUKKARA MADHULIKA							
30	RAYALA RANJIT KUMAR	ECA	II ECE B,D	10	ECALAB	II ECE D	6	16
31	CH AMARNATHA SARMA	ACS	II ECE A,B	10	ACS LAB	II ECE A	6	20
		RFICD	VLSID	4				
32	T GOWRI KISHORE	CSE	II ECE A,C	10	ACS LAB	II ECE A,B	12	22
33	V BHARATH KUMAR	APT	III ECE & II ECE A,B,C,D	8				8
34	DOSAKAYALA YALAMANDA				ECA LAB	II ECE A,C,D	18	18
35	NALATHOTI CHINA BABU	RFIC	IV ECE C	5	DSP LAB	III ECE B,C,D	9	14
36	B MADHAVI							12
					ACS LAB	II ECE B,D	12	
37	L VASU				MPMC LAB	III ECE A,B,C,D	12	15
					MPMC LAB	III EEE A	3	
38	GAJULAPALLE SIVANJANEYA REDDY				MPMC LAB	III ECE A,B,C,D	12	18
					ECA LAB	II ECE A	6	
39	M SREEHARI				MPMC LAB	III ECE A,B,D	9	21
					DSP LAB	III ECE A	6	
					MPMC LAB	III EEE A,B	6	
				250			285	535

Faculty Incharge

Head of the Department
Electronics & Communication Engineering
PBR Visvodaya Institute of Technology & Science
KAVALI - 524 201

S.No	STAFF NAME	SUBJECT	CLASS & SEC	Hrs.	LAB NAME	CLASS & SEC	Hrs.	TOTAL Hrs.
1	N SAI SINDHURA	DS	II ECE A,C	8	SEM	II ECE A,C	2	10
2	M MADHU KIRAN	DS	II ECE B	4	SEM	II ECE B	1	5
3	P ANUSHA	DS	II ECE D	4	SEM	II ECE D	1	5
4	B SUREKHA KUMARI	MEFA	III ECE A,B,C,D	15	SEM	III ECE C	1	16
5	V KRISHNA VENI	M-IV	II ECE A,B,CD	20				20
6	Dr P RAJ KUMAR	SS	III ECE & II ECE A,B,C,D	8				8
				59			5	64

Faculty Incharge

Head of the Department

Head of the Department
Electronics & Communication Engineering
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KAVALI - 524 201

Principal
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PBR VISVODAYA INSTITUTE OF TECHNOLOGY & SCIENCE, KAVALI
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DEPARTMENT OF E.C.E.

TIME TABLE

Acd Year: 2019-2020 (I SEM)
CLASS : II B.TECH , ECE - D section

W.E.F: 27-06-2019
ROOM NO : A 101

	1	2	3	4	12:20PM to 1:20 PM	5	6	7	8
	8:45 AM to 9:35 AM	9:35 AM to 10:25 AM	10:40 AM to 11:30 AM	11:30 AM to 12:20 PM		1:20 PM to 2:10 PM	2:10 PM to 3:00 PM	3:10 PM to 4:00 PM	4:00 PM to 4:50 PM
MON	ET	EDC / ET &BS LAB			LUNCH BREAK	PTSP	STLD	EDC (T)	M-III
TUE	SS	STLD	SOFT SKILLS	EDC		EDC	PTSP	SS (T)	SPORTS
WED	EDC	PTSP (T)	SS	M-III		ET (T)	EDC / ET &BS LAB		
THU	EDC	ET	STLD	PTSP		ET	STLD (T)	M-III	APT
FRI	SS	STLD	PTSP	SEM		ET	M-III (T)	SS	LIB

SUBJECTS/LABS		NAME OF THE FACULTY
M-III	MATHEMATICS III	V KRISHNA VENI
EDC	ELECTRONIC DEVICES AND CIRCUITS	M SUREKHA
STLD	SWITCHING THEORY AND LOGIC DESIGN	M MADHULLIKA
SS	SIGNALS AND SYSTEMS	SK RASOOL
PTSP	PROBABILITY THEORY AND STOCHASTIC PROCESS	I KIRANMAYEE
ET	ELECTRICAL TECHNOLOGY	P RAJYA LAKSHMI
SOFT SKILLS	SOFT SKILLS	Dr P RAJ KUMAR
APT	APTITUDE	V BHARATH KUMAR
SEM	INTERNAL SEMINAR	V KRISHNAVENI
EDC LAB	ELECTRONIC DEVICES AND CIRCUITS LAB	I KIRANMAYEE
		N CHINA BABU
ET & BS LAB	ELECTRICAL TECHNOLOGY AND BASIC SIMULATION LAB	CH SWAPNA/ P RAJYA LAKSHMI
		D YALAMANDA/ C REDDY USHA

HOD of the Department
Electronics & Communication Engineering
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KAVALI - 524 201

PRINCIPAL
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KAVALI-524201, SPSR Nellore Dist. Andhraprade

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DEPARTMENT OF E.C.E.

TIME TABLE

Acd Year:2019-2020 (I SEM)
CLASS : II B.TECH , ECE - A section

W.E.F: 27-06-2019
ROOM NO : A 003

	1	2	3	4	12:20PM to 1:20 PM	5	6	7	8
	8:45 AM to 9:35 AM	9:35 AM to 10:25 AM	10:40 AM to 11:30 AM	11:30 AM to 12:20 PM		1:20 PM to 2:10 PM	2:10 PM to 3:00 PM	3:10 PM to 4:00 PM	4:00 PM to 4:50 PM
MON	PTSP	M III	PTSP	M-III	LUNCH BREAK	ET	EDC / ET &BS LAB		
TUE	ET	SS	SS	EDC		PTSP	APT	ET	STLD
WED	ET	STLD	EDC	STLD		SS (T)	STLD	EDC (T)	SEM
THU	SS	EDC / ET &BS LAB				STLDT	M-III (T)	PTSP	SOFT SKILLS
FRI	EDC	M-III	SS	LIB		EDC	PTSP (T)	ET (T)	SPORTS

SUBJECTS/LABS		NAME OF THE FACULTY
M-III	MATHEMATICS III	V KRISHNAVENI
EDC	ELECTRONIC DEVICES AND CIRCUITS	N KRISHNA CHAITHANYA
STLD	SWITCHING THEORY AND LOGIC DESIGN	M VENKATA RATHNAM
SS	SIGNALS AND SYSTEMS	K UMA
PTSP	PROBABILITY THEORY AND STOCHASTIC PROCESS	M RAMA MOHAN REDDY
ET	ELECTRICAL TECHNOLOGY	V GOWRI SPANDANA
SOFT SKILLS	SOFT SKILLS	Dr P RAJ KUMAR
APT	APTITUDE	V BHARATH KUMAR
SEM	INTERNAL SEMINAR	V KRISHNAVENI
EDC LAB	ELECTRONIC DEVICES AND CIRCUITS LAB	N KRISHNA CHAITHANYA N CHINA BABU
ET & BS LAB	ELECTRICAL TECHNOLOGY AND BASIC SIMULATION LAB	V GOWRI SPANDANA/P RAJYA LAKSHMI D YALAMANDA/ A VANDANA JUSTICE

Head of the Department
Electronics & Communication Engineering
PBR Visvodaya Institute of
Technology & Science
KAVALI - 524 201

PRINCIPAL

Principal
PARVATHAREDDY BABUL REDDY
VISVODAYA INSTITUTE OF TECHNOLOGY & SCIENCE
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PBR VISVODAYA INSTITUTE OF TECHNOLOGY & SCIENCE, KAVALI
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DEPARTMENT OF E.C.E.

TIME TABLE

Acd Year: 2019-2020 (I SEM)
CLASS : II B.TECH , ECE - B section

W.E.F: 27-06-2019
ROOM NO : A 004

	1	2	3	4	12:20PM to 1:20 PM	5	6	7	8
	8:45 AM to 9:35 AM	9:35 AM to 10:25 AM	10:40 AM to 11:30 AM	11:30 AM to 12:20 PM		1:20 PM to 2:10 PM	2:10 PM to 3:00 PM	3:10 PM to 4:00 PM	4:00 PM to 4:50 PM
MON	M-III	EDC	SS	APT	LUNCH BREAK	STLD	M-III (T)	PTSP	EDC
TUE	PTSP	SS	EDC	SEM		ET (T)	EDC / ET &BS LAB		
WED	ET	M III	ET	PTSP		STLD (T)	M-III	LIB	STLD
THU	STLD	SS (T)	PTSP	SS		ET	PTSP (T)	EDC (T)	SPORTS
FRI	EDC	EDC / ET &BS LAB				SS	ET	STLD	SOFT SKILLS

	SUBJECTS/LABS	NAME OF THE FACULTY
M-III	MATHEMATICS III	V KRISHNA VENI
EDC	ELECTRONIC DEVICES AND CIRCUITS	M SUREKHA
STLD	SWITCHING THEORY AND LOGIC DESIGN	M MADHULLIKA
SS	SIGNALS AND SYSTEMS	SK RASOOL
PTSP	PROBABILITY THEORY AND STOCHASTIC PROCESS	I KIRANMAYEE
ET	ELECTRICAL TECHNOLOGY	P RAJYA LAKSHMI
SOFT SKILLS	SOFT SKILLS	Dr P RAJ KUMAR
APT	APTITUDE	V BHARATH KUMAR
SEM	INTERNAL SEMINAR	V KRISHNAVENI
EDC LAB	ELECTRONIC DEVICES AND CIRCUITS LAB	M SUREKHA
		N CHINA BABU
ET & BS LAB	ELECTRICAL TECHNOLOGY AND BASIC SIMULATION LAB	D YALAMANDA/ C REDDY USHA
		P RAJYA LAKSHMI/CH SWAPNA

Head of the Department
Electronics & Communication Engineering
HOD
PBR Visvodaya Institute of
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DEPARTMENT OF E.C.E.

TIME TABLE

Acd Year: 2019-2020 (I SEM)
CLASS : II B.TECH , ECE - C section

W.E.F: 27-06-2019
ROOM NO : A 007

	1 8:45 AM to 9:35 AM	2 9:35 AM to 10:25 AM	3 10:40 AM to 11:30 AM	4 11:30 AM to 12:20 PM	12:20PM to 1:20 PM	5 1:20 PM to 2:10 PM	6 2:10 PM to 3:00 PM	7 3:10 PM to 4:00 PM	8 4:00 PM to 4:50 PM
MON	EDC	EDC	SS	SOFT SKILLS	LUNCH BREAK	MIII	PTSP	M-III (T)	STLD
TUE	SS	M III	EDC	PTSP		ET (T)	PTSP (T)	EDC (T)	SPORTS
WED	ET	EDC / ET &BS LAB				STLD (T)	SS	STLD	LIB
THU	STLD	SS (T)	PTSP	SEM		ET	EDC / ET &BS LAB		
FRI	ET	EDC	M III	PTSP		SS	ET	STLD	APT

SUBJECTS/LABS		NAME OF THE FACULTY
M-III	MATHEMATICS III	V KRISHNA VENI
EDC	ELECTRONIC DEVICES AND CIRCUITS	N KRISHNA CHAITHANYA
STLD	SWITCHING THEORY AND LOGIC DESIGN	M VENKATA RATHNAM
SS	SIGNALS AND SYSTEMS	K UMA
PTSP	PROBABILITY THEORY AND STOCHASTIC PROCESS	M RAMA MOHAN REDDY
ET	ELECTRICAL TECHNOLOGY	CH SWAPNA
SOFT SKILLS	SOFT SKILLS	Dr P RAJ KUMAR
APT	APTITUDE	V BHARATH KUMAR
SEM	INTERNAL SEMINAR	V KRISHNAVENI
EDC LAB	ELECTRONIC DEVICES AND CIRCUITS LAB	K UMA N CHINA BABU
ET & BS LAB	ELECTRICAL TECHNOLOGY AND BASIC SIMULATION LAB	D YALAMANDA/ C REDDY USHA P RAJYA LAKSHMI/CH SWAPNA

Head of the Department
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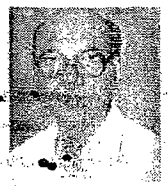
KAVALI-524201, SPSR Nellore Dist. Andhrapradesh.



VISION AND MISSION OF THE INSTITUTE

VISION:

To be a premier centre of learning in Engineering and Management education that evolves the youth into dynamic professionals with a social commitment

MISSION

- ✓ To provide quality teaching-learning practices in engineering and management education by imparting core instruction and state-of-the-art infrastructure.
- ✓ To engage the faculty and students in acquiring competency in emerging technologies and research activities through Industry Institute Interaction.
- ✓ To foster social commitment in learners by incorporating leadership skills and ethical values through value-based education

VISION AND MISSION OF THE DEPARTMENT

VISION

To produce technically competent and research oriented Electronics and Communication Engineers to meet the Industrial and Social requirements.

MISSION

- ✓ To impart quality technical education in the field of Electronics and Communication Engineering through state-of-the art facilities and effective teaching learning process.
- ✓ To enrich the faculty and students with research and consultancy skills through Industry-Interaction and Training in Emerging areas of Electronics and Communication Engineering.
- ✓ To develop lifelong learning, leadership qualities and ethical values in learners to meet the societal and industrial needs.

Principal
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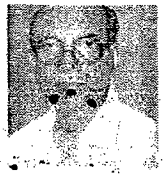
KAVALI 524201, SPSR Nellore Dist. Andhrapradesh.



Consistency of Department Vision with the Institute Vision

	Keywords	Institute Vision
Department Vision	Technically competent, Research oriented, Industrial and Social requirements	√

Consistency of Department Mission with Institute Mission

	Keywords	Institute Mission-1	Institute Mission-2	Institute Mission-3
Department Mission-1	Quality technical education, State of the art facilities	√		
Department Mision-2	Research and consultancy skills, Industry-Interaction and Training		√	
Department Mision-3	Lifelong learning, leadership qualities, ethical values			√

B. K Reddy

Principal
PARVATHAREDDY BABUL REDDY
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PARVATHAREDDY BABUL REDDY
VISVODAYA INSTITUTE OF TECHNOLOGY & SCIENCE
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KAVALI – 524201, S.P.S.R Nellore Dist., A.P. India. Ph: 08626-243930

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Programme Educational Objectives (PEOs)

Name of the Programme: B.Tech in Electronics and Communication Engineering

PEO-I : Graduates will have the capabilities to analyze, design and develop innovative solutions for the problems in the field of Electronics and Communication Engineering using core competencies.

PEO-II : Graduates will have the ability to engage themselves in research and lifelong learning to achieve professional excellence.

PEO-III : Graduates will have successful career with leadership qualities, ethics and good communication skills in Electronics and Communication Engineering and related fields.

Principal
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VISVODAYA INSTITUTE OF TECHNOLOGY & SCIENCE
KAVALI-524201, SPSR Nellore Dist. Andhrapradesh.

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR

II B.Tech I-Sem (E.C.E)

T	Tu	C
3	1	3

(15A04301) ELECTRONIC DEVICES AND CIRCUITS

Course Objectives:

To give understanding on semiconductor physics of the intrinsic, p and n materials, characteristics of the p-n junction diode, diode's application in electronic circuits, Characteristics of BJT,FET,MOSFET, characteristics of special purpose electronic devices. To familiarize students with dc biasing circuits of BJT, FET and analyzing basic transistor amplifier circuits.

Course Outcomes:

Upon completion of the course, students will:

- Analyze the operating principles of major electronic devices, its characteristics and applications.
- Design and analyze the DC bias circuitry of BJT and FET.
- Design and analyze basic transistor amplifier circuits using BJT and FET.

UNIT- I

Junction Diode Characteristics : Open circuited p-njunction, Biased p-n junction,p-n junction diode, current components in PN junction Diode, diode equation,V-I Characteristics, temperature dependence on V-I characteristics, Diode resistance, Diode capacitance, energy band diagram of PN junction Diode.

Special Semiconductor Diodes: Zener Diode, Breakdown mechanisms, Zener diode applications, LED, LCD, Photo diode, Varactor diode, Tunnel Diode, DIAC, TRIAC, SCR, UJT. Construction, operation and characteristics of all the diodes is required to be considered.

UNIT- II

Rectifiers and Filters: Basic Rectifier setup, half wave rectifier, full wave rectifier, bridge rectifier, derivations of characteristics of rectifiers, rectifier circuits-operation, input and output waveforms,Filters, Inductor filter, Capacitor filter, L-section filter, Π- section filter, Multiple L- section and Multiple Π section filter ,comparison of various filter circuits in terms of ripple factors.

UNIT- III

Transistor Characteristics:

BJT: Junction transistor, transistor current components, transistor equation, transistor configurations, transistor as an amplifier, characteristics of transistor in Common Base, Common Emitter and Common Collectorconfigurations, Ebers-Moll model of a transistor,punch through/ reach through, Photo transistor, typical transistor junction voltage values.

FET:FETtypes, construction, operation, characteristics, parameters, MOSFET-types, construction, operation, characteristics, comparison between JFET and MOSFET.

UNIT- IV

Transistor Biasing and Thermal Stabilization : Need for biasing,operating point, load line analysis, BJT biasing-methods,basic stability, fixed bias, collector to base bias, self bias, Stabilization against variations in V_{BE}, Ic, and β, Stability factors, (S, S', S''), Bias compensation, Thermal runaway, Thermal stability.

FET Biasing- methods and stabilization.

UNIT- V

Small Signal Low Frequency Transistor Amplifier Models:

BJT: Two port network, Transistor hybrid model, determination of h-parameters,conversion of h-parameters,generalized analysis of transistor amplifier model using h-parameters, Analysis of CB, CE and CC amplifiers using exact and approximate analysis, Comparison of transistor amplifiers.

FET: Generalized analysis of small signal model, Analysis of CG, CS and CD amplifiers, comparison of FET amplifiers.

TEXT BOOKS:

1. J. Millman, C. Halkias, "Electronic Devices and Circuits", Tata Mc-Graw Hill, 4th Edition,2010.
2. David A.Bell, "Electronic Devices and Circuits", Fifth Edition, Oxford University Press, 2009.
3. Salivahanan, Kumar, Vallavaraj, "Electronic Devices and Circuits", Tata Mc-Graw Hill, Second Edition

REFERENCES:

1. Jacob Millman, C. Halkies, C.D.Parikh, "Integrated Electronics", Tata Mc-Graw Hill, 2009.
2. R.L. Boylestad and Louis Nashelsky,"Electronic Devices and Circuits",Pearson Publications,,9thEdition,2006.
3. BV Rao, KBR Murty, K Raja Rajeswari, PCR Pantulu, "Electronic Devices and Circuits", Pearson, 2nd edition.

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KAVALI – 524201, S.P.S.R Nellore Dist., A.P. India. Ph: 08626-243931
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

C212	Electronic Devices and Circuits	K.Level
C212.1	Construct electronic circuits using various diodes.	K3
C212.2	Develope LMPS(Linear Mode Power Supply) units using rectifiers,filters & regulators.	K3
C212.3	Demonstrate the construction, working and characteristics of BJT, JFET and MOSFET in various modes	K4
C212.4	Analyze DC bias circuits for BJT and FET Amplifiers.	K4
C212.5	Analyse transistor amplifier circuits using BJT & FET	K4

B. K Reddy

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Electronic Devices and Circuits	**CO1(K3)**	3	2										3	2
	CO2(K3)	3	3										3	2
	CO3(K4)	3	3										3	2
	CO4(K4)	3	3	2									3	2
	CO5(K4)	3	2										3	2
	AVG	**3.00**	**2.60**	**2.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**3.00**	**2.00**

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

CLASS & SEC:	II B.Tech. I Sem, ECE-A	**ACADEMIC YEAR:**	2019-2020
COURSE TITLE:	EDC	**COURSE CODE:**	15A04301
FACULTY NAME:	N KRISHNA CHAITHANYA	**CLASS STRENGTH:**	
INSTRUCTION:	Le: 3 Tu: 1	**CREDITS:**	

	Course Outcomes	K.Level
CO1	Construct electronic circuits using various diodes.	K3
CO2	Develope LMPS(Linear Mode Power Supply) units using rectifiers,filters & regulators.	K3
CO3	Demonstrate the construction, working and characteristics of BJT, JFET and	K4
CO4	Analyze DC bias circuits for BJT and FET Amplifiers.	K4
CO5	Analyse transistor amplifier circuits using BJT & FET	K4

S.NO	Proposed Date	Topic to be covered	Hrs. req	Hrs. spent	Ref.	CO	PO	Method of teaching
UNIT-I (Junction Diode Characteristics, Special Semiconductor Diodes)								
1	09-07-2019	semiconductor physic (TBS)	1		T1, R2	1	PO1	1,2
2	10-07-2019	semiconductor physic (TBS)	1		T1, R2	1	PO1	1,2
3	10-07-2019	semiconductor physic Quiz (T)	1		T1, R2	1	PO1	5
4	12-07-2019	Drift and diffusion currents	1		T1, R2	1	PO1,PO2	1
5	12-07-2019	Open circuited p-n junction	1		T1, R2	1	PO1	1
6	16-07-2019	Biased p-n junction-p-n junction	1		T1, R2	1	PO1	W1
7	17-07-2019	current components in PN junction	20 mint		T1, R2	1	PO1,PO2	1
8	17-07-2019	Diode diode equation	30 mint		T1, R2	1	PO2	1
9	17-07-2019	Problems (T)	1		T1, R2	1	PO2	5
10	19-07-2019	V-I Characteristics- temperature	35 mint		T1, R2	1	PO1,PO2	1,2
11	19-07-2019	Diode capacitance	15 mint		T1, R2	1	PO1,PO2	1
12	19-07-2019	Zener Diode- Breakdown	1		T1, R2	1	PO1	1

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13	19-07-2019	Tunnel diode	1		T1, R2	1	PO1	2
14	23-07-2019	LED-Photo diode	1		T1, R2	1	PO1	1
15	24-07-2019	Energy band diagram of PN junction	1		T1, R2	1	PO1	5
16	24-07-2019	UJT, SCR	1		T1, R2	1	PO1	1,2
17	26-07-2019	DIAC, TRIAC	1		T1, R2	1	PO1	1,2
18	26-07-2019	REVISION	1			1		6
19	30-07-2019	REVISION (T)	1			1		6
		Total:	17					
		UNIT-II (Rectifiers and Filters)						
1	31-07-2019	Rectifier setup	20 Mint		T1, R2	2	PO1,PO2	1
2	31-07-2019	Half wave rectifier-operation- input	30 Mint		T1, R2	2	PO1,PO3	1,2
3	02-08-2019	Derivation of characteristics of half	1		T1, R2	2	PO1,PO2	1
4	02-08-2019	Full wave rectifier-operation- input	1		T1, R2	2	PO1,PO3	W2
5	02-08-2019	Derivation of characteristics of full	1		T1, R2	2	PO1,PO2	1
6	06-08-2019	Problems (T)	1		T1, R2	2	PO2	5,6
7	07-08-2019	Bridge rectifier-operation- input and	1		T1, R2	2	PO1,PO2,P	1,2
8	07-08-2019	Problems	1		T1, R2	2	PO1	1
9	09-08-2019	Filters:introduction	20 Mint		T1, R2	2	PO1	1
10	09-08-2019	Inductor filter	30 Mint		T1, R2	2	PO1,PO2,P	1
11	13-08-2019	Capacitor filter	1		T1, R2	2	PO1,PO2,P	1
12	13-08-2019	Problems (T)	1		T1, R2	2	PO1	5,6
13	14-08-2019	L- section filter	1		T1, R2	2	PO1,PO2,P	1
14	14-08-2019	Π- section filter	1		T1, R2	2	PO1,PO2,P	1
15	16-08-2019	Multiple L- section and Multiple Π	1		T1, R2	2	PO1,PO2,P	1
16	16-08-2019	Comparison of various filter circuits	1		T1, R2	2	PO1,PO2	1
17	20-08-2019	Problems (T)	1		T1, R2	2	PO2	6
18	21-08-2019	REVISION	1			2		5
19	21-08-2019	REVISION (T)	1			2		5
		Total:	17					
		UNIT-III (Transistor Characteristics)						
1	27-08-2019	Junction transistor	1		T1, T2	3	PO1,PO2	W3
2	28-08-2019	transistor current components-transistor equation	1		T1, T2	3	PO1,PO2	1
3	28-08-2019	Transistor configurations (T)	1		T1, T2	3	PO1,PO2	5
4	30-08-2019	Characteristics of transistor in	1		T1, T2	3	PO1, PO2,	1,2
5	30-08-2019	Characteristics of transistor in	1		T1, T2	3	PO1,PO2,	1,2

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6	11-09-2019	Characteristics of transistor in	1		T1, T2	3	PO1,PO2,	5
7	11-09-2019	Comparison of CB-CE-CC	10 Mint		T1, T2	3	PO1,PO2,	1
8	11-09-2019	Ebers-Moll model of a transistor	20 Mint		T1, T2	3	PO1,PO2	1
9	11-09-2019	Photo transistor	20 Mint		T1, T2	3	PO1	1
10	13-09-2019	Problems	1		T1, T2	3	PO1,PO2	1
11	13-09-2019	FET types- construction	1		T1, T2	3	PO1,PO2	1,2
12	17-09-2019	FET operation- characteristics	1		T1, T2	3	PO1,PO2,P	1,2
13	18-09-2019	MOSFET-types- construction	1		T1, T2	3	PO1,PO2,	1,2
14	18-09-2019	MOSFET-types- construction	1		T1, T2	3	PO1,PO2,	5
15	20-09-2019	comparison between JFET and	15 Mint		T1, T2	3	PO1,P02	1
16	20-09-2019	Problems (T)	35 Mint		T1, T2	3	PO2	5, 6
17	20-09-2019	REVISION	1		T1, T2	3		5
		Total:	14					
	UNIT-IV (Transistor Biasing and Thermal							
1	24-09-2019	Transistor Biasing	25 Mint		T1,T2	4	PO1,PO3	W4
2	24-09-2019	Thermal Stabilization	25 Mint		T1,T2	4	PO1,PO3	1
3	25-09-2019	Need for biasing	25 Mint		T1,T2	4	PO1,PO3	1
4	25-09-2019	Operating point load line analysis	25 Mint		T1,T2	4	PO1,PO3	1
5	25-09-2019	BJT biasing (T)	1		T1,T2	4	PO1,PO2,P	5
6	27-09-2019	Thermal runaway- Thermal stability	25 Mint		T1,T2	4	PO1,PO2	1
7	27-09-2019	Fixed bias	25 Mint		T1,T2	4	PO1, PO2	1,2
8	27-09-2019	Collector to base bias -Stability factors-	1		T1,T2	4	PO1, PO2	1
9	01-10-2019	Self bias- Stability factors- (S S' S'')	1		T1,T2	4	PO1,PO2	1
10	04-10-2019	Stabilization against variations in	20 Mint		T1,T2	4	PO1,PO2,P	1
11	04-10-2019	Bias compensation	30 Mint		T1,T2	4	PO1	2
12	04-10-2019	FET Biasing- methods	1		T1,T2	4	PO1,PO2	1
13	09-10-2019	FET Biasing- methods (T)	1		T1,T2	4	PO1,PO2	5
14	09-10-2019	FET Biasing-stabilization	1		T1,T2	4	PO1,PO2	1
15	11-10-2019	PROBLEMS	1		T1,T2	4	PO2,	1
16	11-10-2019	REVISION	1		T1,T2	4		1
17	15-10-2019	REVISION	1		T1,T2	4		5
		Total:	13					
	UNIT-V (Small Signal Low Frequency Transistor							
1	16-10-2019	BJT: Two port network, Transistor	1		T2, R1	5	PO1, PO2	1
2	16-10-2019	Determination of h-parameters (T)	1		T2, R1	5	PO1, PO2	5
3	18-10-2019	Generalized analysis of transistor	1		T2, R1	5	PO1, PO2,	1

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4	18-10-2019	Generalized analysis of transistor	1		T2, R1	5	PO1, PO2	1
5	22-10-2019	Analysis of CB amplifiers using exact	1		T2, R1	5	PO1, PO2	1
6	23-10-2019	Analysis of CE amplifiers using exact	1		T2, R1	5	PO1, PO2	W5
7	23-10-2019	Analysis of CC amplifiers using exact	1		T2, R1	5	PO1, PO2	5
8	25-10-2019	Comparison of transistor amplifiers	15 Mint		T2, R1		PO1	1
9	25-10-2019	PROBLEMS	35 Mint		T2, R1	5	PO1, PO2	1
10	25-10-2019	PROBLEMS	1		T2, R1	5	PO1, PO2	1
11	29-10-2019	PROBLEMS	1		T2, R1	5	PO1, PO2	1
12	30-10-2019	PROBLEMS	1		T2, R1	5	PO1, PO2	1
13	30-10-2019	FET: Generalized analysis of small	1		T2, R1	5	PO1, PO2,	1
14	01-11-2019	Analysis of CG amplifiers	1		T2, R1	5	PO1, PO2,	1
15	05-11-2019	Analysis of CS amplifiers (T)	1		T2, R1	5	PO1, PO2,	5,6
16	05-11-2019	Analysis of CD amplifiers	1		T2, R1	5	PO1, PO2,	1
17	06-11-2019	Comparison of FET amplifiers.	15 Mint		T2, R1	5	PO1	1
18	06-11-2019	Problems	35 Mint		T2, R1	5	PO2	1
19	08-11-2019	Problems	1		T2, R1	5		1
20	08-11-2019	Problems (T)	1		T2, R1	5		5,6
		Total:	18					
		GRAND TOTAL:	79					

TEXT BOOKS:	
T1	J. Millman, C. Halkias, "Electronic Devices and Circuits", Tata Mc-Graw Hill, 4thEdition,2010.
T2	David A.Bell, "Electronic Devices and Circuits", Fifth Edition, Oxford University Press, 2009.
T3	Salivahanan, Kumar, Vallavaraj, "Electronic Devices and Circuits", Tata Mc-Graw Hill, Second Edition
REFERENCE BOOKS:	
R1	Jacob Millman, C. Halkies, C.D.Parikh, "Integrated Electronics", Tata Mc-Graw Hill, 2009.
R2	R.L. Boylestad and Louis Nashelsky,"Electronic Devices and Circuits",Pearson Publications,,9thEdition,2006.
R3	BV Rao, KBR Murty, K Raja Rajeswari, PCR Pantulu, "Electronic Devices and Circuits", Pearson, 2nd edition.
WEB REFERENCES:	
W1	https://www.youtube.com/watch?v=dTOptAjK1ok
W2	https://www.youtube.com/watch?v=ofW4DZH83JQ
W3	https://www.youtube.com/watch?v=0C4uxtS-tlQ
W4	https://www.youtube.com/watch?v=gYgT_Wol9v4
W5	https://www.youtube.com/watch?v=h19g_et19SY

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Method of Teaching	
1	Chalk & Talk / Demonstration
2	Power Point Presentation
3	Video Presentation
4	ICT Mode(eg:NPTEL videos)
5	Tutorial / Seminar
6	Collaborative learning activities
	· Think-pair-share,
	· Problem-based learning
	· Group Discussion
	· Four Corners collaborative learning
	· Inside-outside circle
	· Quiz, etc.

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PBR VISVODAYA INSTITUTE OF TECHNOLOGY & SCIENCE : KAVALI
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

REPORTING OF SYLLABUS COVERAGE

Academic Year : 2020 -20 Class : IV B.Tech I SEM Branch : CSE Date : From 16-08-2020To 31-12-2020

Section	Syllabus Coverd	1	2	3	4	5	6
A	Subject	Management Science	Grid & cloud Computing	Software Architecture	Mobile Application Development	Information Network Security	Software Project Management
	Staff Name	**B.Surekha Kumari**	**P.Srinivasulu**	**B.Muarali Krishna**	**M.Janardhan**	**T.Manjula**	**Dr K.V Subbaiah**
	Units Scheduled	V UNIT - 90 % SCHDULED	V UNIT - 20 % SCHDULED	V UNIT - 100 % SCHDULED	V UNIT - 100 % SCHDULED	V UNIT - 90 % SCHDULED	V UNIT - 70 % SCHDULED
	Units Completed	V UNIT 90 % COMPLETED	V UNIT 20 % COMPLETED	V UNIT 100 % COMPLETED	V UNIT 100 % COMPLETED	V UNIT 90 % COMPLETED	V UNIT 70 % COMPLETED
	Teaching Feed back						
	HOD Remarks						
B	Subject	Management Science	Grid & cloud Computing	Software Architecture	Mobile Application Developmen	Information Network Security	Software Project Management
	Staff Name	**B.Surekha Kumari**	**P.Srinivasulu**	**P.V.N Rajeswari**	**M.Janardhan**	**T.Manjula**	**Dr K.V Subbaiah**
	Units Scheduled	V UNIT - 90 % SCHDULED	V UNIT - 20 % SCHDULED	V UNIT - 100 % SCHDULED	V UNIT - 100 % SCHDULED	V UNIT - 90 % SCHDULED	V UNIT - 70 % SCHDULED
	Units Completed	V UNIT 90 % COMPLETED	V UNIT 20 % COMPLETED	V UNIT 100 % COMPLETED	V UNIT 100 % COMPLETED	V UNIT 90 % COMPLETED	V UNIT 70 % COMPLETED
	Teaching Feed back						
	HOD Remarks						
C	Subject	Management Science	Grid & cloud Computing	Software Architecture	Mobile Application Developmen	Information Network Security	Software Project Management
	Staff Name	**B.Surekha Kumari**	**P.Srinivasulu**	**P.V.N Rajeswari**	**M.Janardhan**	**T.Manjula**	**Dr K.V Subbaiah**
	Units Scheduled	V UNIT - 90 % SCHDULED	V UNIT - 20 % SCHDULED	V UNIT - 100 % SCHDULED	V UNIT - 100 % SCHDULED	V UNIT - 90 % SCHDULED	V UNIT - 100 % SCHDULED
	Units Completed	V UNIT 90 % COMPLETED	V UNIT 20 % COMPLETED	V UNIT 100 % COMPLETED	V UNIT 100 % COMPLETED	V UNIT 90 % COMPLETED	V UNIT 100 % COMPLETED
	Teaching Feed back						B. K Reddy
	HOD Remarks						Principal

PARVATHAREDDY BABUL REDDY
VISVODAYA INSTITUTE OF TECHNOLOGY & SCIENCE

PBR VISVODAYA INSTITUTE OF TECHNOLOGY AND SCIENCE: KAVALI

I B Tech II Sem.(R15) 18 BATCH I MID- EXAMINATION Time: 2.00 PM TO 4.00 PM

TIME TABLE

DATE	EEE	ME	ECE	CSE
25/2/2019 AN	English for Professional Communications	English for Professional Communications	English for Professional Communications	English for Professional Communications
26/2/2019 AN	Mathematics - II	Mathematics - II	Mathematics - II	Mathematics - II
27/2/2019 AN	Engineering Chemistry	Engineering Physics	Engineering Physics	Engineering Chemistry
28/2/2019 AN	Electrical Circuits	Material Science & Engineering	Network Analysis	Data Structures
01/03/2019 AN	Environmental Science	**Engineering Drawing**	**Engineering Drawing**	Environmental Science

Exam Section In charge

Principal

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR

ANANTHAPURAMU - 515 002 (A.P)

Examinations Branch

MBA I Semester Supplementary October 2020 Examinations

Timetable

Time: 10.00 AM to 01.00 PM

Date / Day	MBA	MBA (Fintech)	MBA	MBA (Finance)
	For Students admitted in 2017, 2018 & 2019 only	For Students admitted in 2018 & 2019 only	For Students admitted in ((2014 & 2015) (Last Chance)) 2016 only	For Students admitted in ((2014 & 2015) (Last Chance)) 2016 & 2017 only
08.10.2020 Thursday	Managerial Economics 17E00103	Organizational Behavior 18E03101	Business Environment 14E00102	Management & Organizational Behaviour 9E00101
10.10.2020 Saturday	Business Environment & Law 17E00102	Business Law 18E03102	Management & Organizational Behaviour 14E00101	Managerial Economics 9E00102
12.10.2020 Monday	Management & Organizational Behaviour 17E00101	Managerial Economics 18E03103	Marketing Management 14E00103	Financial Accounting for Managers 9E00103
14.10.2020 Wednesday	Management Information Systems 17E00106	Financial Accounting 18E03104	Financial Accounting for Managers 14E00104	Business Environment and Law 12E00104
16.10.2020 Friday	Financial Accounting for Managers 17E00104	Quantitative Techniques 18E03105	Business Communication 14E00106	Statistical Methods for Management 9EBS105
18.10.2020 Sunday	Statistics for Managers 17E00105	Managerial Communication 18E03106	Information Technology for Managers 14E00107	Business Communication 9E00106
20.10.2020 Tuesday	Information Technology for Managers 17E00107	Information Technology 18E03107	Business Statistics 14E00105	---

NOTE: 1. Any clashes / omissions in this time-table may be brought to the notice of the under signed immediately.
2. If the Government declares holiday on any of the above dates, the examinations will be conducted as usual.

Date: 28.09.2020

Principal
PARVATHAREDDY BABUL REDDY
VISVODAYA INSTITUTE OF TECHNOLOGY & SCIENCE

Controller of Examinations (PG)

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTAPUR
ANANTHAPURAMU - 515 002 (A.P.) - INDIA.

Examinations Branch

M.Tech - III Semester Supplementary Examinations November 2020
(for students admitted in 2017 & 2018 only)

Time: 02:00 PM to 05:00 PM

Date /Day	Common to all branches
17.11.2020 Tuesday	Research Methodology 17D20301
	Human Values & Professional Ethics 17D20302
	Intellectual Property Rights 17D20303

NOTE:

1. Any clashes / omissions in this time-table may be brought to the notice of the under signed immediately.
2. If the Government declares holiday on any of the above dates, the examinations will be conducted as usual.

Date: 27.10.2020

Controller of Examinations (PG)

Principal
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KAVALI-524201, SPSR Nellore Dist. Andhrapradesh.

Code: 15A04304

R15

B.Tech II Year I Semester (R15) Regular & Supplementary Examinations November/December 2018

PROBABILITY THEORY & STOCHASTIC PROCESSES

(Electronics and Communication Engineering)

Time: 3 hours | Max. Marks: 70

PART – A

(Compulsory Question)

*****

1 Answer the following: (10 X 02 = 20 Marks)

(a) Define the distribution function of a discrete random variable X.

(b) When two events are said to be independent?

(c) How to compute the probability of an event $P\{x_1 < X \leq x_2\}$ by using distribution function $F_x(X)$?

(d) If the variance of a random variable X is Var(X), then the variance of a random variable Y = aX is.

(e) Statistically independent zero-mean random processes X(t) and Y(y) have autocorrelation functions $R_{XX}(\tau)$ *and* $R_{yy}(\tau)$, then ACF of 'X(t) + Y(t)' is.

(f) What is the second order moment of the random processes X(t) if $R_{XX}(\tau) = \frac{16}{1+6\tau^2}$?

(g) Why the function $S_{XY}(w) = 3 + jw^2$ is a valid CPSD?

(h) Average power of Random processes X(t) = Acos (wt+Θ), where Θ is RV.

(i) Define narrow band process.

(j) Obtain the ratio between output PSD $S_{YY}(w)$ to input PSD $S_{XX}(w)$ from magnitude spectrum: $|H(w)| = \frac{4}{\sqrt{3+\omega^2}}$.

PART – B

(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

2 A random variable X has the distribution function: $F_X(X) = \sum_{n=1}^{12} \frac{n^2}{650} u(x-n)$ evaluate the probability: (i) $P\{-\infty < X \leq 6.5\}$. (ii) P(X> 4} (iii) P{6 < $X \leq 9$}.

OR

3 Assume automobile arrivals at a gasoline station are Poisson and occurs at an average rate of 50per/Hour. The station has only one gasoline pump. If all cars are assumed to require one minute to obtain fuel, What is the probability that a weighting line will occur at the pump.

UNIT – II

4 Two random variables X and Y have means $\bar{X}$ = 1 and $\bar{Y}$ = 2 variances $\sigma_X^2 = 4$ and $\sigma_Y^2 = 1$ and a correlation coefficient $\rho_{XY} = 0.4$. New random variables W and V are defined by V = -X + 2Y, W = X + 3Y. Find: (i) The means. (ii) The variances. (iii) The correlations. (iv) The correlation coefficient ρ_{VW} of V and W.

OR

5 Let X & Y be statically independent random variables with $\bar{X} = \frac{3}{4}, \overline{X^2} = 4, \bar{Y} = 1, \overline{Y^2} = 5$. For a random variable W = X-2Y+1, then calculate: (i) R_{XY}. (ii) R_{XW}. (iii) C_{XY} and verify X & Y are uncorrelated or not.

Contd. in page 2

UNIT – III

6 If $X(t) = A\,Cos(\omega_0 t + \theta), where\ A,\ \omega_0$ are constants, and θ is a uniform random variable on $(-\pi, \pi)$. A new random process is defined by $Y(t) = X^2(t)$.
(i) Obtain the mean and auto correlation function of $X(t)$.
(ii) Obtain the mean and auto correlation function of $Y(t)$.
(iii) Find the cross correlation function of $X(t)$ & $Y(t)$.
(iv) Are $X(t)$ and $Y(t)$ are WSS.
(V) Are $X(t)$ & $Y(t)$ are jointly WSS.

OR

7 Two random process $X(t)$ & $Y(t)$ are defined as:
$X(t) = A\,Cos(\omega_0 t) + B\,Sin(\omega_0 t)$, $Y(t) = B\,Cos(\omega_0 t) - A\,Sin(\omega_0 t)$, A, B are uncorrelated, zero mean random variables with same variance, ω_0 is constant: (i) Determine $R_{XY}(t, t+\tau)$. (ii) check $X(t)$, $Y(t)$ are jointly WSS or not.

UNIT – IV

8 Suppose the cross power spectrum is defined by:

$$S_{XY}(\omega) = a + \frac{jb\omega}{W}, -W \le \omega \le W$$
$$0, \quad Otherwise$$

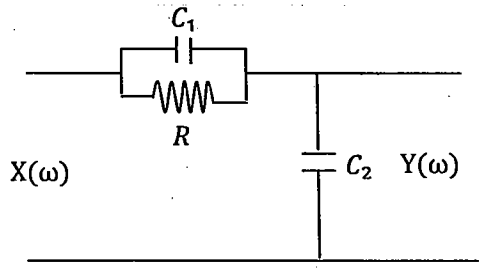
Where a, b are real constants, then obtain cross correlation functions $R_{XY}(\tau)$ and $R_{YX}(\tau)$.

OR

9 Determine the cross correlation function, whose cross PSD is $S_{XY}(\omega) = \frac{8}{(\alpha + j\omega)^3}$ and also find $S_{YX}(\omega)$, $R_{YX}(\omega)$.

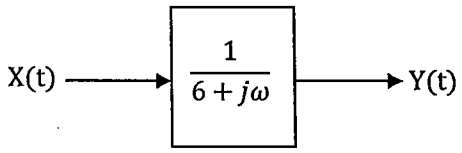
UNIT – V

10 Obtain the transfer function $H(\omega)$ of the network as shown in figure below if C_1 = 5F, C_2 = 10F and $R = 10\Omega$, then determine $S_{XY}(\omega)$ if $R_{XX}(\tau) = 5\,\delta(\tau)$.



OR

11 Consider a linear system as shown in figure below.



If ACF of input $R_{XX}(\tau) = 5\,\delta(\tau)$, then determine: (i) ACF of response. (ii) PSD of response. (iii) Mean square value of response.

*****

Code: 15A99301

R15

B.Tech II Year I Semester (R15) Regular & Supplementary Examinations November/December 2018

BASIC ELECTRICAL & ELECTRONICS ENGINEERING

(Common to CSE & IT)

Time: 3 hours Max. Marks: 70

Answer all the questions
(Use single answer booklet only)

*****

PART – A

UNIT – I

1 (a) Define Ohms law, KCL and KVL with examples.
(b) State and explain Thevenin's theorem and maximum power transfer theorem.

OR

2 Derive the mathematical relation between star – delta and delta – star transformation.

UNIT – II

3 With neat sketch, explain the constructional details of a DC machine.

OR

4 With neat diagram, explain the speed control of a DC motor by field control and armature control.

UNIT – III

5 Explain the working principle and operation of single phase transformer with constructional details.

OR

6 Explain the working principle and operation of a 3-phase alternator with constructional details.

PART – B

UNIT – I

7 (a) Draw and explain the V-I characteristics of p-n junction diode.
(b) Give the list of different types of filters used in rectifiers and their merits and demerits.

OR

8 (a) The reverse bias saturation current for a P-N junction diode (Silicon type) is 1μA at 300K. Calculate the dynamic resistance and static resistance at 200mV forward bias at 300K.
(b) What are the different types of rectifiers? Compare them.

UNIT – II

9 (a) What is the necessity of biasing circuits? Derive the expression for stability factor of self bias circuit.
(b) Define stability factor.

OR

10 Draw the circuit diagram of an NPN junction transistor CE configuration and explain its input and output characteristics.

UNIT – III

11 (a) What is an op-amp? Explain the operation of non-inverting comparator.
(b) Design an inverting amplifier with a gain of -5 and an input resistance of 10 KΩ.

OR

12 (a) Draw the circuit diagram of RC Phase shift oscillator and explain its operation.
(b) Give the classification of oscillators.

*****

Code: 15A04302

R15

B.Tech II Year I Semester (R15) Regular & Supplementary Examinations November/December 2018

SWITCHING THEORY & LOGIC DESIGN

(Common to ECE & EIE)

Time: 3 hours Max. Marks: 70

PART – A

(Compulsory Question)

*****

1 Answer the following: (10 X 02 = 20 Marks)

(a) Define fan-out of a logic gate.
(b) Which logic family has lowest power dissipation?
(c) What are the main components of VHDL description?
(d) What is the need for VHDL?
(e) What are the advantages PLDs over fixed function ICs?
(f) What is PAL?
(g) What is ring counter?
(h) What are the applications of shift registers?
(i) What is logic synthesis in HDL?
(j) What is logic simulation?

PART – B

(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

2 (a) What is the difference between transmission time and propagation delay? Explain these two parameters with reference to CMOS logic.

(b) Explain in detail about CMOS steady state electrical behavior.

OR

3 (a) List out TTL families and compare them with reference to propagation delay, power dissipation, speed-power product and low level input current.

(b) Design a transistor circuit of 2-input TTL NOR gate. Explain operation with the help of function table.

UNIT – II

4 (a) Explain various data types and objects supported by VHDL. Give the necessary examples.

(b) Explain the advantages and disadvantages of different logic styles.

OR

5 (a) Explain concept of packages in VHDL.

(b) Explain about design flow in VHDL.

UNIT – III

6 Explain the working of 3:8 decoder and write VHDL code.

OR

7 Construct 8:1 MUX using 4:1 MUX and a 2:1 MUX. Write the VHDL code for this implementation.

UNIT – IV

8 Explain the working of LFSR counter and also write VHDL code.

OR

9 Explain the operation of 4-bit serial-in parallel-out register and also write VHDL code.

UNIT – V

10 Explain the operation of Barrel shifter and write VHDL code for the corresponding.

OR

11 Explain the operation of floating point encoder and write VHDL code.

*****

PBR VISVODAYA INSTITUTE OF TECHNOLOGY & SCIENCE

MID EXAM-I

I B.Tech I SEM
Time: 90 min

Branch: COMMON TO ALL (EEE,ME, ECE & CSE)
Sub: FUNCTIONAL ENGLISH

Date: 31/08/2015 (AN)
Max.marks:30

****

ANSWER THE FOLLOWING QUESTION

1.

a) What are the lessons to be learnt from the Poem "On Killing a Tree"?
b) What significant step did the UK take in 2003 that has impacted climate change policies?
c) What do the terms reduce, reuse and recycle mean?
d) Write a short note on Chennai's "Green cover".
e) How was Dr. Kalam's assurance prophetic?

ANSWER ANY ONE OF THE FOLLOWING QUESTIONS

2. Give a critical summary of "On Killing a Tree"
3. What are top down approach and Bottom Up approach and How they are helpful in tackling climate change?

ANSWER ANY ONE OF THE FOLLOWING QUESTIONS

4. What is Green cover? What are the effects of losing Green Cover?
5. Write a note on Air and noise pollution.

B. I ——

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PBR VISVODAYA INSTITUTE OF TECHNOLOGY & SCIENCE

MID EXAM-I

I B.Tech I SEM
Time: 20 min

Branch: COMMON TO ALL (EEE,ME, ECE & CSE)
Sub: FUNCTIONAL ENGLISH

Date: 31/08/2015 (AN)
Max.marks:20x ½ = 10

Student Name: _____,

Roll No. | | | | | | | | | | |

Signature of Invigilator: _____,

Marks: / 10

Signature of Evaluator: _____.

****

ANSWER ALL THE QUESTIONS; EACH QUESTION CARRIES HALF MARK

1. Obama attended the conference without the backing of congress. Here "backing' means

   a) Financial Aid b) Support c) Good will d) backbiting

2. Many Low carbon projects are in the Pipe line. In the phrase the "pipeline" means _____

   a) Ready to deliver b) being completed c) Put in the Pipe d) being in discussion or plan.

3. Chennai's plan of achieving 33% green cover by 2012 remains simply a pipe dream. Here "Pipe dream" means _____

   a) a practical plan b) a Possible dream plan

   c) a Plan that is possible to achieve d) a Plan that is impossible to achieve.

4. After economic liberalization between 1997 and 2001 Chennai lost upto ____ of its green cover in some parts.

   a) 50% b) 60% c) 75% d) 99%.

5. "I want to change the general garbage culture of the people", _____ said those words.

   a) A.P.J.Kalam b) Dr. R.Vasudevan c) Murugadas d) T.Kennan.

6. World Environment Day is on _____

   a) 5th June b) 10th June c) 22nd April d) 10th May.

7. One tonne of plastic waste is equivalent to _____ carry bags

   a) 10 Lakh b) 20 Lakh c) 30 Lakh d) 40 Lakh

8. Developing green belt around residential locality can act as

   a) Green cover b) Heat barrier c) Noise barrier d) Green wall.

B. K [illegible]

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CORRECT THE FOLLOWING SENTENCES IF ANY

9. Each one of the students have contributed to the charity fund.

10. Either of the two students do not attend the classes regularly.

11. Neither the minister nor his P.A. have arrived at the meeting.

12. Neither water nor food were available in the desert.

13. Our principal together with the members of faculty have decided to help the poor students

14. The jury was divided in their opinion.

15. My uncle and guardian is an excellent teacher of high ideals.

16. The chief minister along with his council of ministers are taking part in the Ugadi festivities.

17. Either suman or sunil are needed to make these arrangements.

18. The poet and the singer is no more.

PREPOSITIONS

19. They are weak ..... grammar.

20. I have arrived ..... a decision.

P.B.R. VISVODAYA INSTITUTE OF TECHNOLOGY & SCIENCE

MID EXAM - 1

II B.Tech (I - Sem) | BRANCH: ECE | DATE : 29/08/2016 (FN)

TIME: 90 MIN | SUBJECT: Electronic Devices & Circuits | MAX. MARKS : 30

****

ANSWER THE FOLLOWING QUESTION

1. . (i) Write any two applicaëons of UJT.
   (ii) Draw the semiconductor representaëon of DIAC.
   (iii) Write the equaëon for barrier poteněal.
   (iv) Draw the temperature dependence V-I characterisěcs of a PN diode.
   (v) Draw the symbols for Varactor diode, and photo transistor

ANSWER ANY ONE OF THE FOLLOWING QUESTIONS

2. (a) Explain the operation of SCR and draw its transistor equivalent circuit.**C01,K3**
   (b) Explain how Zener diode works a voltage stabilizer.**C01,K3**

OR

3. (a) Compute the diode current equation of a PN diode as $I=I_0(e^{V/\eta VT}- 1)$**C01,K3**
   (b) Write short notes on diode resistance and diode capacitance.**C01,K3**

ANSWER ANY ONE OF THE FOLLOWING QUESTIONS

4. (a) Explain a rectifier.**CO2, K3**
   (b) Draw the circuit diagram of half wave rectifier and explain its operation with necessary waveforms. Derive its efficiency and ripple factor. **CO2, K3**

OR

5. (a) A 230 V, 50 Hz voltage is applied to t e primary of a 5:1 step-down centre tapped transformer used in a full wave rectifier having a load of 1000 Ω. Determine **CO2, K3**
   (i) V_{dc} (ii) PIV (iii) Ripple voltage (iv) f_0
   (b) Determine the efficiency of Centre tapped full wave rectifier.**CO2, K3**

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P.B.R. VISVODAYA INSTITUTE OF TECHNOLOGY & SCIENCE

MID EXAM - 2

II B.Tech (I - Sem) | BRANCH: ECE | DATE : 07/11/2016 (FN)

TIME: 90 MIN | SUBJECT: Electronic Devices & Circuits | MAX. MARKS : 30

****

ANSWER THE FOLLOWING QUESTION

1. (a) Define thermal runaway.
   (b) What is meant by faithful amplification?
   (c) Define punch through/reach through mechanism.
   (d) Name the transistor region of operations
   (e) Draw the diagram for common drain amplifier.

ANSWER THE FOLLOWING QUESTIONS

2. (a) Explain about small signal analysis of FET .**CO5, K4**

   (b) Draw the h-parameter equivalent circuits of CE, CB, & CC configurations. **CO5, K4**

OR

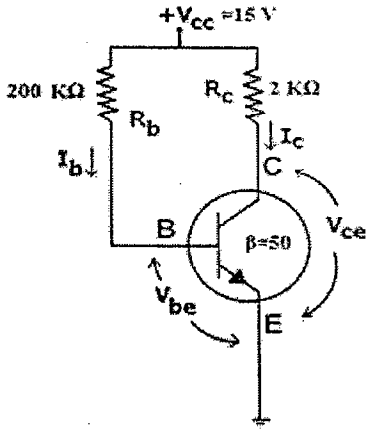
3. Explain the analysis of common emitter configuration using simplified hybrid model.**CO5, K4**

4. (a) Explain the working of n channel JFET with a neat diagram along with its V-I characteristics.**CO3, K4**

   (b) Differentiate between FET and BJT.**CO3, K4**

(c) OR

5. (a) Calculate the DC bias voltages and currents for the following circuit.(Neglect V_{BE}) **CO4, K4**
   (b) Derive the condition for thermal stability. **CO4, K4**



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MID EXAM - 1

II B.Tech (I-Sem) BRANCH:ECE DATE : 04/09/2017(FN)

TIME:90MIN SUBJECT: Electronic Devices&Circuits MAX. MARKS :30

****

ANSWER THE FOLLOWING QUESTION

1. (i) Write any two drawbacks of centre tapped full wave rectifier.
   (ii) What is PIV in half wave rectifier; centre tapped full wave rectifier and full wave bridge rectifier.
   (iii) Write the formula for ripple factor in terms of V_{rms} and V_{dc}.
   (iv) Draw the equivalent circuits of a PNdiode.
   (v) Write any two applications of Varactordiode

ANSWER ANY ONE OF THE FOLLOWING QUESTIONS

2. (a) Compute the diode current equation of a PN diode as $I=I_0(e^{V/\eta VT}-1)$ **CO1,K3**
   (b) Write short notes on diode resistance and diode capacitance. **CO1,K3**

OR

3. (a) Estimate the barrier voltage of an open circuited PN junction. **CO1,K3**
   (b) Explain the V-I characteristics of PN diode under forward bias and reverse bias. **CO1,K3**

ANSWER ANY ONE OF THE FOLLOWING QUESTIONS

4. (a) Illustrate various filter circuits in terms of ripple factors. **CO2, K3**
   (b) Solve a full wave rectifier using an LC fi ter L=10H, C=100μF and R_L = 500 Ω. Calculate I_{dc}, V_{dc} and ripple factor for an input of V_i=30 in(100πt) V. **CO2, K3**

OR

5 (a) Explain arectifier. **CO2, K3**
   (b) Sketch the circuit diagram of half wave rectifier and explain its operation with necessary waveforms. Derive its efficiency and ripple factor. **CO2, K3**

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MID EXAM - 2

II B.Tech(I-Sem) BRANCH:ECE DATE : 04/11/2017(FN)

TIME:90MIN SUBJECT: Electronic Devices&Circuits MAX. MARKS :30

****

ANSWER THE FOLLOWING QUESTION

1. (a) Draw the effect of choosing the operating point nearer to saturation with imposing sinusoidal signal in output characteristics of CEconfiguration.
   (b)Write the formula for R_i, Y_o, A_V & A_I in simplified hybrid model of CCconfiguration.
   (c)Draw the circuit diagram of collector to base resistorbias
   (d) Write the formula for thermal resistance and itsunits.
   (e) Draw the diagram for common baseconfiguration.

ANSWER THE FOLLOWING QUESTIONS

2. (a) Explain the working of Enhancement MOSFET along with its V-I characteristics. **CO3,K4**
   (b) Differentiate between FET and BJT. **CO3,K4**

OR

3. (a) Analyse the criteria for fixing the operatingpoint.**CO4,K4**
   (b)Explain the compensation techniques with neatdiagrams.**CO4,K4**

4. (a) Differentiate between transistorconfigurations.**CO3,K4**
   (b)Draw the diagram and explain the operation of NPNtransistor.**CO3,K4**
   (c)Explain how a transistor works as anamplifier?**CO3,K4**

OR

5. Write the analysis of Common sourceamplifier.**CO5,K4**

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MID EXAM - 1

II B.Tech(I-Sem) BRANCH:ECE DATE : 03/09/2019(FN)

TIME:90MIN SUBJECT: Electronic Devices&Circuits MAX. MARKS :30

****

ANSWER THE FOLLOWING QUESTION

1. (i) Define Latching and Holding currents of aSCR.
   (ii) What are the drawbacks in center tapped full waverectifier.
   (iii) Write the formula for ripple factor in CLCfilter.
   (iv) What are the applications of PNdiode.
   (v) Draw the equivalent circuit ofTRAIC.

ANSWER ANY ONE OF THE FOLLOWINGQUESTIONS

2.(a) Explain the operation of SCR and draw its transistor equivalent circuit. **C01,K3**

(b) Explain how Zener diode works a voltage stabilizer.**C01,K3**

OR

3. (a)Estimate the barrier voltage of an open circuited PN junction.**C01,K3**

(b)Explain the V-I characteristics of PN diode under forward bias and reverse bias.**C01,K3**

ANSWER ANY ONE OF THE FOLLOWINGQUESTIONS

4(a)Sketch the circuit diagram of full wave bridge rectifier and derive the values for ripple factor, TUF and PIV.**CO2, K3**

(b) Construct Inductor filter and find ripple factor.**CO2, K3**

OR

5.(a)Illustrate various filter circuits in terms of ripple factors.**CO2, K3**

(b) Solve a full wave rectifier using an LC filter L=10H, C=100μF and R_L = 500 Ω. Calculate I_{dc}, V_{dc} and ripple factor for an input of V_i=30sin(100πt)V.**CO2, K3**

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MID EXAM - 2

II B.Tech(I-Sem) BRANCH:ECE DATE : 11/11/2019(FN)

TIME:90MIN SUBJECT: Electronic Devices&Circuits MAX. MARKS :30

****

ANSWER THE FOLLOWING QUESTION

1. (a) Write the general formula for stability factors S, S' andS".
   (b) Draw the diagram for simplified hybrid model of CCconfiguration
   (c) Draw the Ebers moll model of atransistor
   (d) Draw the circuit diagram of fixedbias
   (e) Write the general expression for collector current in CE interms of I_C, I_B, β andI_{CBO}.

ANSWER THE FOLLOWINGQUESTIONS

2. (a)Explain the working of n channel JFET with a neat diagram along with its V-I characteristics.**CO3, K4**

   (b)Select any four applications ofFET?.**CO3, K4**

   OR

3. (a)Explain FET source self-biasing with a neat circuit diagram **CO4, K4**

   (b)Diagram of collector to base bias and derive the stability factor S. **CO4, K4**

4. (a) Differentiate between transistor configurations. **CO3, K4**
   (b) Diagram and explain the operation of NPN transistor. **CO3, K4**
   (c) Explain how a transistor works as an amplifier?**CO3, K4**

   OR

5. Analysis of h-parameter representation of a transistor by using two-port network and draw the equivalent circuit for transistor. **CO5, K4**

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

SCHEME OF EVALUATION - MID 1 EXAMS

Acdyr : **2019 - 2020** Semester : **I**
Class : **II B.Tech** Subject : **EDC**

Q.No.		CONTENT	MARKS
1	(a)	Latching currents	1M
		Holding currents	1M
	(b)	Disadvantages of FWR	2M
	(c)	Formula for ripple factor in CLCfilter	2M
	(d)	Applications of diode	2M
	(e)	equivalent circuit ofTRAIC	2M
2	(a)	operation of SCR	3M
		transistor equivalent circuit	2M
	(b)	Working of voltage stabilizer	5M
3	(a)	Circuit diagram	2M
		derivation	3M
	(b)	Forward bias	2M
		Reverse bias	2M
		V-I characteristics	1M
4	(a)	Circuit of FWBR	1M
		Ripple factor	2M
		TUF	2M
		PIV	1M
	(b)	Construct Inductor filter	2M
		ripple factor	2M
5	(a)	ripple factors of various filter circuits	4M
	(b)	I_{dc},V_{dc} and ripple factora full wave rectifier	2M/2M/2M

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

SCHEME OF EVALUATION - MID II EXAMS

Acdyr : **2019 - 2020** Semester : **I**
Class : **II B.Tech** Subject : **EDC**

Q.No.		CONTENT	MARKS
1	(a)	stability factors S, S' andS".	2M
	(b)	hybrid model of CCconfiguration	2M
	(c)	Ebers moll model of atransistor	2M
	(d)	diagram of fixedbias	2M
	(e)	collector current in CE interms of I_C, I_B, β andI_{CBO}	2M
2	(a)	Circuit of n channel JFET	2M
		working of n channel JFET	2M
		V-I characteristics	2M
	(b)	applications ofFET	4M
3	(a)	Circuit diagram of FET source self-biasing	2M
		Working of FET source self-biasing	3M
	(b)	Diagram of collector to base bias	1M
		Derivation	4M
4	(a)	Differences	2M
	(b)	Diagram of NPN	1M
		Expiations	2M
	(c)	circuit	2M
		works as an amplifier	3M
5	(a)	Equivalent h-parameter representation of a transistor	4M
	(b)	two-port network	6M

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1. **(a) Define Latching and Holding currents of aSCR.**

Latching current: It is the minimum anode current required to maintain the thyrister in ON-state immediately after a thyrister has been turned ON.

Holding current: is the minimum anode current required to maintain the thyrister in OFF-state.

(b) What are the drawbacks in center tapped full waverectifier.

1. It is very difficult to identify the exact centre of the secondary winding.
2. High PIV.

(c) Write the formula for ripple factor in CLCfilter.

$$Ripple\ factor = \sqrt{2}\frac{X_{C1}}{X_L}\frac{X_{C2}}{R_L}$$

(d)What are the applications of PNdiode.

Diode acts as switch.

Rectifiers in DC power supplies.

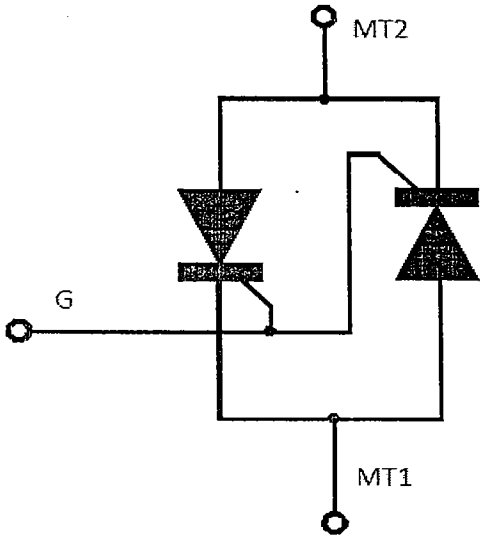
Switch in digital logic circuits used in computers.

Used in clamping circuits which are used in TV receivers.

Used in clipping circuits which are used in Computer, RADARs and TV receivers.

Demodulation of modulated signal.

(e)Draw the equivalent circuit ofTRAIC.



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2. (a) Explain the operation of SCR and draw its transistor equivalent circuit. C01,K3

Silicon Controlled Rectifier (SCR) is a unidirectional semiconductor device made of silicon which can be used to provide a selected power to the load by switching it ON for variable amount of time. These devices are solid-state equivalent of thyratrons and are hence referred to as thyristors or thyrode transistors. Basically SCR is a three terminal, four-layer (hence of three junctions J1, J2 and J3) semiconductor device consisting of alternate layers of p- and n-type material doping.

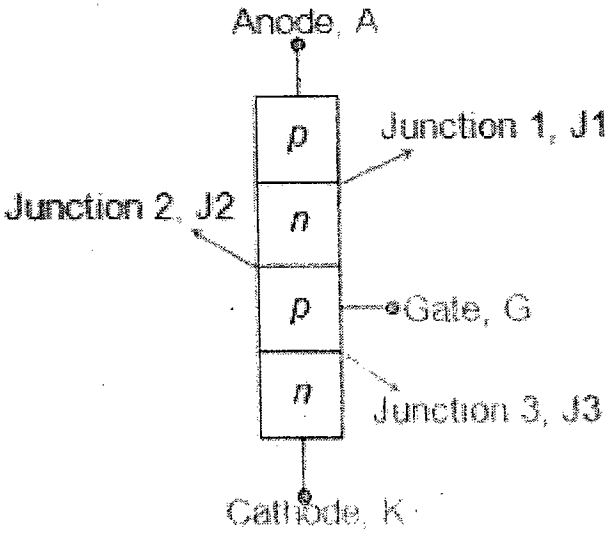

Figure: Basic Structure of SCR

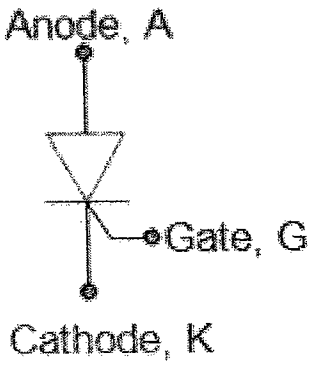

Figure: Symbol for SCR

From the basic diagram for SCR, it consists of layers PNPN which has the terminals Anode (A), Cathode (K) and the Gate (G). Further it is to be noted that the Gate terminal will generally be the p-layer nearer to the Cathode terminal.

The working of SCR can be understood by analyzing its behaviour in the following modes:

1. Forward Blocking Mode: Here a positive bias is applied to the SCR by connecting its Anode to the positive of the battery and by shorting the SCR cathode to the battery's negative terminal, as shown by Figure 3b. Under this condition, the junctions J1 and J3 gets forward biased while J2 will be reverse biased which allows only a minute amount of current flow through the device as shown in the characteristics.

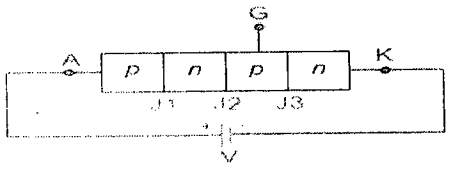

Figure: Forward Blocking Mode

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II B.TECH I SEM INTERNAL MARKS ACD YEAR : 2017-18

S.No.	Roll No.	Name	EDC
			Mid-I
1	16731A0401	RAJA HARSHITHA ALAHARI	29
2	16731A0402	PAVANI ALURU	30
3	16731A0403	AMULYA CHERUKURI	29
4	16731A0404	DEEPTHI VASANTHA LAKSHMI ELINDRA	29
5	16731A0405	PREMIKA GHANTASALA	30
6	16731A0406	KEERTHI JAMMULA	30
7	16731A0407	NAVYA TEJA KARANAM	29
8	16731A0408	BHARGAVI KARNA	30
9	16731A0409	SAI MEGHANA NELLORE	26
10	16731A0410	HAZITHA KOLAPARTHI	30
11	16731A0411	PAVITRA TEJA KOMMANA	30
12	16731A0412	MANJUSHA KUSALA	30
13	16731A0413	LAKSHMI MEGHANA MACHEPALLI	29
14	16731A0414	MANJU BHARGAVI KASAVARAJU	29
15	16731A0415	VENKATA RADHA KUMARI PABBISETTY	30
16	16731A0416	VENKATA DIVYA PADE	30
17	16731A0417	SUHARSHITHA PARITALA	30
18	16731A0418	SHALIN PATTAN	28
19	16731A0419	MOHINI SRI PENTYALA	30
20	16731A0420	YAMINI SAJJA	29
21	16731A0421	FASIYA SULTHANA SHAIK	30
22	16731A0422	MUSHTHAFA SK	30
23	16731A0423	SAI CHAITRIKA SUGGISETTY	29
24	16731A0424	SRAVYA TIRUMALASETTY	27
25	16731A0425	AMULYA VADLAMUDI	30
26	16731A0426	NANDINI VANIPENTA	30
27	16731A0427	VINEETHA YALLA	30
28	16731A0428	LAKSHMI MANASA YARRAMANENI	30
29	16731A0429	MANOJ KUMAR AMRUTHAM	29
30	16731A0430	LOKESH VENKAT CHENNAMRAJA	29
31	16731A0431	NITHEESH KUMAR REDDY KODURU	30
32	16731A0432	RASOOL PARUCHURU	30
33	16731A0433	PRAVEEN KUMAR POTLURU	30
34	16731A0434	BRAHMA TEJA TALLURI	30
35	16731A0435	KEERTHANA ARCOT	30
36	16731A0436	SAI LAKSHMI PRAMEELA CHENNAMSETTY	30
37	16731A0437	HARSHITHA VIRAT CHITTATURU	29
38	16731A0438	HEMALATHA DALUVAI	29
39	16731A0439	SUMANJALI ERLA	30
40	16731A0440	VISHNU PRIYA GOPAVARAPU	30
41	16731A0441	SIREESHA JAMMU	30
42	16731A0442	SREELEKHA KASARU	29
43	16731A0443	MEGHALA KETHIREDDY	28

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45	16731A0445	VENKATA ALEKHYA MODADUGU	30
46	16731A0446	BHAGYALAKSHMI PALAVALLI	30
47	16731A0447	RAGHAVI PALLAPU	30
48	16731A0448	CHANDANA POTHUGUNTA	30
49	16731A0449	KAVYA PUJALA	30
50	16731A0450	DIVYA SREE SINGAVARAPU	30
51	16731A0451	SAFIA SK	20
52	16731A0452	CHANDANA TALLURI	29
53	16731A0453	SAI SOWMYA THOTA	27
54	16731A0454	JYOTHSNA THUMMUKURU	30
55	16731A0455	VALLABHA ALAHARI	29
56	16731A0456	SUBBANAIDU BELLAMKONDA	28
57	16731A0457	MAHENDRA REDDY DEVIREDDY	30
58	16731A0458	THULASIRAM ERLA	27
59	16731A0459	ALLURAIAH GORANTLA	30
60	16731A0460	SAI KUMAR GOWRABATHINI	29
61	16731A0461	PAVAN KUMAR KAPA	30
62	16731A0462	UMESH CHANDRA KOMMI	30
63	16731A0463	MANOJ KUMAR MANDA	30
64	16731A0464	NAVEEN KUMAR PELLURU	29
65	16731A0465	VENKATA VINOD BABU PULUSU	16
66	16731A0466	SETTY DEEPAK RASAM	30
67	16731A0467	SAI KRISHNA TADIKAMALLA	27
68	16731A0468	MAHESH TAMMINENI	30
69	16731A0469	NARASIMHA KISHORE THOTA	30
70	16731A0470	VENKATA NAGA LAKSHMI SUMABALA AVADHANAM	30
71	16731A0471	SUNANDA BIJIVEMULA	30
72	16731A0472	SRUTHI BONTHA	28
73	16731A0473	SUSHMA BOREDDY	27
74	16731A0474	GRISHMA PRIYA BUCHI	27
75	16731A0475	VINEETHA CHEJARLA	30
76	16731A0476	PRIYANKA CHIDUGU	29
77	16731A0477	SRAVANI DUNNUTHALA	29
78	16731A0478	MONIKA EKAMBARAM	30
79	16731A0479	CHIRA DEEPTHI GAJJE	30
80	16731A0480	SUKANYA GUNUPATI	29
81	16731A0481	LAKSHMI KAIPU	29
82	16731A0482	SAMYUKTHA KAKARLA	28
83	16731A0483	DEVIKA KANDULA	25
84	16731A0484	SOWJANYA KONDURU	22
85	16731A0485	TEJASWINI MANEPALLI	24
86	16731A0486	MANI CHANDANA PASUPULETI	29
87	16731A0488	VASUDHA PONKU	28
88	16731A0489	VENKATA SUNAYANA SATUPATTI	29
89	16731A0490	AYESHA PARVEEN SHAIK	27
90	16731A0491	HARSHINI SIRIGIRI	26
91	16731A0492	NIKITHA THALLA	30
92	16731A0493	CHANDU PRIYA TIPPIREDDY	22
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95	16731A0496	HARSHAVARDHAN CHERUKUMALLI	29
96	16731A0497	SAI KIRAN CHIGURUPATI	28
97	16731A0498	SAI CHARAN DARUKUMALLI	28
98	16731A0499	NAVEEN KUMAR RAJU KONDURU	22
99	16731A04A0	AMEER KHAN PATHAN	26
100	16731A04A1	PRANAYAMALA ALLAMPATI	30
101	16731A04A2	ANITHA BIJIVEMULA	28
102	16731A04A3	SRAVANTHI GOPAVARAM	30
103	16731A04A4	ANITHA GOURAVARAPU	30
104	16731A04A5	REDDY KASTHURI KATTAM	30
105	16731A04A6	RAMYA KESINENI	20
106	16731A04A7	HIMA BINDU KODURU	29
107	16731A04A8	LAKSHMI APARNA MADANURU	29
108	16731A04A9	JAYATHI MEDA	27
109	16731A04B0	CHARITHA NAGELLA	27
110	16731A04B1	PRAVEENA NARRAVULA	30
111	16731A04B2	AITHAMBA NASANA	28
112	16731A04B3	ARSHYA BANU SD	21
113	16731A04B4	HARIKA THUMMALA	30
114	16731A04B5	VENKATA SUCHARITHA KUMARI VELLAMPALLI	29
115	16731A04B6	SHARMILA VEMULA	19
116	16731A04B7	SOMANADH BAYYA	22
117	16731A04B8	PRASANNA KUMAR BEZAWADA	29
118	16731A04B9	RANGANATH BOYA	27
119	16731A04C1	UDAY KUMAR DASARI	30
120	16731A04C2	VIKAS KUMAR GORREPATI	29
121	16731A04C3	VINAY KUMAR GUNAPATI	28
122	16731A04C4	P V RAHUL KANDALA	7
123	16731A04C5	NAVEEN MATCHA	28
124	16731A04C6	LOKESH PERAM	24
125	16731A04C7	VENKATA SAI SUMANTH POLISETTY	24
126	16731A04C8	LIKHITH ROSHAN PULIPATI	22
127	16731A04C9	ESWAR SEELAM	25
128	16731A04D0	YASWANTH SURAM	15
129	16731A04D1	ANIRUDH VASIPALLI	25
130	16731A04D2	POOJITHA ADURI	29
131	16731A04D3	DIVYA VANI ALAVALA	29
132	16731A04D4	VYSHNAVI BASAM	28
133	16731A04D5	ANUSHA DAMAMCHARLA	26
134	16731A04D6	PAVITHRA DOMMARAJU	21
135	16731A04D7	VENKATASARANYA GOPISETTY	30
136	16731A04D8	HARIKA GURIJALA	30
137	16731A04D9	SUREKHA KALVAKURI	19
138	16731A04E0	AMRUTHA KOTHAPALLI	29
139	16731A04E1	CHENNA KUMARI MALLIREDDY	29
140	16731A04E2	SRAVANI NAKKALA	30
141	16731A04E3	GOURIPRIYA NUTHETI	21
142	16731A04E4	LAKSHMI NARASAMMA PEESAPATI	25
143	16731A04E5	HARI PRIYA POTHARAJU	27

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145	16731A04E7	HIMACHANDANA REVURU	30
146	16731A04E8	AFRIN SHAIK	30
147	16731A04E9	LAKSHMI SAHITHI VARDHINENI	30
148	16731A04F0	LAKSHMI MANASA VEMULA	AB
149	16731A04F1	SRAVANTHI VINTHA	25
150	16731A04F2	DAMODAR RAJU BALARAJU	29
151	16731A04F3	KRISHNA SAI DASARI	29
152	16731A04F4	HEMANTH DURGAM	22
153	16731A04F5	NAGASAISANKARA ADITHYA KARUSALA	29
154	16731A04F6	NARASIMHA CHAITANYA KOLLI	26
155	16731A04F7	PRASANTH KOPPARTHI	27
156	16731A04F8	VIVEKANANDA REDDY KOTA	AB
157	16731A04F9	VENKATA PRASAD MULI	29
158	16731A04G0	VINAY KUMAR REDDY MURUKUTI	19
159	16731A04G1	VISHNU VARDHAN NIMMALA	17
160	16731A04G2	MANI RAJA PANDI	27
161	16731A04G3	VENUGOPAL PERNAMITTA	29
162	16731A04G4	BALAJI PONGURI	25
163	16731A04G5	NAVEEN SIVALINGAM	25
164	16731A04G6	ABHINAY THANGUTURI	29
165	16731A04G7	VIMAL PRASAD THEEATLA	22
166	16731A04G8	DUGGI REDDY THIMMAREDDY	26
167	16731A04G9	CHANDRASEKHAR VELURI	22
168	16731A04H0	KARTHI ALLADI	21
169	16731A04H1	CHANDINI BATTULA	26
170	16731A04H2	PRABHAVATHI BODDU	29
171	16731A04H3	SUKRUTHA BODDUKURU	18
172	16731A04H4	MOUNIKA BORRA	29
173	16731A04H5	YASASWINI DAGUMATI	28
174	16731A04H6	CHANDANA GANTA	24
175	16731A04H7	AMRUTHA VARSHINI KONDAPALLI	24
176	16731A04H8	SOWMYA KOPPARTHI	9
177	16731A04H9	NAVYA KRISTIPATI	29
178	16731A04I0	MADHURI PALAVALLI	24
179	16731A04I1	HIMA BINDHU POLU	24
180	16731A04I2	JAHNAVI RAVULA	27
181	16731A04I3	SUMA YARATI	22
182	16731A04I4	LAKSHMAN KUMAR YADAV ADONI	27
183	16731A04I5	SANDEEP KUMAR BILLA	17
184	16731A04I6	VENKATASAITEJA CHIRRA	27
185	16731A04I7	BALAKRISHNA DONTHU	11
186	16731A04I8	MURALI GIDDALURU	8
187	16731A04I9	VENKATA KRISHNA JALLA	17
188	16731A04J0	DILEEP KUMAR KRISHNAMSETTY	24
189	16731A04J1	SUDHEER NALLURI	18
190	16731A04J2	VAMSI OODA	26
191	16731A04J3	GIRIDHAR PATHIPATI	14
192	16731A04J4	BHANU PRAKASH PODHULLA	11
193	16731A04J5	PAVAN KUMAR ACHARI SANNAMURI	30

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194	16731A04J6	MAHAMMED SHAIK	30
195	16731A04J7	MEHATAAB ALAM SHAIK	26
196	16731A04J8	RATNAKAR SOMASETTY	17
197	16731A04J9	SUBHASH UTCHURU	11
198	16731A04K0	RAVI TEJA VEDAGIRI	30
199	16731A04K1	CHAITANYA VELPULA	28
200	16731A04K2	HARI RAGHAVA REDDY MOLAKALA	AB
201	16731A04K3	SRILEKHA CHAIKAM	26
202	16731A04K4	PRABHACHANDRIKA EGA	16
203	16731A04K5	DEEPTHI GANDAVARAPU	AB
204	16731A04K6	MADHAVI KOLLURU	25
205	16731A04K7	SRAVANI ODDE	17
206	16731A04K8	VENKATA SANDHYA RANI PONKU	28
207	16731A04K9	DEEPIKA PUSALA	21
208	16731A04L0	LAKSHMI SRADDHA VEMULA	30
209	16731A04L1	NIKITHA BADVELI	24
210	16731A04L2	AJITH KUMAR BOYAPATI	15
211	16731A04L3	VIJAY SAGAR CHEJARLA	18
212	16731A04L4	MAHESH DASARI	16
213	16731A04L5	RAVI TEJA GALI	AB
214	16731A04L6	JAYA SUMAN GORANTLA	25
215	16731A04L7	MADHAN KUMAR GURRALA	26
216	16731A04L8	NAGENDRA PRASAD JAGANNADAM	28
217	16731A04L9	NISCHAL KAKUMANI	9
218	16731A04M0	SAI SUSANTH KONEJETI	9
219	16731A04M1	THAHEER MOHAMMAD	8
220	16731A04M2	REDDY TEJASWINI SIDDAM	18
221	16731A04M3	PRASANNAKUMAR THATHA	23
222	16731A04M4	VENKATESWARLU REDDY VEMIREDDY	20
223	16731A04M5	NARASIMHA TEJA RAVURU	27
224	16731A04M6	VENKATA SAI CHETAN TALLURU	17
225	16731A04M7	SAI SAHITHI KRISHNA NALLURI	30
226	16731A04M8	SAI VINAY TEJA BEZAWADA	20
227	17735A0401	BHUVANESWARI KANIYAMPATI	20
228	17735A0402	MOUNIKA MUPPA	30

Signature of the faculty member	

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

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3	17731A04D7	KANDLAGUNTA MOUNIKA
4	17731A04E4	SYED WAJEED
5	17731A04E7	BORRA ARUN KUMAR
6	17731A04F1	CHERUKURI SAI CHANDU
7	17731A04F2	SOLLETIVELLUGONDA NAGA ROHITH
8	17731A04F9	BOJJA RAVIVARDHAN
9	17731A04G2	KARETI SRAVANI
10	17731A04G4	KOLIKI JAYAKUMAR
11	17731A04G5	KURUKURTHI PRADEEP
12	17731A04I0	PONNAGANTI MAMATHA
13	17731A04I2	POORI SWETHA
14	17731A04I7	DODDAGA BANU PRAKASH
15	17731A04J0	KOMMI MANEESHA
16	17731A04J4	NOTI CHANDRASEKHAR REDDY
17	17731A04J5	NUNNA NAVEEN
18	17731A04K5	SUNKESULA ASHIESH
19	17731A04K6	BATHALA HARITHA
20	17731A04K7	PANDHILLA HEMANTH KUMAR
21	17731A04K9	RAYANI NAVEEN KUMAR
22	17731A04L1	GRANDHI VAMSI KRISHNA
23	17731A04L2	YADALA SIVA KRISHNA
24	17731A04L3	CHIRUMAMILLA NAGESWRA RAO
25	17731A04L5	DURGA MUNIKIRAN
26	17731A04L9	THRIVEEDHI POORNACHANDRA RAO
27	17731A04M2	KUPPALA ARAVIND

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KAVALI - 524 201, S.P.S.R. NELLORE DIST.

Name: B. Venkata Krishna Reddy H.T. No. 187316047 4

Class: II-B.Tech (C) Sem: 2-1 Branch: ECE Date of Exam: 11/11/19

Subject: EDC Mid Exam: 1 2 ✓

Invigilator's Signature

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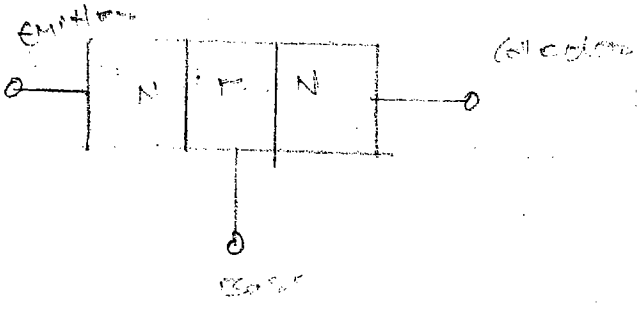
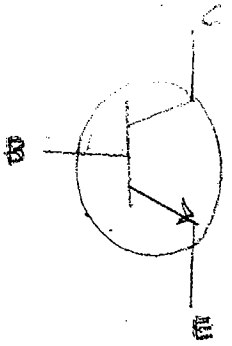
		a	b	c	d	e	a	b	a	b	a	b	a	b	12/20	06/10	18/30
	Marks	2	0	2	1	2		0	0	1½	3	3½					

4) b) Operation of NPN transistor:- 18/30

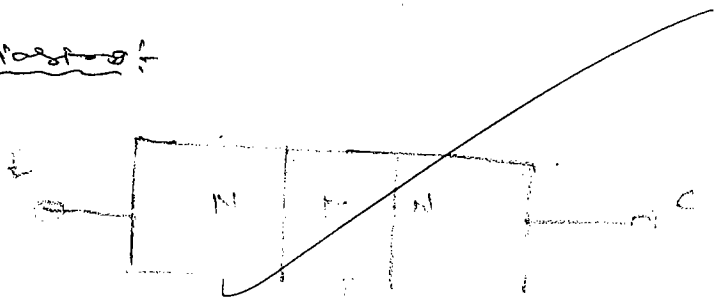
The symbolic representation and symbol for a NPN transistor is:-





The NPN transistor consists of two N-type and one P-type, Emitter is connected by N-type and Base is connected by p-type and Collector is connected by another N-type transistor. The arrow represents the Conventional current.

Biasing:-



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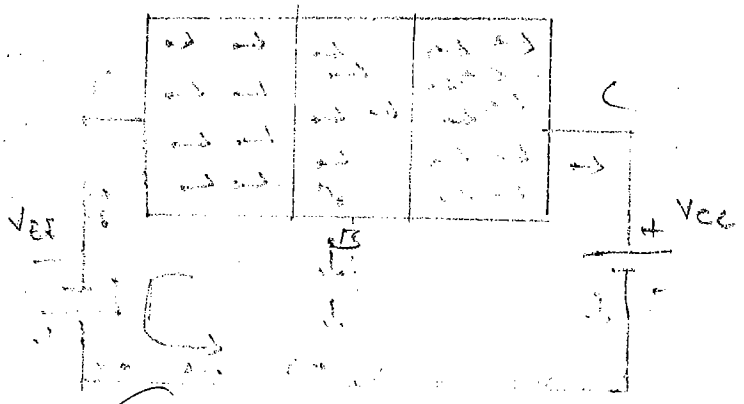
Here, the majority charger carriers are electrons and minority charger carriers are holes but +b

Working :-



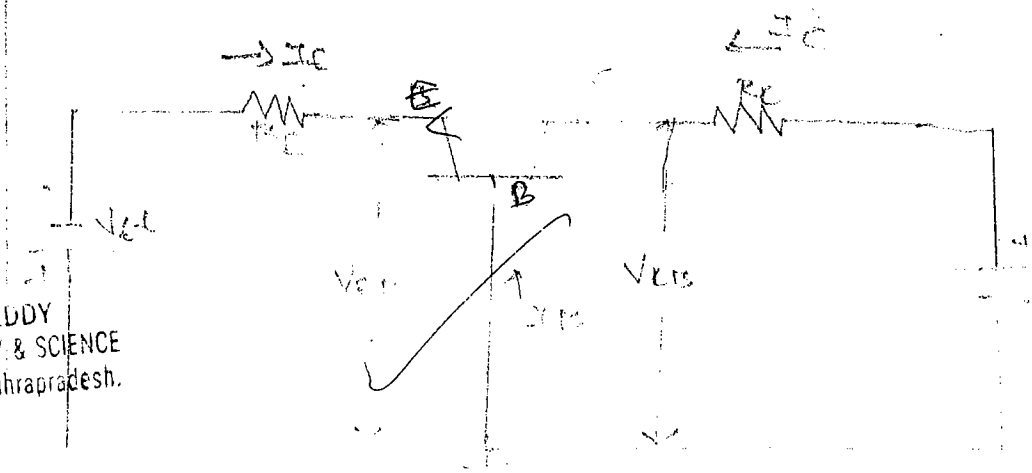
The charge carriers move from emitter to base by biasing. Here, emitter is connected by forward bias and collector is connected reverse bias so it attracts the charge carriers and collector collects the charge carriers.

→ When emitter is connected to the base & collector then emitter current is

$$I_E = I_B + I_C$$

→ When emitter current is 100%. then current flows to the base is 10% and to collector is 90%.

4)c) Transistor works as amplifier only in AC region. Lets see how transistor works as amplifies as shown in the below,



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→ Let the Voltage gain of a transistor is

$$A_V = \frac{V_o}{V_i} \quad -(1)$$

$$V_o = I_c R_C \quad -(2)$$

DKT,

$$\alpha = \frac{\Delta I_C}{\Delta I_B} \Rightarrow \alpha I_B = I_C$$

Sub in eqn (2) we get

$$V_o = \alpha I_B * R_C$$

Now, we have, V_o value then

$$V_i = I_B R_B$$

$$A_V = \frac{V_o}{V_i} = \frac{\alpha I_B R_C}{I_B R_B}$$

Here, $\alpha = 0.98$ and $R_C = 4.6K\Omega$ and $R_B = 40\Omega$

$$A_V = \frac{0.98 \times 4 \times 10^3}{40} = 0.98 * V$$

DKT,

$$A_V = V_o/V_i \Rightarrow A_V V_i = V_o$$

Here, $A_V = 60mV$ + less,

$$V_o = V_i A_V \Rightarrow V_i = A_V V_o = \frac{60 \times 10^{-6}}{0.98} \times \alpha I_B R_C = 0.98V$$

Hence, we called as transistor acts as amplifier.

4)a) Comparison between transistor Configurations:

Transistor	Common Base	Common emitter	CC
1) Input resistance	Low	moderate	High
2) output resistance	High	moderate	Low
3) Current Gain	Less than unity 1	High	

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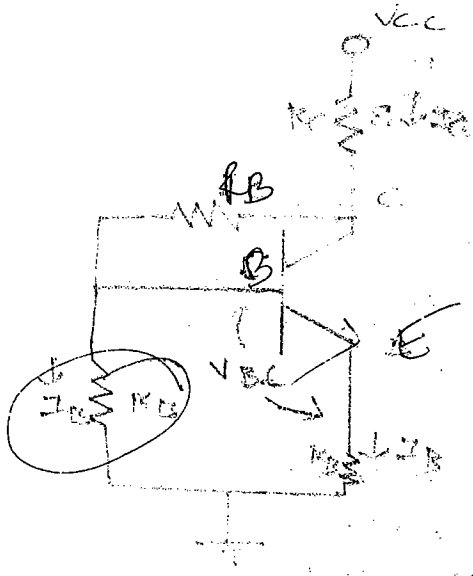
Gain			
5) Attic ratio	frequency Amplifiers	Audio frequency Amplifiers	Impedance matching

3)

b) Circuit diagram for collector to base bias:



from the diagram,

$$V_{CC} = I_C R_C + V_{BE} + I_B R_B$$

$$V_{CC} = I_B R_C + V_{BE} + I_B R_B$$

$$V_{CC} = I_B (R_C + R_B) + V_{BE}$$

$$V_{CC} - V_{BE} = I_B (R_B + R_E)$$

$$I_B = (V_{CC} - V_{BE}) / (R_B + R_E)$$

B.I — Diff w.r.t to dI_C

$$\frac{\partial I_B}{\partial I_C} = \frac{V_{CC} - V_{BE}}{R_B + R_E} = \frac{V_E - R_E}{R_B + R_E}$$

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Stability factors (S):

$$S = \frac{1+\beta}{1-\beta\left(\frac{dI_B}{dI_C}\right)} = \frac{1+\beta}{1+\beta\left(\frac{+R_E}{R_B+R_E}\right)} = \frac{R_B+}{R}$$

H.T. No. 1 8 7 3 1 A 0 4 7 4

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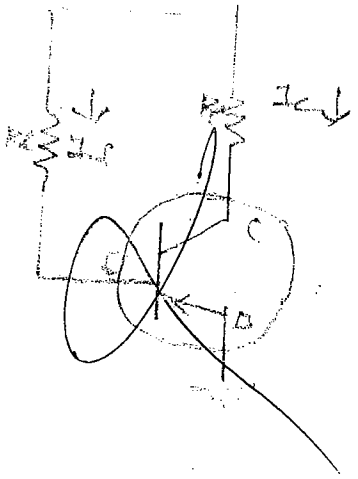
Sheet No. (1) — **ADDITIONAL SHEET** — Invigilator's Signature

3)a) Circuit diagram for fet source self bias:



$V_{CC} = I_C R_C + V_{BE} + I_E R_E$

$= I_C R_C + V_{BE} + (I_C + I_B) R_E$

$= I_C R_C + V_{BE} + I_C R_E + I_B R_E$

$= I_C (R_C + R_E) + V_{BE} + I_B R_E$

$I_C = \frac{V_{CC} - V_{BE}}{(R_C + R_E) + I_B R_E}$ (or) $= \frac{-R_E}{(R_C + R_E) + R_E}$

$S = \frac{1+\beta}{1-\beta\left(\frac{dI_B}{dI_C}\right)}$, $S' = \frac{I_C}{\beta} \frac{S}{1+\beta}$

2)b) Applications of FET:

1) It is used for the voltage stabilizer
2) It is used in the choppers
3) It is used in the multiplexer
4) It is used for the oscillators.

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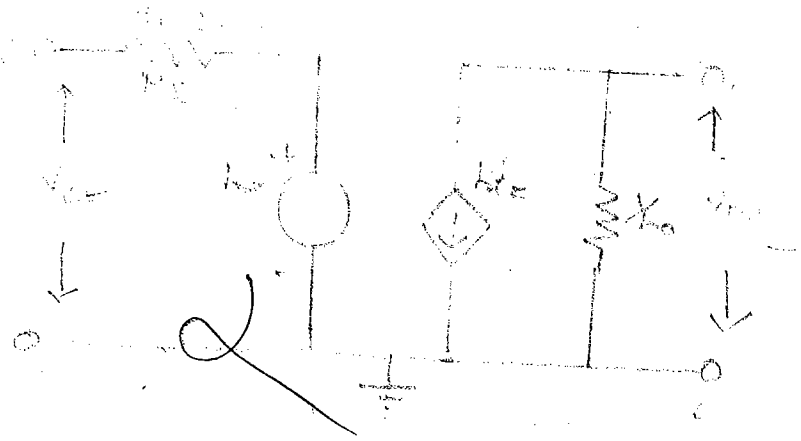
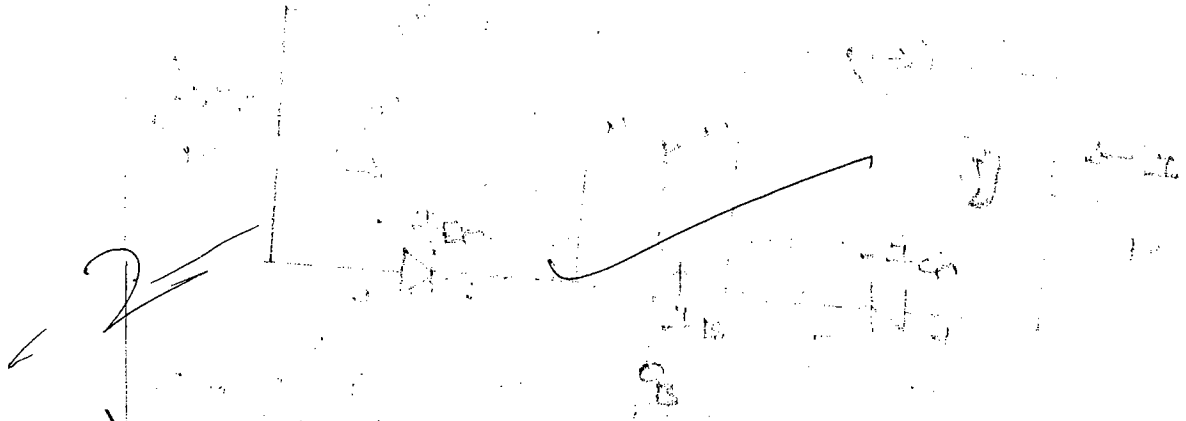
1) a) stability factor $S = \frac{dI_C}{dI_{CO}} = \frac{1+\beta}{1-\beta\left(\frac{dI_B}{dI_C}\right)}$

$S' = \frac{dI_C}{dV_{BE}} = \frac{\Delta I_C}{\Delta V_{BE}} = \frac{\partial I_C}{\partial V_{BE}}$,

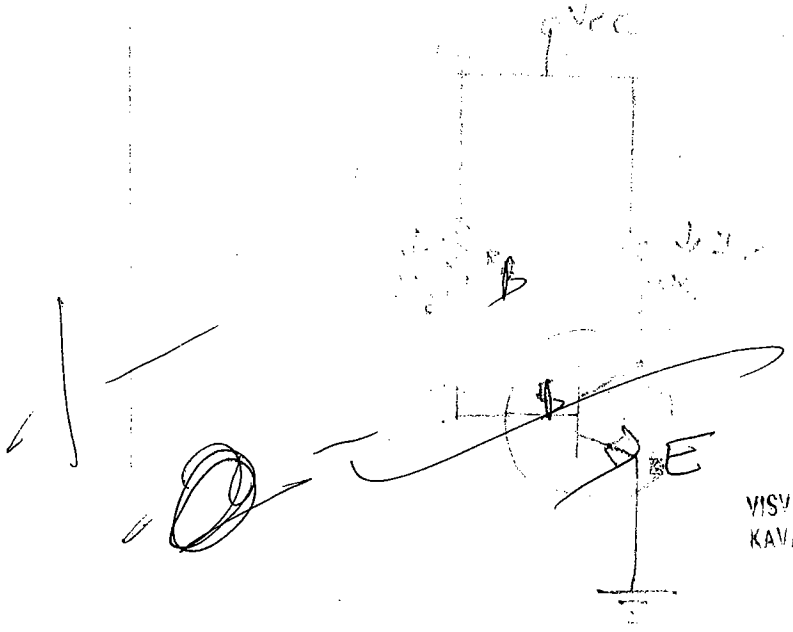
2



1)c) ~~Ebers~~ moll model of a transistor:



1)d) ~~fixed bias~~:



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1)e) The general expression ~~for Collector~~ cur
~~in~~ terms I_C, I_B, β & I_{CBO} is,

$$I_C = I_B(1+\beta) + I_{CBO} \text{ //.}$$

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MID EXAM - 2

II B.Tech (I - Sem) | BRANCH: ECE | DATE : 11/11/2019 (FN)

TIME: 20 MIN | SUBJECT: Electronic Devices & Circuits | MAX. MARKS : 20 x 1/2 = 10

Roll No. | 1 | 8 | 7 | 3 | 1 | A | 0 | 4 | 2 | 9 |

Student Name: B. Venkata Keshava Reddy

Signature of Invigilator: _____

Signature of Evaluator: _____

Marks: 10

****

ANSWER ALL THE QUESTIONS; EACH QUESTION CARRIES HALF MARK

1. What is the input impedance of a common-gate configured JFET? [b]
   (a) Very low (b) Low (c) High (d) Very high
2. In CB configuration, the input resistance is in the order of _____ [d]
   (a) Infinity (b) Mega ohms (c) K ohms (d) Few ohms
3. The gain of a CC configuration is 100, then the gain in CE configuration is____ [a]
   (a) 99 (b) 10 (c) 101 (d) 0.99
4. Transistor was operated as an amplifier in _____ region. [b]
   (a) Cutoff (b) Active (c) Saturation (d) None
5. Number of diodes in a transistor is _____ [b]
   (a) 1 (b) 2 (c) 3 (d) 4
6. Which of the following region of transistor is more wider [a]
   (a) Emitter (b) Base (c) collector (d) None
7. Relation between α & β is _____ [a]
   (a) $\beta = \alpha / (1- \alpha)$ (b) $\beta = \alpha / (1+ \alpha)$ (c) $\alpha = \beta / (1- \beta)$ (d) $\alpha = (\beta-1) / \beta$
8. Condition for thermal stability is _____ [c]
   (a) $V_{CE} < V_{CC}$ (b) $V_{CE} < 2V_{CC}$ (c) $V_{CE} < V_{CC/2}$ (d) $V_{CE} > V_{CC/2}$
9. Thermal stability in fixed bias is _____ [d]
   (a) $\beta/(1+ \beta)$ (b) $1+ \beta$ (c) $1- \beta$ (d) $\beta/(1- \beta)$
10. The formula for stability factor S is _____ [a]
    (a) $(1+\beta) / (1-\beta\ (dI_B/dI_C))$ (b) $(1-\beta) / (1-\beta\ (dI_B/dI_C))$
    (c) $(1+\beta) / (1+\beta\ (dI_B/dI_C))$ (d) $(1-\beta) / (1+\beta\ (dI_B/dI_C))$
11. In DC load line, the maximum value of V_{CE} is _____ [d]
    (a) V_{CE} (b) V_{CC} (c) I_C (d) V_{BE}
12. If temperature is increased, then I_C increases, as a result Power dissipation increases, this phenomenon is known as _____ [d]
    (a) Thermal stability (b) Thermal variability (c) Thermal sensitivity (d)Thermal runaway
13. The operating point is chosen exactly in the _____ of the DC load line. [b]
    (a) Saturation (b) Cutoff (c) Middle (d) All the above
14. The circuit, which provides the biasing, is called_____ [d]
    (a) Cute circuit (b) Base bias circuit (c) Feedback bias circuit (d) Biasing circuit
15. h_{fe} = _____ [b]
    (a) $\Delta I_E / \Delta I_B$ (b) $\Delta I_C / \Delta I_E$ (c) $\Delta I_B / I_E$ (d) $\Delta I_C / \Delta I_B$
16. Formula for h_f is _____ [b]
    (a) V_i / V_o (b) V_i / I_i (c) I_o / I_i (d) I_o / V_o
17. _____ region transistor acts as an amplifier. [a]
    (a) active (b) saturation (c) cutoff (d) inverse active
18. In simplified hybrid model of CB, A_I is given is given by _____ [c]
    (a) $h_{fe} / (1- h_{fe})$ (b) $h_{fe} / (1+ h_{fe})$ (c) h_{fe} (d) $- h_{fe}$
19. Reverse voltage gain in common emitter configuration is_____. [a]
    (a) Low (b) High (c) Moderate (d) none
20. In simplified hybrid model of CE, A_V is given by _____ [a]
    (a) $A_I R_L / hie$ (b) $A_I R_L / hfe$ (c) $A_I R_i / hie$ (d) $A_I R_i / hie$

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