Bharatiya Vidya Bhavan's

Sardar Patel College of Engineering

(A Government Aided Autonomous Institute)

Munshi Nagar, Andheri (West), Mumbai – 400058.

Re Examination

July 2022

S. Y. B. Tech (CBCGS) Sem III 2017/22

Max. Marks: 100 Duration: 03 Hours

Class: SY B.Tech [redacted] Semester: III Program: Mechanical/ Electrical

Name of the Course: OCIS Course Code: HSM 307/ HSM BTE 307

Organizational Communication & Interpersonal Skills.

Instruction: Candidates should read carefully the instructions printed on the question paper and on the cover of the Answer Book, which is for their use.

1) Question No. 1 and 2 is compulsory.

2) Out of remaining questions, attempt any 3

3) In all 5 questions to be attempted.

4) Answer to each new question to be started on a fresh page.

5) Figures in brackets on the right-hand side indicate full marks.

6) Assume suitable data if necessary.

7) Please write answers to the point. Vague answers will not get marks

	Questions Attempt any two questions from question 01	Maximum Marks	Course Outcome Number	Module No.
Q1. a.	Define Reports. Differentiate between informative and interpretive reports	20 10 Marks for each question	1, 2, 5,	1,2,3, 4,5
b.	Define a Resume. What role does it play in getting you an interview for a Job?			
C.	What are the steps you should keep in mind while planning and writing an Email?			
d.	Explain the difference between a boss and a leader.			
Q. 2	Imagine you are the Sales Manager of a medium sized company, which produces electronic toys, and is facing a strike by the sales representatives of the Mumbai region who are demanding a 40 % hike in their sales incentive. The back ground information to the case is as below • Most of the sales representative are very senior • Sales representatives work 40 hours week, with one hour lunch break. • Travelling in Mumbai is difficult due to traffic • The salary structure is linked to their sales performance • There is an increasing competition due to new players in the market • Sales representatives have a strong union	(20)	1, 2,5	4

	• The quality of the product is also deteriorating • There is a lack of incentives to sales representatives. The managing Director at the company headquarters in Delhi has asked you to investigate the causes of poor sales and offer recommendations. Write a **Memo report** taking into consideration the above problems.			
Q.3	Wanted a quality Assurance manager at our manufacturing unit in Mumbai. Applicants should have a degree in Mechanical/ Electrical Engineering, and should have two years working experience in an engineering organization, preferably with exposure to software in six sigma, IOT, Python, Deep analysis. The candidate should possess excellent Communication skills and Interpersonal skills. Candidate should also have a certification course in German I and II. Please send your detailed **resume** with a cover letter to Corporate HRD, JBM group, Neel House, Lado Sarai, New Delhi-110030.	20	3,4,	02
Q.4	Anand, Vice-President, systems, ground his cigarette into the ashtray and thought, 'Here go those save-the Earth people again, ' he had just read the copy of memo that Savitri, Vice- President Finance, had sent to Rajiv, CEO, asking that smoking be prohibited throughout the premises of Salient Technologies- both in their Gurgaon and Pune offices. Savitri cited health dangers, reduced productivity, rights of non-smokers and damage to the company property. Anand knew he could cite some arguments also- the right of smokers, the unfairness of imposing new restrictions that were not in place when the workers were hired, the reduced productivity due to stress from not smoking and the fact that other health-related productivity hazards (such as gross obesity) were not banned. He felt that he could easily get the support of Raghu, the Vice-President, and Marketing. And Vinay, General Manager, Utilities, the other two smokers in the management. Following these developments, the CEO decides to hold a special meeting of the executive committee, made up of himself and the three vice-presidents (which includes Anand and Savitri) the following week to discuss and resolve the issue. Regular parliamentary procedures were then followed at these meetings. Questions: 1. Assume the role of Rajiv, the CEO. Compose a Notice to the executive committee announcing the meeting and outlining the agenda. 2. Assume the roles of other participants in the meeting and write the minutes of the meeting from your own point.	20	01, 04	01,03
Q.5	Here is a first- hand account of a very good public speaker who trains professionals in public speaking. I train business professionals in public speaking and also in preparing their project proposals and presentations. One day, my friend Mohan called and asked if I could help his boss, Mr. Andrew's who had to speak at the convocation ceremony of an engineering institute in Mumbai. I asked if his boss knew what he wanted to say, and Mohan said yes, but the talk was not developed yet and his boss wouldn't have time to devote to it until the weekend. I learnt from Mohan that Mr. Andrews was really smart but not experienced in	(20)	4, 5	5

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We set up two meetings with Mr. Andrews- the first to discuss what the message would be; the second to practice it. I asked for a general summary of what would be said. Mohan replied, 'He is going to say something about today's job market for Engineering graduates due to the impact of pandemic and about its future as well. I was expecting to be briefed by Mohan on the content of his talk.

When I walked for the meeting, the receptionist escorted me into a meeting room off the lobby. Mohan too arrived, handed me his business card, and briefed me on the status of the scripts and slides (a work in progress). Shortly, Mr. Andrews arrived with a handful of wrinkled papers in his hand. They were his notes. He did not know how to connect his computer to the projector, or how to use power point well enough to re-sequencing the slides and add appropriate designs, insert tables and animate the slides where needed. However, his knowledge of contemporary job market was encyclopedic and the rate at which he spoke was supersonic. When I asked questions about his topic so that he could clarify what he wanted to say, and in what order, he was wonderfully patient with my modest understanding of his discipline, and used analogies and metaphors to explain his point-a sign, I think, of a good communicator.

in addition to speaking very fast he did not look me in the eye, and also did not relate what he said to the bar charts on the screen. But he spoke with visceral passion and emphatic verve about the way multinational companies are working these days – and that made up for his other flaws as a speaker. He could lift up his whole body and jump into a keyword with both feet-giving it real meaning and significance.

The challenge, however, was to develop his topic so that the audience would think they were hearing a standard talk about globalization and job markets for fresher's in particular and further developing to talk to strategies to get placed in good companies.

After two meetings, we cut the slides down to 40 and the timing down to One hour. He had no time to rehearse. He promised he would work on it in his hotel room when he arrived in Mumbai. I continued to email him suggestions over the weekend.

I learned from Andrews that he did not rehearse until he was on the plane, and then he stayed up most of the night in a panic working on it. Two days after the event, he called to say it went well, and that me emails helped. I called Mohan to get his assessment, who said it was a little short- much shorter than the presentations made by other speakers. I pointed out that short presentations are not a bad thing-'For a speech to be immortal, it not be interminable'.

The points Andrews needed to remember were as follows:

1. Get attention of his audience
2. Sustain the attention
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His job was to generate trust and curiosity among his audience and sustain their

	interest in his convocation address. **Questions:** 1. 'Mr. Andrews had not adequately planned and prepared his presentation'. Do you agree or disagree with this statement? Explain in detail the steps that Mr. Andrews needs to work on for planning the presentation. 2. What are the factors that Mr. Andrews need to keep in mind regarding the designing of his power point slides his body language, time and word budgeting during presentation. Prepare an Introduction to Mr. Andrews's presentation keeping the Delivering effective presentations syllabus topic in mind.			
Q.6	Case Study: A job seeker's true story. The following is the sad-but-true story of what went wrong in a case interview. The narrator was a liberal arts graduate in political science who worked for a short and unhappy time after graduation as a financial consultant and aspired to a position in management consulting. He was interviewed at McKinsey and Company. The names in the story have been changed. It was the third week in February on a gloomy gray morning, and I sneaked out of the office and away from the phones, to which I was chained, under the guise of a personal business appointment. I raced to my car, trying perhaps to create a physical excuse for my rapid pulse. Carefully maneuvering around the droop in the ceiling, I shut myself in my dingy car and with a tentative glance at my leaking sunroof; I was off to be interviewed at what felt like my only salvation from the life-sucking, money-ruled treadmill that had become my existence. I scrambled in the mist from my parking lot to the third tallest building in Atlanta, and headed for the top floor. As I was greeted by the recruiter, I had condensation or perspiration- I'm not sure which-trickling down my temple. She led me back to an area with two sofas already accommodating three other interviewees. That caught me off guard slightly. For some reason I figured I would be alone since it was end of recruiting season. Seating myself, I realized I had not really had a chance to contemplate what to expect. I waited there in the morgue. All three of my companions looked like the antithesis of at-ease. Had I realized at the time that this was the job? I would have been nervous too, perhaps. I was anxious all right, but it had little to do with the company. If I had been interviewing for a similar paying job at Bob's Wholesome Hardware, I would have felt the same. I considered a few common questions and was mentally preparing for their answers. I had decided that I will simple say what I believed, and probably that was my biggest mistake. I was surprised at how tight-lipped everyone seemed to be during those few anxious minutes on the couches. I casually sparked up a little conversation and learned that each person was there for a final-day-long round of interviews. They kept looking at me with a strange tilt, as if they were sending me telepathic messages saying, 'what are you doing!? Don't you know this is MCKINSEY???!!! They could hold this stuff against us!' One by one, they were led off, leaving me alone on the couch for a few uncertain minutes. Finally, I was greeted by a young woman in her late 20's and pregnant. I will call her Mandy for the sake of this anecdote. She was welcoming, and we chatted as	(20)	1,2	02,01

she led me to a narrow little station where we could talk. I found Mandy to be warm, personable, and helpful. She put me at ease in what I realized was a completely unknown environment. She asked me several 'Interview-type' questions, but her tone was always helpful and inquisitive.

I think I made three mistakes during this interview; a. I felt as though I was always trying to give some nebulous right answer and falling short. I had difficulty being concise because my nerves were so shot, and I think my stammering did not help. B. When she asked a question about where I saw myself in 10 years, I gave a very honest answer about how people create stress for themselves trying to plan and not being able to be flexible. I instead gave goals but probably was not as concrete as I should have been. I wondered if my honesty was appreciated less than a strong goal-oriented statement. C. Although I was vaguely familiar with case questions, I was not well versed or practiced. When she asked me about how to figure out how many quarters were in a mall, I knew she would want to hear how I structured my analysis, but I probably focused too much on that and also got myself caught in my own thoroughness. Had I been more practiced, I could have been more systematic in my approach and then stuck to my answer instead of feeling the need to add something I may have left out.

Walking out of the room back to the sofas, I felt that it had gone fairly well. I had shown some strength, found some connections with her (she was human). I was not sure whether I had done well or poorly on the case question, but could not think of anything I left out. With hindsight, I could have been a little more efficient and structured but I still think I did all right. Back on the couch we waited and one by one, my 'friends' were whisked away. Again, I was the last one on the couch and really beginning to believe that I was an afterthought, at best. Maybe, looking back, I should have been flattered, but at the time and under the circumstances, I tried hard to be amused, primarily to keep at bay the doubt that kept creeping in. When my final inquisitor- I will call him Ken-finally arrived, I heard the hammer hit the nail.

Nothing Ken did or said put me at ease or made me feel like the interview was anything other than adversarial. I also knew that the moment I became confrontational, I would lose. He started out with a series of questions that were harmless enough, but sent me scrounging. ' What was your most rewarding leadership experience?'. I told him about how I started at the age of 15, playing ice-hockey, without knowing which way to hold my stick or how to skate backwards, and the next year I was chosen captain, and the next again when I led our team to the playoffs. Ken's enthusiastic response, 'that's nice, but how about something you did?' Maybe I chose the wrong thing by giving a heartfelt answer as opposed to an ideal answer, or perhaps I just was not clear in my point of leadership by example. Either way, I felt his response to be colder than the February air.

HE then asked me a case question: 'How much does a Boeing 757 weigh?' Again, I knew he was less concerned about the number I came up with as opposed to my process, but he was no help. I asked him all sorts of questions, and he just shrugged his shoulders and sat tight-lipped until after the fifth attempt he finally said, 'To answer your one question, you can assume that the seats are empty and the tank is full. He corrected me a few times too. 'Now I heard recently that the concorde that they mounted atop a building near Times Square weighs 25,000 tons....'

'Tons or Pounds?' asks ken

	'I THOUGHT TONS...RIGHT????' I asked as I felt the last bead of self-esteem trickle down the small of my back. 'Well I figure the Concorde seats about 300 people so the 757 probably somewhere around 350 -375.' 'Actually, it's more like 500,' helped Ken again, 'and you have two more minutes.' I could barely stand up after our time was up; my legs were weak. Ken started down some stairs, and I mentioned, 'I need to pick my umbrella and briefcase from the waiting area,' and he said 'Ok, meet me at the door afterwards.' I did now know what to make of it all, but I was scared. I could hardly keep the tears back as I headed for the job I so desperately wanted out of. I had a bad feeling in my stomach. Two weeks later I received a voice message from Ken, and over the next week and half a phone tag. I could scarcely wonder whether I was nixed, or they wanted to take another look. When we finally connected, he seemed to be friendlier than I remembered. It hurt all the more when he said, I've got some bad news....'. I asked why they felt they were not interested, and he said I took too long to answer some questions and seemed to be unsure with numbers. That hurt. All day long, I rapid-fire numbers and calculations on the spot as a financial consultant, always one of the first with an answer. And I have been told time and time again that my biggest strength is being able to communicate a point quickly. Yes, I stumbled in the interview, but it still seemed ironic. I bombed out in this interview because of a. innocent naiveté' about the big players in consulting and what that really meant; b. unfamiliarity with their process and what it is they look for in a first interview-I just had no clue; c. emotional turmoil; d. lack of confidence and certainty about what I was doing and why; and e. some general bad luck. Questions: 1. What were the biggest mistakes that the author made? Do you really think these are mistakes or do you believe that the author is being too under estimative? Discuss. 05 2. What are some necessary mental preparations that the author missed and for which he paid heavily? 05 3. What are some of the advice and suggestions about interview techniques that you would like to give to the author. 10			
Q.7	**Multiple Choice Questions:** **1. You're attending a conference and you'd like to have the card of a senior executive you meet. How do you get it?** a. You offer them your card and ask them for theirs. b. You tell them you need their card so you can remember their name. c. You create an opportunity and establish rapport with them and develop a specific reason for *them* to ask you for *your* card in hopes they will offer you theirs. **2. When making an entrance into an office with people working at their desks, it's always best to:** a. Do your best to not draw attention to yourself.	20 One marks each		

b. Appear pleasant and greet people by saying hello to those at the desks.
c. Walk in a room and stand there and wait patiently for someone to look up and recognize that you need help.

3. If you want to make a good impression on a senior executive when you meet them for the first time, it's best to:

a. Greet them and tell them about the project you're working on so they'll know what you are doing for the company.
b. Appear genuinely sincere and ask them questions about the company and how they became an executive for the company.
c. Appear pleasant and make brief short sentences that focus on them and wait for them to reply.

4. When making a business introduction between two people, the most important rule to remember is:

a. Say your own name before introducing the two people
b. Use the name of the most important person first in the introduction.
c. Repeat the names of the people involved in the introduction twice so they'll remember each other's names and their proper pronunciation of those names.

5. The main key to manage stress are:

a. Recognizing and understanding the signs of stress
b. Identifying sources of stress
c. Identifying what we can and can't control
d. All of the above

6. Chronic stress is:

a. A stage of stress
b. Pleasant or unpleasant , real or imagined
c. Caused by prolonged physical or emotional stress, more than an individual can cope with or control
d. None of the above.

7. The symptoms of stress can be divided in to the following categories

a. Cognitive
b. Emotional
c. Physical
d. Behavioural
e. All of the above

8. Which of the following are the methods by which employers search for new talent?
a. References from employees
b. online job portals
c. Recruitment agencies
d. Job fairs

i. a, b, and c ii. a, c and d. iii. All of these iv. None of these

9. Which of the following statements is true

a. Moodiness is a cognitive symptom of stress
b. Moodiness is an emotional symptom of stress
c. Poor judgement is an emotional symptom of stress
d. Agitation is cognitive symptom of stress

10. When you are preparing visual you need not

a. Worry about the balance
b. Use multiple colors
c. Use Multiple fonts
d. Put labels or captions.

i. a, b, and d ii. a , c, and d. iii. b, and c. iv. None of these.

11. Using spare time wisely includes limiting the time you spend on the internet using a cell phone etc.

a. True
b. False

12. The 80:20 rule in Time management says:

a. 80% of results are achieved with only 20% the effort
b. Typically 80% of unfocused effort generates 20% of results
c. Both the above are true
d. None of the above

13. Time management is a priority in college because:

a. Since you are in classless time, you have to learn to manage your extra time more efficiently
b. You are responsible for how you spend your time.
c. There is no " A"s for effort".
d. All the above are true.

14. You feel like you rarely get a chance to contribute during team meetings. How do you remedy this?

a. Make more of an effort to interrupt and interject your thoughts.
b. Ask your manager if you can kick off or lead a meeting when you have important points to convey.
c. Call an additional meeting.
d. If you do not get a chance to speak during the meeting, then you can email your teammates afterwards.

15. You and your team leader do not mesh well. While he or she does not act unfairly or unkindly, you do not feel particularly close or friendly with your leader. What do you do?

a. Look for opportunities to learn more about each other, such as casual conversations before or after meetings or team building events.
b. Hunt for your team leader's social profiles, perform a Google search, and fish for personal information from colleagues
c. Report your leader to his or her boss

d. Confront your leader and ask, "why don't you like me"?

16. At the workplace, which of the following would be treated as poor etiquettes?
a. Not following the culture of the company
b. Critically evaluating your companies policies
c. Indulging in gossip during working hours
d. Getting delayed for a meeting
e. All the above.

17. Which of the following is likely to be in the back matter of the report?
a. Transmittal Letter
b. Index
c. Executive summary
d. List of illustrations.

18. Regarding leadership, which statement is false?
a. Leadership does not necessarily take place within a hierarchical structure of an organization.
b. When people operate as leaders their role is always clearly established and defined.
c. Not every leader is a manager
d. All of the above.

19. The basic quality of dominant leadership is
a. aggressive, rigid and skillful
b. easy, sympathetic and popular
c. order and action- oriented
d. adaptability according to conditions

20. Leadership is a socio-psychological assumption which is related with
a. the development of social values
b. the development religious values
c. the preservation of cultural heritage
d. the guidance of the society

8/3/22

S-Y. B.Tech (Elect-) (Mech/Elect)

Sem III

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	Questions	Maximum Marks	Course Outcome Number	Module No.
Q1. a.	What is the difference between business and social etiquette?	20 05 Marks for each question	1, 2, 5,	1,2,3, 4,5
b.	Define a Resume. What role does it play in getting you an interview for a Job?			
C.	What are the steps you should keep in mind while planning and writing an Email?			
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Q.6	Case Study: A job seeker's true story. The following is the sad-but-true story of what went wrong in a case interview. The narrator was a liberal arts graduate in political science who worked for a short and unhappy time after graduation as a financial consultant and aspired to a position in management consulting. He was interviewed at McKinsey and Company. The names in the story have been changed. It was the third week in February on a gloomy gray morning, and I sneaked out of the office and away from the phones, to which I was chained, under the guise of a personal business appointment. I raced to my car, trying perhaps to create a physical excuse for my rapid pulse. Carefully maneuvering around the droop in the ceiling, I shut myself in my dingy car and with a tentative glance at my leaking sunroof; I was off to be interviewed at what felt like my only salvation from the life-sucking, money-ruled treadmill that had become my existence. I scrambled in the mist from my parking lot to the third tallest building in Atlanta, and headed for the top floor. As I was greeted by the recruiter, I had condensation or perspiration- I'm not sure which-trickling down my temple. She led me back to an area with two sofas already accommodating three other interviewees. That caught me off guard slightly. For some reason I figured I would be alone since it was end of recruiting season. Seating myself, I realized I had not really had a chance to contemplate what to expect. I waited there in the morgue. All three of my companions looked like the antithesis of at-ease. Had I realized at the time that this was the job? I would have been nervous too, perhaps. I was anxious all right, but it had little to do with the company. If I had been interviewing for a similar paying job at Bob's Wholesome Hardware, I would have felt the same. I considered a few common questions and was mentally preparing for their answers. I had decided that I will simple say what I believed, and probably that was my biggest mistake. I was surprised at how tight-lipped everyone seemed to be during those few anxious minutes on the couches. I casually sparked up a little conversation and learned that each person was there for a final-day-long round of interviews. They kept looking at me with a strange tilt, as if they were sending me telepathic messages saying, 'what are you doing!? Don't you know this is MCKINSEY???!!! They could hold this stuff against us!' One by one, they were led off, leaving me alone on the couch for a few uncertain minutes. Finally, I was greeted by a young woman in her late 20's and pregnant. I will call her Mandy for the sake of this anecdote. She was welcoming, and we chatted as she led me to a narrow little station where we could talk. I found Mandy to be	(20)	1,2	02,01

warm, personable, and helpful. She put me at ease in what I realized was a completely unknown environment. She asked me several 'Interview-type' questions, but her tone was always helpful and inquisitive.

I think I made three mistakes during this interview; a. I felt as though I was always trying to give some nebulous right answer and falling short. I had difficulty being concise because my nerves were so shot, and I think my stammering did not help. B. When she asked a question about where I saw myself in 10 years, I gave a very honest answer about how people create stress for themselves trying to plan and not being able to be flexible. I instead gave goals but probably was not as concrete as I should have been. I wondered if my honesty was appreciated less than a strong goal-oriented statement. C. Although I was vaguely familiar with case questions, I was not well versed or practiced. When she asked me about how to figure out how many quarters were in a mall, I knew she would want to hear how I structured my analysis, but I probably focused too much on that and also got myself caught in my own thoroughness. Had I been more practiced, I could have been more systematic in my approach and then stuck to my answer instead of feeling the need to add something I may have left out.

Walking out of the room back to the sofas, I felt that it had gone fairly well. I had shown some strength, found some connections with her (she was human). I was not sure whether I had done well or poorly on the case question, but could not think of anything I left out. With hindsight, I could have been a little more efficient and structured but I still think I did all right. Back on the couch we waited and one by one, my 'friends' were whisked away. Again, I was the last one on the couch and really beginning to believe that I was an afterthought, at best. Maybe, looking back, I should have been flattered, but at the time and under the circumstances, I tried hard to be amused, primarily to keep at bay the doubt that kept creeping in. When my final inquisitor- I will call him Ken-finally arrived, I heard the hammer hit the nail.

Nothing Ken did or said put me at ease or made me feel like the interview was anything other than adversarial. I also knew that the moment I became confrontational, I would lose. He started out with a series of questions that were harmless enough, but sent me scrounging. ' What was your most rewarding leadership experience?'. I told him about how I started at the age of 15, playing ice-hockey, without knowing which way to hold my stick or how to skate backwards, and the next year I was chosen captain, and the next again when I led our team to the playoffs. Ken's enthusiastic response, 'that's nice, but how about something you did?' Maybe I chose the wrong thing by giving a heartfelt answer as opposed to an ideal answer, or perhaps I just was not clear in my point of leadership by example. Either way, I felt his response to be colder than the February air.

HE then asked me a case question: 'How much does a Boeing 757 weigh?' Again, I knew he was less concerned about the number I came up with as opposed to my process, but he was no help. I asked him all sorts of questions, and he just shrugged his shoulders and sat tight-lipped until after the fifth attempt he finally said, 'To answer your one question, you can assume that the seats are empty and the tank is full. He corrected me a few times too. 'Now I heard recently that the concorde that they mounted atop a building near Times Square weighs 25,000 tons....'

'Tons or Pounds?' asks ken

'I THOUGHT TONS...RIGHT????' I asked as I felt the last bead of self-esteem

	trickle down the small of my back. 'Well I figure the Concorde seats about 300 people so the 757 probably somewhere around 350 -375.' 'Actually, it's more like 500,' helped Ken again, 'and you have two more minutes.' I could barely stand up after our time was up; my legs were weak. Ken started down some stairs, and I mentioned, 'I need to pick my umbrella and briefcase from the waiting area,' and he said 'Ok, meet me at the door afterwards.' I did now know what to make of it all, but I was scared. I could hardly keep the tears back as I headed for the job I so desperately wanted out of. I had a bad feeling in my stomach. Two weeks later I received a voice message from Ken, and over the next week and half a phone tag. I could scarcely wonder whether I was nixed, or they wanted to take another look. When we finally connected, he seemed to be friendlier than I remembered. It hurt all the more when he said, I've got some bad news....'. I asked why they felt they were not interested, and he said I took too long to answer some questions and seemed to be unsure with numbers. That hurt. All day long, I rapid-fire numbers and calculations on the spot as a financial consultant, always one of the first with an answer. And I have been told time and time again that my biggest strength is being able to communicate a point quickly. Yes, I stumbled in the interview, but it still seemed ironic. I bombed out in this interview because of a. innocent naiveté' about the big players in consulting and what that really meant; b. unfamiliarity with their process and what it is they look for in a first interview-I just had no clue; c. emotional turmoil; d. lack of confidence and certainty about what I was doing and why; and e. some general bad luck. Questions: 1. What were the biggest mistakes that the author made? Do you really think these are mistakes or do you believe that the author is being too under estimative? Discuss. 05 2. What are some necessary mental preparations that the author missed and for which he paid heavily? 05 3. What are some of the advice and suggestions about interview techniques that you would like to give to the author. 10			
Q.7	**Multiple Choice Questions:** **1. You're attending a conference and you'd like to have the card of a senior executive you meet. How do you get it?** a. You offer them your card and ask them for theirs. b. You tell them you need their card so you can remember their name. c. You create an opportunity and establish rapport with them and develop a specific reason for *them* to ask you for *your* card in hopes they will offer you theirs. **2. When making an entrance into an office with people working at their desks, it's always best to:** a. Do your best to not draw attention to yourself. b. Appear pleasant and greet people by saying hello to those at the desks. c. Walk in a room and stand there and wait patiently for someone to look up and	20 One marks each		

recognize that you need help.

3. If you want to make a good impression on a senior executive when you meet them for the first time, it's best to:

a. Greet them and tell them about the project you're working on so they'll know what you are doing for the company.
b. Appear genuinely sincere and ask them questions about the company and how they became an executive for the company.
c. Appear pleasant and make brief short sentences that focus on them and wait for them to reply.

4. When making a business introduction between two people, the most important rule to remember is:

a. Say your own name before introducing the two people
b. Use the name of the most important person first in the introduction.
c. Repeat the names of the people involved in the introduction twice so they'll remember each other's names and their proper pronunciation of those names.

5. The main key to manage stress are:

a. Recognizing and understanding the signs of stress
b. identifying sources of stress
c. Identifying what we can and can't control
d. All of the above

6. Chronic stress is:

a. A stage of stress
b. Pleasant or unpleasant , real or imagined
c. Caused by prolonged physical or emotional stress, more than an individual can cope with or control
d. None of the above.

7. The symptoms of stress can be divided in to the following categories

a. Cognitive
b. Emotional
c. Physical
d. Behavioural
e. All of the above

8. Which of the following are the methods by which employers search for new talent?
a. References from employees
b. online job portals
c. Recruitment agencies
d. Job fairs

i. a, b, and c **ii. a, c and d.** **iii. All of these** **iv. None of these**

9. Which of the following statements is true

a. Moodiness is a cognitive symptom of stress
b. Moodiness is an emotional symptom of stress
c. Poor judgement is an emotional symptom of stress
d. Agitation is cognitive symptom of stress

10. When you are preparing visual you need not

a. Worry about the balance
b. Use multiple colors
c. Use Multiple fonts
d. Put labels or captions.

i. a, b, and d ii. a , c, and d. iii. b, and c. iv. None of these.

11. Using spare time wisely includes limiting the time you spend on the internet using a cell phone etc.

a. True
b. False

12. The 80:20 rule in Time management says:

a. 80% of results are achieved with only 20% the effort
b. Typically 80% of unfocused effort generates 20% of results
c. Both the above are true
d. None of the above

13. Time management is a priority in college because:

a. Since you are in classiess time, you have to learn to manage your extra time more efficiently
b. You are responsible for how you spend your time
c. There is no " A"s for effort".
d. All the above are true.

14. You feel like you rarely get a chance to contribute during team meetings. How do you remedy this?

a. Make more of an effort to interrupt and interject your thoughts.
b. Ask your manager if you can kick off or lead a meeting when you have important points to convey.
c. Call an additional meeting.
d. If you do not get a chance to speak during the meeting, then you can email your teammates afterwards.

15. You and your team leader do not mesh well. While he or she does not act unfairly or unkindly, you do not feel particularly close or friendly with your leader. What do you do?

a. Look for opportunities to learn more about each other, such as casual conversations before or after meetings or team building events.
b. Hunt for your team leader's social profiles, perform a Google search, and fish for personal information from colleagues
c. Report your leader to his or her boss
d. Confront your leader and ask, "why don't you like me"?

16. At the workplace, which of the following would be treated as poor etiquettes?
a. Not following the culture of the company
b. Critically evaluating your companies policies
c. Indulging in gossip during working hours
d. Getting delayed for a meeting
e. All the above.

17. Which of the following is likely to be in the back matter of the report?
a. Transmittal Letter
b. Index
c. Executive summary
d. List of illustrations.

18. Regarding leadership, which statement is false?
a. Leadership does not necessarily take place within a hierarchical structure of an organization.
b. When people operate as leaders their role is always clearly established and defined.
c. Not every leader is a manager
d. All of the above.

19. The basic quality of dominant leadership is
a. aggressive, rigid and skillful
b. easy, sympathetic and popular
c. order and action- oriented
d. adaptability according to conditions

20. Leadership is a socio-psychological assumption which is related with
a. the development of social values
b. the development religious values
c. the preservation of cultural heritage
d. the guidance of the society

Bharatiya Vidya Bhavan's

SARDAR PATEL COLLEGE OF ENGINEERING

(Government Aided Autonomous Institute)
Munshi Nagar, Andheri (W) Mumbai – 400058

Previous Exam – July 2022 Examinations

S. Y. B. Tech (ETRX) Sem III 27/7/22

Program: Electrical

Course Code: PC-BTE303

Course Name: Digital Electronics

Duration: 3 hours

Maximum Points: 100

Semester: III

- Attempt **any 5** out of 7 questions
- Make suitable assumptions wherever necessary

Q.No.	Questions	Points	CO	BL	PI
1a.	Reduce the following using K-maps and implement the circuit F(A,B,C,D,E) = $\sum m(0,1,4,5,6,7,9,15,17,21,22,24,25,29,31)$	10	2	3	2.4.1
1b.	Design Binary to gray code converter.	10	2	6	4.2.1
2a.	Perform the following i. $(111011011)_2 = (?)_{16}$ ii. $(3567)_8 = (?)_{10}$ iii. $(10011)_2 - (10001)_2$ using 2's compliment method iv. $(578)_{10} = (?)_{XS-3}$ v. $(101)_2 * (11)_2$	10	1	2	1.2.1
2b.	Design a 7 bit comparator using IC 7485.	10	2	6	4.2.2
3a.	Explain the following terms related to Logic Families i. Speed of operation ii. Voltage parameters iii. Current sink and current source iv. Noise immunity and noise margin	10	4	3	1.1.1
3b.	Design a ripple mod 8 up counter using T flip flop having –ve edge triggered clock.	10	3	6	4.2.2
4a.	Explain the working of CMOS AND and OR gates.	10	4	2	1.4.1
4b.	Implement full adder using Multiplexers.	10	2	3	2.1.3
5a.	Explain working of master slave JK flip flop.	10	3	2	1.4.1

5b.	Do the following conversion: i. S-R flip flop to JK flip flop ii. D flip flop to T flip flop	10	3	3	2.1.3
6a.	Implement the following $f(A,B,C,D) = \sum m(0,1,3,5,7,8,9,10,12,13,15)$ using single 16:1 Mux	10	2	3	2.1.3
6b.	Suppose the receiver receives hamming code data as 1011011. Find out if there is any error or not and correct it if error is present.	10	1	4	2.4.1
7a.	Explain the right and left shift registers	10	3	2	1.4.1
7b.	Write Short note on Classification of memories	10	4	2	1.4.1

10/3/22

Bharatiya Vidya Bhavan's

SARDAR PATEL COLLEGE OF ENGINEERING

(Government Aided Autonomous Institute)

Munshi Nagar, Andheri (W) Mumbai – 400058

End Sem Exam (DSY) – March 2022 Examinations

S. Y. B. Tech (Electrical) III

Program: Electrical

Course Code: PC-BTE303

Course Name: Digital Electronics

Duration: 3 hours

Maximum Points: 100

Semester: III

- Attempt **any 5** out of 7 questions
- Make suitable assumptions wherever necessary

Q.No.	Questions	Points	CO	BL	PI
1a.	Reduce the following using K-maps and implement the circuit $F(A,B,C,D,E) = \sum m(0,1,4,5,6,7,8,9,15,17,21,22,24,25,29)$	10	2	3	2.4.1
1b.	Design BCD to XS-3 code converter.	10	2	6	4.2.1
2a.	Perform the following i. $(1011011)_2 = (?)_8$ ii. $(FAC4)_{16} = (?)_{10}$ iii. $(10011)_2 - (11001)_2$ using 1's compliment method iv. $(46)_{10} = (?)_{XS-3}$ v. $(101)_2 + (101)_2$	10	1	2	1.2.1
2b.	Design a 5 bit comparator using a single IC 7485.	10	2	6	4.2.2
3a.	Explain the following terms related to Logic Families i. Fan out and Fan in ii. Speed of operation iii. Current sink and current source iv. Noise immunity and noise margin	10	4	3	1.1.1
3b.	Design a ripple mod 6 up counter using T flip flop having –ve edge triggered clock.	10	3	6	4.2.2
4a.	Explain the working of TTL NOR gate.	10	4	2	1.4.1
4b.	Implement 16:1 Mux using 4:1 Mux and additional gates (if required).	10	2	3	2.1.3
5a.	Explain working of SR flip flop with Preset and Clear inputs.	10	3	2	1.4.1

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End Sem Exam (DSY) – March 2022 Examinations

5b.	Do the following conversion: i. S-R flip flop to D flip flop ii. J-K flip flop to T flip flop	10	3	3	2.1.3
6a.	Implement the following $f(A,B,C,D) = \sum m(0,1,3,5,7,8,9,10,12,13,15)$ using single 4:1 Mux	10	2	3	2.1.3
6b.	i. Suppose the receiver receives hamming code data as 1011111. Find out if there is any error or not and correct it if error is present. ii. $(10110001)_{gray} = (?)_{10}$ iii. $(0.2435)_{10} = (?)_2$	04 04 02	1	4	2.4.1
7a.	Explain the right and left shift SISO registers	10	3	2	1.4.1
7b.	Write Short note on Classification of memories	10	4	2	1.4.1

10/3/22

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End Sem Exam (DSY) – March 2022 Examinations

S. Y. B. Tech Electrical Sem III

Program: Electrical

Course Code: PC-BTE303

Course Name: Digital Electronics

Duration: 3 hours

Maximum Points: 100

Semester: III

- Attempt **any 5** out of 7 questions
- Make suitable assumptions wherever necessary

Q.No.	Questions	Points	CO	BL	PI
1a.	Reduce the following using K-maps and implement the circuit $F(A,B,C,D,E) = \sum m(0,1,4,5,6,7,8,9,15,17,21,22,24,25,29)$	10	2	3	2.4.1
1b.	Design BCD to XS-3 code converter.	10	2	6	4.2.1
2a.	Perform the following i. $(1011011)_2 = (?)_8$ ii. $(FAC4)_{16} = (?)_{10}$ iii. $(10011)_2 - (11001)_2$ using 1's compliment method iv. $(46)_{10} = (?)_{XS-3}$ v. $(101)_2 + (101)_2$	10	1	2	1.2.1
2b.	Design a 5 bit comparator using a single IC 7485.	10	2	6	4.2.2
3a.	Explain the following terms related to Logic Families i. Fan out and Fan in ii. Speed of operation iii. Current sink and current source iv. Noise immunity and noise margin	10	4	3	1.1.1
3b.	Design a ripple mod 6 up counter using T flip flop having –ve edge triggered clock.	10	3	6	4.2.2
4a.	Explain the working of TTL NOR gate.	10	4	2	1.4.1
4b.	Implement 16:1 Mux using 4:1 Mux and additional gates (if required).	10	2	3	2.1.3
5a.	Explain working of SR flip flop with Preset and Clear inputs.	10	3	2	1.4.1

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5b.	Do the following conversion: i. S-R flip flop to D flip flop ii. J-K flip flop to T flip flop	10	3	3	2.1.3
6a.	Implement the following $f(A,B,C,D) = \sum m(0,1,3,5,7,8,9,10,12,13,15)$ using single 4:1 Mux	10	2	3	2.1.3
6b.	i. Suppose the receiver receives hamming code data as 1011111. Find out if there is any error or not and correct it if error is present. ii. $(10110001)_{gray} = (?)_{10}$ iii. $(0.2435)_{10} = (?)_2$	04 04 02	1	4	2.4.1
7a.	Explain the right and left shift SISO registers	10	3	2	1.4.1
7b.	Write Short note on Classification of memories	10	4	2	1.4.1

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S.Y. B.Tech (Electrical) Sem III

21/7/22

RE- EXAMINATION JULY 2022

Program:ELECTRICAL **Duration: 03 Hours**

Course Code: BS-BTE301 **Maximum Points:100**

Course Name: ~~ENGINEERING~~ APPLIED MATHEMATICS-III **Semester: III**

- **Attempt any five out of seven questions**
- **Use of scientific calculator is allowed.**

QNO.	QUESTION	POINTS	CO	BL	PI
QI a)	Test the analyticity of the function $w = e^z$ and hence derive that: $\frac{d}{dz}(e^z) = e^z$	06	3	2	1.1.1
QI b)	Express the matrix $A = \begin{bmatrix} 1+i & 2 & 5-5i \\ 2i & 2+i & 4+2i \\ -1+i & -4 & 7 \end{bmatrix}$ as the sum of Hermitian matrix and skew – Hermitian matrix.	06	4	3	2.1.3
QI c)	Using convolution theorem evaluate $\mathcal{L}^{-1}\left\{\frac{1}{s^2(s+1)^2}\right\}$	08	1	1	2.1.4
QII a)	Using Laplace Transform Evaluate $\int_0^\infty \frac{\cos 6t - \cos 4t}{t} dt$	06	1	2	1.1.2
QII b)	If $A = \frac{1}{3}\begin{pmatrix} 1 & 2 & a \\ 2 & 1 & b \\ 2 & -2 & c \end{pmatrix}$ is orthogonal find a, b and c.	06	4	2	2.1.3
QII c)	Find the eigen values and eigenvectors of the matrix $\begin{bmatrix} 6 & -2 & 2 \\ -2 & 3 & -1 \\ 2 & -1 & 3 \end{bmatrix}$	08	4	3	2.1.4

RE- EXAMINATION JULY 2022

QIII a)	Evaluate: $\mathcal{L}\{t\cos^2 t\}$	06	1	2	1.1.2
QIII b)	If $f(x)=\sin x \quad 0\le x\le\pi$ Find half range cosine series Hence deduce that $\frac{1}{1.3}+\frac{1}{3.5}+\frac{1}{5.7}+\text{----------}=\frac{1}{2}$	06	2	2	1.1.2
QIII c)	Find the characteristic equation of the matrix $A=\begin{bmatrix}2&1&1\\0&1&0\\1&1&2\end{bmatrix}$. Verify Cayley – Hamilton theorem and hence evaluate the matrix equation. $A^8-5A^7+7A^6-3A^5+A^4-5A^3-8A^2+2A-I$	08	4	1	2.1.4
QIV a)	Find the bilinear transformation which maps z = 2, 1, 0 onto w = 1, 0, i	06	3	3	2.3.1
QIV b)	Find the rank of $F=\begin{bmatrix}6&1&3&8\\4&2&6&-1\\10&3&9&7\\16&4&12&15\end{bmatrix}$	06	4	2	1.1.3
QIV c)	Find the Fourier Series for function $f(x)$ defined by $f(x)=\begin{cases}0 & -5<x<0\\3 & 0<x<5\end{cases}$	08	2	1	2.3.4
QV a)	Given $f(t)=\begin{cases}t+1, & 0\le t\le 2\\3, & t>2\end{cases}$ find L[$f(t)$], L[$f'(t)$]	06	1	1	2.3.1
QV b)	Find Laplace transforms of $f(t)=\begin{cases}1, & 0\le t<a\\-1, & a<t<2a\end{cases}$ where f(t) is a periodic function with period 2a	06	1	2	1.1.2
QV c)	Find the analytic function whose real part is $u=x^3-3xy^2+3x^2-3y^2+1$	08	3	2	2.3.4

RE- EXAMINATION JULY 2022

QVI a)	Find the map of the straight line x + y = 1 under the transformation $\omega = \frac{1}{z}$	06	3	1	1.1.3
QVI b)	Find P and Q such that P E Q is in normal form hence find rank of F $E = \begin{bmatrix} 2 & 1 & 1 & 3 \\ 1 & 0 & 1 & 2 \\ 3 & 1 & 2 & 5 \end{bmatrix}$	06	4	3	2.1.4
QVI c)	Solve using Laplace $\frac{dy}{dt} + 2y + \int_0^t y\, dt = \sin t$ Given $y(0) = 1$	08	1	1	1.1.1
QVIIa)	Obtain the Fourier Series for $f(x) = \sqrt{1-\cos x}$ $0 \le x \le 2\pi$ & hence show that $\sum_{n=1}^{\infty} \frac{1}{n^2 - 1} = \frac{1}{2}$	06	2	3	2.1.3
QVIIb)	Evaluate: $\mathcal{L}^{-1}\left\{\log\left(1 + \frac{1}{s^2}\right)\right\}$	06	1	2	1.1.2
QVIIc)	Test for consistency and solve: $5x + 3y + 7z = 4, 3x + 26y + 2z = 9, 7x + 2y + 10z = 5$	08	4	2	2.3.4

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RE-EXAMINATION MAY 2022

S.Y. B.Tech (Elec) Sem III 4/5/22

Program: Electrical Engineering | **Duration: 3 Hours**

Course Code: BS-BTE301 | **Maximum Points: 100**

Course Name: Applied Mathematics III | **Semester: III**

Note:

1. **Attempt Any Five Questions**
2. **Answers to the sub questions should be grouped together**

		Questions	Marks	CO	BL	PI
1	a	Find the analytic function $f(z)=u+iv$, whose real part is $u=x^2-y^2-2xy-2x+3y$	6	CO3	BL3	1.1.2
	b	Evaluate $\int_0^\infty e^{-2t}t^5\cosh t\,dt$	6	CO1	BL5	1.1.1
	c	Find the Eigen Values and Eigen Vectors of $A=\begin{bmatrix}4 & 6 & 6\\ 1 & 3 & 2\\ -1 & -5 & -2\end{bmatrix}$	8	CO4	BL4	1.2.1
2	a	Evaluate $L\{t\cos(\omega t-\alpha)\}$, where ω and α are constants.	6	CO1	BL3	1.1.1
	b	If complex functions $f(z)$ and $\overline{f(z)}$ are analytic, then prove that $f(z)$ is constant.	6	CO3	BL1	1.1.1
	c	Find Fourier series of $f(x)=x^3,\ 0\le x\le 2\pi$	8	CO2	BL2	1.1.2

RE-EXAMINATION MAY 2022

3	a	Show that the transformation $w=\frac{1}{z}$ maps the circle $\lvert z-3\rvert=5$ into the circle $\left\lvert w+\frac{3}{16}\right\rvert=\frac{5}{16}$	6	CO3	BL5	1.1.1
	b	Using Convolution Theorem, Evaluate $L^{-1}\left\{\frac{1}{(s+1)(s^2+4)}\right\}$	6	CO1	BL5	1.1.1
	c	For the following matrix A, find two non-singular matrices P and Q such that PAQ is in the normal form, where $A=\begin{bmatrix}1&2&3&4\\2&1&4&3\\3&0&5&-10\end{bmatrix}$	8	CO4	BL2	1.1.3
4	a	Test the consistency of the following system of equations and solve them if they are consistent $4x-2y+6z=8$ $x+y-3z=-1$ $15x-3y+9z=21$	6	CO4	BL4	1.1.1
	b	If function $f(z)=\left(x^2+axy+by^2\right)+i\left(cx^2+dxy+y^2\right)$ is analytic, find real constants a,b,c,d	6	CO3	BL4	1.1.1
	c	Find Fourier series of $f(x)=2x-x^2,\ 0\le x\le 3$	8	CO2	BL3	1.1.2
5	a	Find fixed points of the bilinear transformation $w=\frac{3z-5}{z+1}$	6	CO3	BL5	1.1.3
	b	Evaluate $L\left\{\frac{\cos at-\cos bt}{t}\right\}$	6	CO1	BL3	1.1.1
	c	Verify Cayley Hamilton Theorem for the matrix $A=\begin{bmatrix}0&c&-b\\-c&0&a\\b&-a&0\end{bmatrix}$ and hence find A^{-1}	8	CO4	BL4	1.1.1

RE-EXAMINATION MAY 2022

6	a	Find the Eigen Values and Eigen Vectors of the matrix A^3, where $\begin{bmatrix} 1 & 2 \\ 4 & 3 \end{bmatrix}$	6	CO4	BL5	1.1.1
	b	Evaluate $L^{-1}\left\{\frac{s}{(s^2+a^2)(s^2+b^2)}\right\}$	6	CO1	BL3	1.1.2
	c	Reduce the following matrix to normal form and hence find its rank $A=\begin{bmatrix} 2 & 3 & 4 & 5 \\ 3 & 4 & 5 & 6 \\ 4 & 5 & 6 & 7 \\ 9 & 10 & 11 & 12 \end{bmatrix}$	8	CO4	BL4	1.1.3
7	a	Obtain Half Range Fourier sine Series of $f(x)=x(\pi-x), \quad 0<x<\pi$	6	CO2	BL4	1.2.1
	b	If $f(z)=u(x,y)+v(x,y)$ is analytic, then prove that $\left[\frac{\partial}{\partial x}\lvert f(z)\rvert\right]^2+\left[\frac{\partial}{\partial y}\lvert f(z)\rvert\right]^2=\lvert f'(z)\rvert^2$	6	CO3	BL1	1.3.2
	c	Using Laplace Transform, Solve the following Ordinary Differential Equation $\frac{d^2y}{dt^2}+2\frac{dy}{dt}+5y=e^{-t}\sin t$, where $y(0)=0,\ y'(0)=1$	8	CO1	BL2	1.1.3

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7/3/2022

S. Y. B. Tech **RE- EXAMINATION MARCH 2022**

Program:ELECTRICAL **Duration: 03 Hours**

Course Code: BS-BTE301 **Maximum Points:100**

Course Name: APPLIED MATHEMATICS-III **Semester: III**

- **Attempt any five out of seven questions**
- **Use of scientific calculator is allowed.**

QNO.	QUESTION	POINTS	CO	BL	PI
QI a)	Test the analyticity of the function $w = \sin z$ and hence derive that: $\frac{d}{dz}(\sin z) = \cos z$	06	3	2	1.1.1
QI b)	Express the matrix $A = \begin{bmatrix} 1+i & 2 & 5-5i \\ 2i & 2+i & 4+2i \\ -1+i & -4 & 7 \end{bmatrix}$ as the sum of Hermitian matrix and skew – Hermitian matrix.	06	4	3	2.1.3
QI c)	Using convolution theorem evaluate $L^{-1}\left\{\frac{s}{(s^2+4)(s^2+1)}\right\}$	08	1	1	2.1.4
QII a)	Using Laplace Transform Evaluate $\int_0^\infty \frac{\cos 6t - \cos 4t}{t} dt$	06	1	2	1.1.2
QII b)	Determine values of P, Q, R when $\begin{bmatrix} 0 & 2Q & R \\ P & Q & -R \\ P & -Q & R \end{bmatrix}$ is orthogonal	06	4	2	2.1.3
QII c)	Find the eigen values and eigenvectors of the matrix $A = \begin{bmatrix} 1 & 0 & -1 \\ 1 & 2 & 1 \\ 2 & 2 & 3 \end{bmatrix}$	08	4	3	2.1.4

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RE- EXAMINATION MARCH 2022

QIII a)	Evaluate : L $\{t\sin 2t\cosh t\}$	06	1	2	1.1.2
QIII b)	If $f(x)=\sin x \qquad 0\le x\le\pi$ Find half range cosine series Hence deduce that $\frac{1}{1.3}+\frac{1}{3.5}+\frac{1}{5.7}+\text{----------}=\frac{1}{2}$	06	2	2	1.1.2
QIII c)	Find the characteristic equation of the matrix $A=\begin{bmatrix}2&1&1\\0&1&0\\1&1&2\end{bmatrix}$. Verify Cayley – Hamilton theorem and hence evaluate the matrix equation. $A^8-5A^7+7A^6-3A^5+A^4-5A^3-8A^2+2A-I$	08	4	1	2.1.4
QIV a)	Find the bilinear transformation which maps z = 2, 1, 0 onto w = 1, 0, i	06	3	3	2.3.1
QIV b)	Find the rank of $\begin{bmatrix}2&3&-1&-1\\1&-1&-2&-4\\3&1&3&-2\\6&3&0&-7\end{bmatrix}$	06	4	2	1.1.3
QIV c)	Find the Fourier Series for function $f(x)$ defined by $f(x)=\begin{cases}0 & -5<x<0\\3 & 0<x<5\end{cases}$	08	2	1	2.3.4
QV a)	Given $f(t)=\begin{cases}t+1, & 0\le t\le 2\\3, & t>2\end{cases}$ find L$[f(t)]$, L $[f'(t)]$	06	1	1	2.3.1
QV b)	Find Laplace transforms of $f(t)=\begin{cases}1, 0\le t<a\\-1, a<t<2a\end{cases}$ where f(t) is a periodic function with period 2a	06	1	2	1.1.2

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RE- EXAMINATION MARCH 2022

QV c)	Find the analytic function whose real part is $u = e^x(x\cos y - y\sin y)$	08	3	2	2.3.4
QVI a)	Find the image of $\lvert z-3i\rvert = 3$ under the mapping $w = \frac{1}{z}$.	06	3	1	1.1.3
QVI b)	Find P and Q such that P F Q is in normal form hence find rank of F $F = \begin{bmatrix} 2 & 1 & 4 \\ 3 & 2 & 2 \\ 7 & 4 & 10 \\ 1 & 0 & 6 \end{bmatrix}$	06	4	3	2.1.4
QVI c)	Solve $y''+y=t$ Given $y(0)=1$ $y'(0)=-2$	08	1	1	1.1.1
QVIIa)	Obtain the Fourier Series for $f(x)=\sqrt{1-\cos x}$ $0 \le x \le 2\pi$ & hence show that $\sum_{n=1}^{\infty}\frac{1}{n^2-1}=\frac{1}{2}$	06	2	3	2.1.3
QVIIb)	**Evaluate:** $L^{-1}\left\{\tan^{-1}\left(\frac{2}{s^2}\right)\right\}$	06	1	2	1.1.2
QVIIc)	Test for consistency and solve: $5x+3y+7z=4, 3x+26y+2z=9, 7x+2y+10z=5$	08	4	2	2.3.4

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7/3/22

END SEMESTER EXAMINATION MARCH 2022

S. Y. B. Tech (ETRX) Sem III

Program: Electrical Engineering | **Duration: 3 Hours**

Course Code: BS-BTE301 | **Maximum Points: 100**

Course Name: Applied Mathematics III | **Semester: III**

Note:

1. **Attempt Any Five Questions**
2. **Answers to the sub questions should be grouped together**

		Questions	Marks	CO	BL	PI
1	a	Find the analytic function $f(z)=u+iv$, whose real part is $u=e^{-x}(x\sin y-y\cos y)$	6	CO3	BL3	1.1.2
	b	Evaluate $\int_0^\infty e^{-4t}t\sin t\,dt$	6	CO1	BL5	1.1.1
	c	Find the Eigen Values and Eigen Vectors of $A=\begin{bmatrix}2&2&1\\1&3&1\\1&2&2\end{bmatrix}$	8	CO4	BL4	1.2.1
2	a	If $L\{f(t)\}=\frac{2s+3}{s^2+3s+4}$, find $L\{e^{-3t}f(2t)\}$	6	CO1	BL3	1.1.1
	b	If complex functions $f(z)$ and $f(z)$ are analytic, then prove that $f(z)$ is constant.	6	CO3	BL1	1.1.1
	c	Find Fourier series of $f(x)=x^2,\ 0\le x\le 2\pi$	8	CO2	BL2	1.1.2

END SEMESTER EXAMINATION MARCH 2022

3	a	If $f(z)=u(x,y)+iv(x,y)$ is analytic function, then prove that $u(x,y)$ and $v(x,y)$ are harmonic.	6	CO3	BL5	1.1.1
	b	Using Convolution Theorem, Evaluate $L^{-1}\left\{\frac{1}{s^2(s^2+4)}\right\}$	6	CO1	BL5	1.1.1
	c	For the following matrix find two non-singular matrices P and Q such that PAQ is in the normal form, where $A=\begin{bmatrix}3 & -3 & 4\\ 2 & -3 & 4\\ 0 & -1 & 1\end{bmatrix}$. Hence find A^{-1}	8	CO4	BL2	1.1.3
4	a	Test the consistency of the following system of equations and solve them if they are consistent $x+y+z=-3$ $3x+y-2z=-2$ $2x+4y+7z=7$	6	CO4	BL4	1.1.1
	b	If $f(z)=u(x,y)+iv(x,y)$ $\left[\frac{\partial^2}{\partial x^2}+\frac{\partial^2}{\partial y^2}\right]\lvert f(z)\rvert^2=4\lvert f'(z)\rvert^2$	6	CO3	BL4	1.1.1
	c	Find Fourier series of $f(x)=x-x^2,\quad -1<x<1$	8	CO2	BL3	1.1.2
5	a	Prove that there doesn't exist an analytic function whose real part is $u(x,y)=e^x\sin y+x^2+3xy$	6	CO3	BL5	1.1.3
	b	Evaluate $L\left\{\frac{e^{-at}-e^{-bt}}{t}\right\}$	6	CO1	BL3	1.1.1
	c	Verify Cayley Hamilton Theorem for the matrix $A=\begin{bmatrix}2 & -1 & 1\\ 1 & 2 & -1\\ 1 & -1 & 2\end{bmatrix}$	8	CO4	BL4	1.1.1

END SEMESTER EXAMINATION MARCH 2022

		and hence find A^{-1}				
6	a	Find the sum and product of the Eigen Values of the matrix A, where $A=\begin{bmatrix} 6 & 1 & 2 \\ 1 & -1 & -3 \\ -2 & 0 & 4 \end{bmatrix}$	6	CO4	BL5	1.1.1
	b	Evaluate $L^{-1}\left\{\frac{5s+3}{(s-1)(s^2+2s+5)}\right\}$	6	CO1	BL3	1.1.2
	c	Reduce the following matrix to normal form and hence find its rank $A=\begin{bmatrix} 2 & 1 & 4 & -1 \\ 1 & 2 & 1 & 3 \\ 4 & 5 & -1 & 2 \\ 8 & 7 & 7 & 3 \end{bmatrix}$	8	CO4	BL4	1.1.3
7	a	Obtain Half Range Fourier Cosine Series of $f(x)=x(\pi-x), \quad 0<x<\pi$	6	CO2	BL4	1.2.1
	b	If the complex function $f(z)=(ax^4+bx^2y^2+cy^4+dx^2-2y^2)+i(4x^3y-exy^3+4xy)$ is analytic, find the constants a,b,c,d,e.	6	CO3	BL1	1.3.2
	c	Using Laplace Transform, Solve the following Ordinary Differential Equation $\frac{d^2y}{dt^2}-3\frac{dy}{dt}+2y=4e^{2t}$ where $y(0)=-3,\ y'(0)=5$	8	CO1	BL2	1.1.3

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Previous Semester Examination

July 2022

S.Y. B.Tech (Comp) Sem III 26/7/22

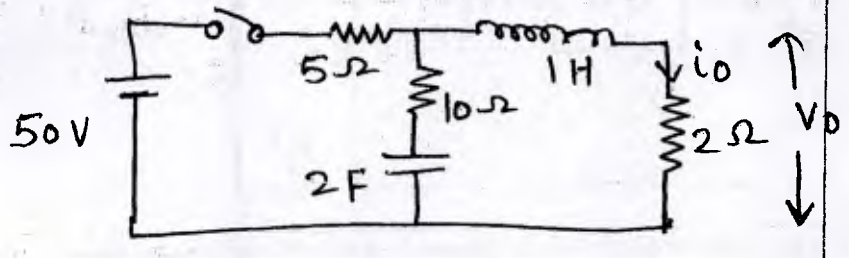
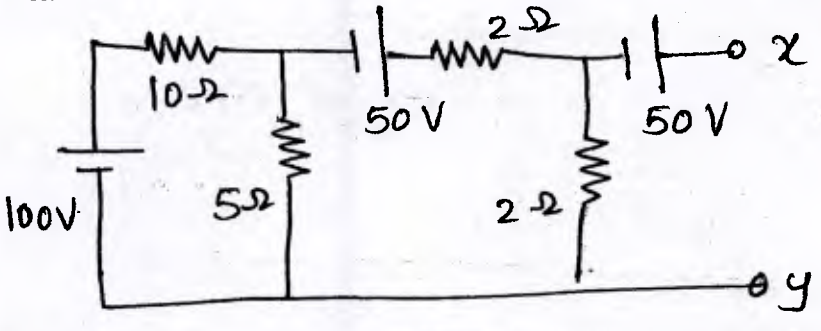
Max. Marks: 100 Duration: 3 hours

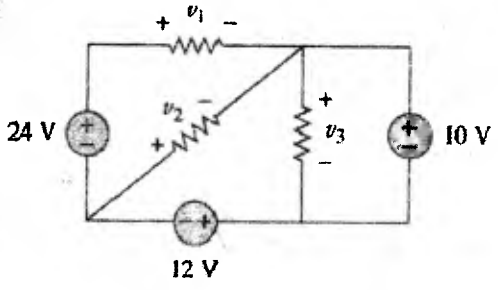
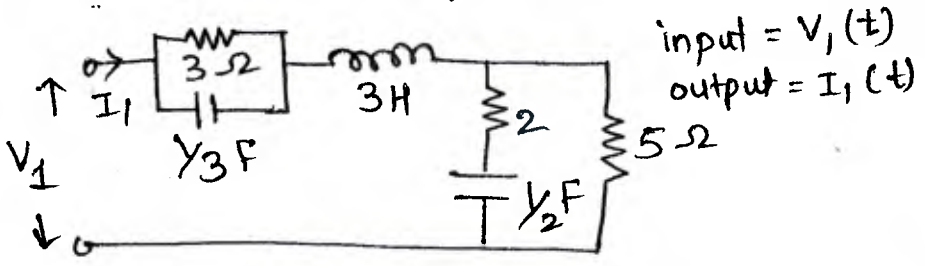
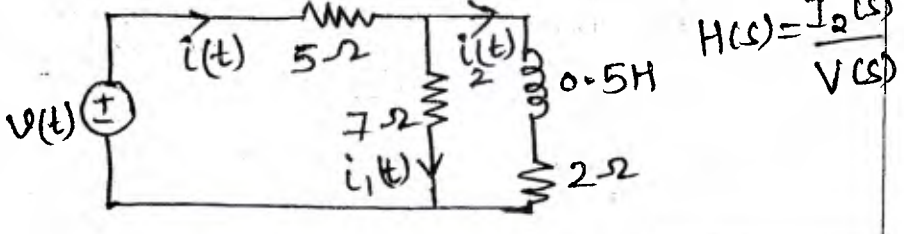
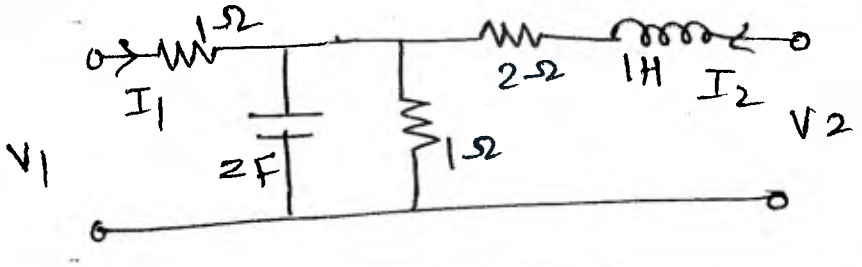
Class: SY B.Tech Semester: III Program: Electrical

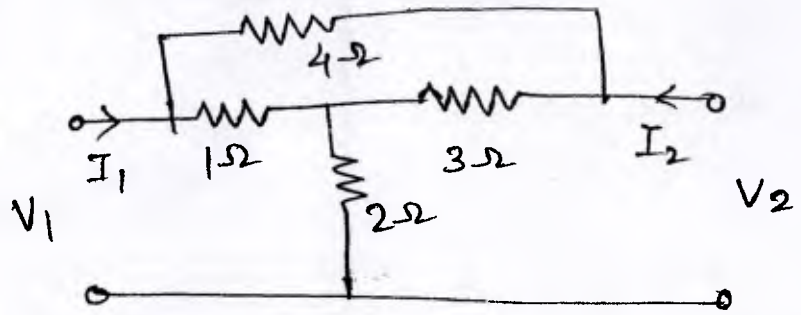
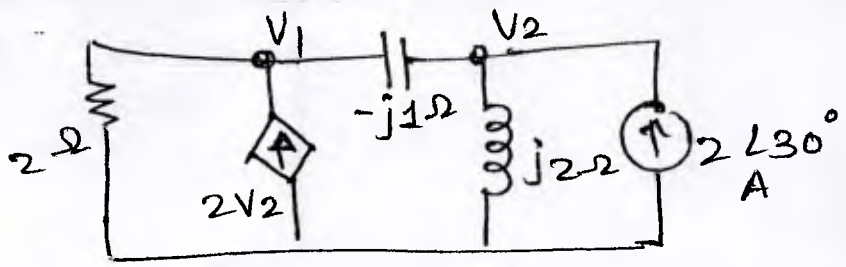
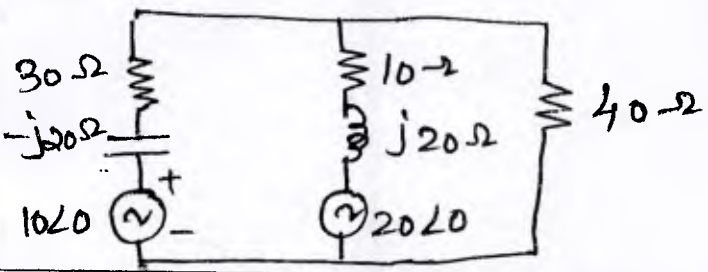
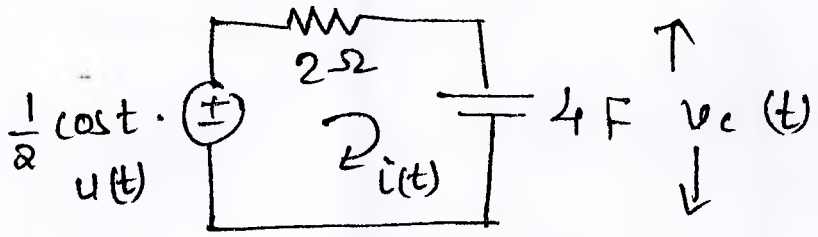
Name of the Course: **Electrical Networks** Course Code : PC-**BTE302**

Instructions:

- Figures to the right indicate full marks
- In the absence of any data, make suitable assumptions and justify the same.

Q. No	Question	Max Marks	CO	BL
Q1a	Determine value of vo and io at t=0- , t=0+ , t=∞. The Switch is closed at t=0. 	05	01 02	02
Q1b	A series RLC network with R= 10 ohm, L=5 and C= 1F, is excited by a DC voltage source v(t) = 10 V at t=0. Determine current through the capacitor and voltage across resistor for t>0. Plot these quantities. (Use time domain method)	10	02	03
Q1 c	Test if given polynomial $s^4 + 5s^3 + 6s^2 + 2s + 13$ is Hurwitz?	05	03	02
Q2a	Determine Thevenin's Equivalent across terminals x and y. Determine value of load resistance that can be connected to this network that receives maximum power. 	10	01	03

Q2b	Draw the graph of given network and obtain tie-set and cut-set matrix. Also obtain number of trees possible. 	10	01	02
Q3a	Realize a network with network function $Z(s) = \frac{s^4+4s^2+3}{5s^3+10s}$ in Cauer I and II from.	10	04	05
Q3b	Realize a network with network function $Y(s) = \frac{s+3}{(s+1)(s+5)}$ in Foster I and II from.	10	04	05
Q4a	In the following network determine transfer function. Draw pole – zero plot of the system and comment on the stability. 	10	03	04
Q4b	For the network given below determine transfer function ~~of following network~~ H(s) ~~considering~~. Plot pole-zero plot. Comment on the stability and justify the same. Calculate current i(t) when input v(t)= 4 e^{-2t} u(t). ~~(02)~~ 	10	02	03
Q5a	Determine Y parameters for following network 	10	04	02

Q5b	Determine Z parameters for following network 	10	04	02
Q6a	Determine node voltages in the following network. 	10	01	03
Q6b	Determine loop currents in the following network. 	10	01	03
Q7a	Consider a series RL network with R= 5 ohm and L= 0.1 mH. It is connected to a DC voltage source of 50 V at t=0. Determine current the network for t>0. Determine value of i(t) at t=20 msec. Plot voltage and current waveforms across resistance and inductor.	10	02	03
Q7b	Determine voltage and current of capacitor in the following network. (Use Laplace Transform) 	10	03	04

9/3/22

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Re Exam (Second Year BTech)

March 2022

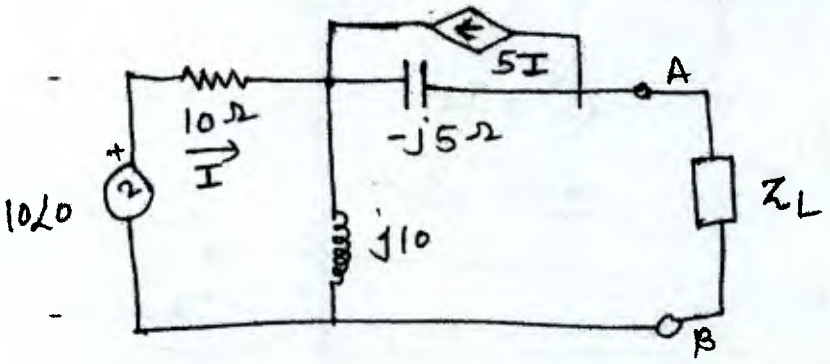
Max. Marks:100 Duration: 3 Hr

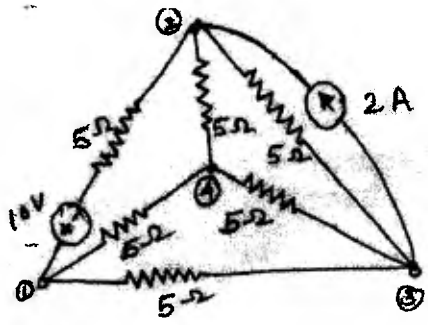
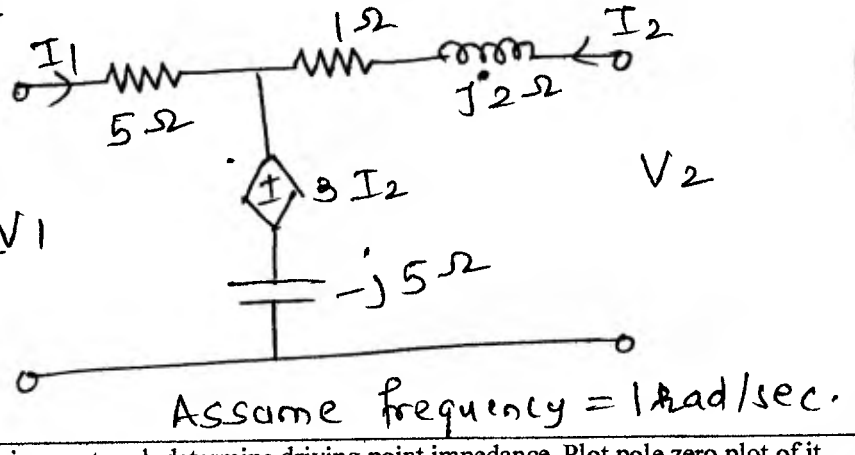
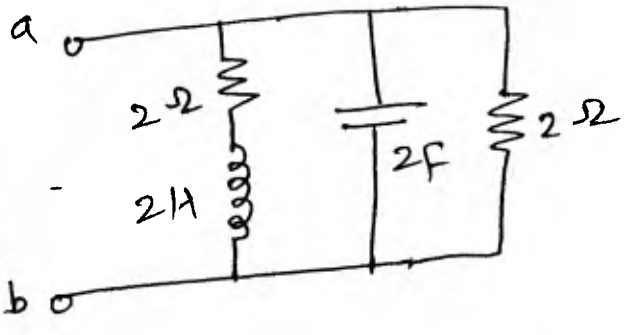
Class: SY B.Tech Semester: III Program: Electrical

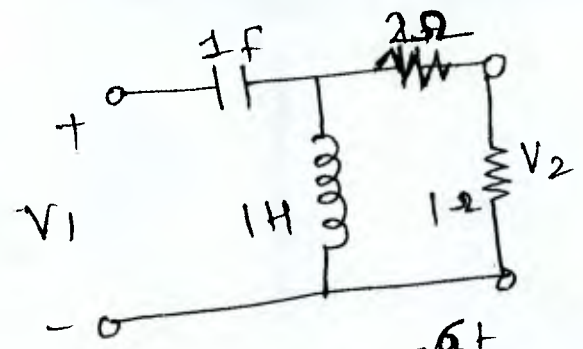
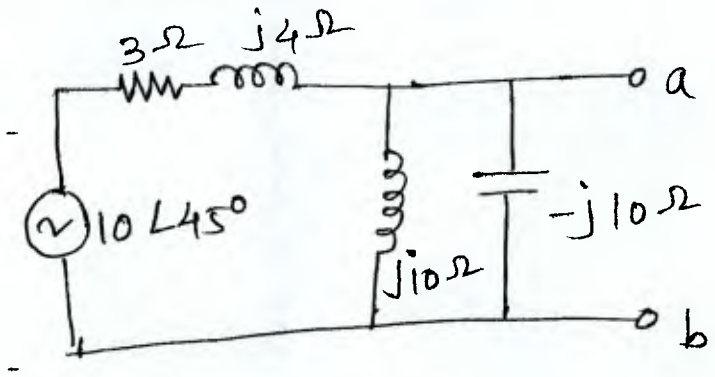
Name of the Course: **Electrical Networks** Course Code : PC-**BTE302**

Instructions:

- Figures to the right indicate full marks
- In the absence of any data, make suitable assumptions and justify the same.

Q. No	Question	Max. Marks	CO
Q1 a	In the circuit shown below calculate the value current I if $Z_L = 5\ \Omega$. 	10	01

Q1 b	For the given Network below, draw directed graph, Calculate incidence matrix and cut-set matrix. Calculate number of trees possible. 	10	01
Q2 a	Consider a RL network excited by a 20 Volt DC source. The source is connected to RL network at t=0. Calculate and plot current in the network after closing the switch, voltage across resistance and voltage across inductor. Take R= 2 ohm and L= 0.3 H.	10	02
Q2 b	Consider a series RLC network excited with 5 V source, R= 2 ohm, L=1 H, C=1/2 F. Source is connected to RLC network at t = 0. Calculate current in the network at t=0.1 sec. (use time domain method)	10	02
Q3 a	Determine Z and Y parameters of the given network 	10	04
Q3 b	For the given network determine driving point impedance. Plot pole zero plot of it. 	10	03

Q4 a	Consider a following network. Using Laplace Transform determine $V_2(t)$.  Assume $V_1 = 5e^{-6t}\,u(t)$. [Hint: Calculate $\frac{V_2(s)}{V_1(s)}$]	10	03
Q4 b	Obtain Thevenin's equivalent circuit across terminals a and b.  	10	01
Q5 a	Consider a network with driving point impedance $Z(s) = \frac{(s+1)(s+5)}{s(s+3)(s+7)}$. Realize it in Foster I and II forms.	10	04
Q5 b	Test if given function is positive real function. $Z(s) = \frac{10s + 8s^3}{5 + 6s^2 + s^4}$	05	04
Q5 c	Realize a network function $Z(s) = \frac{10s+8s^3}{5+6s^2+s^4}$ in Cauer II Form.	05	04

5/5/2022

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Re- Examination Direct Second Year (2021-22)

MAY 2022

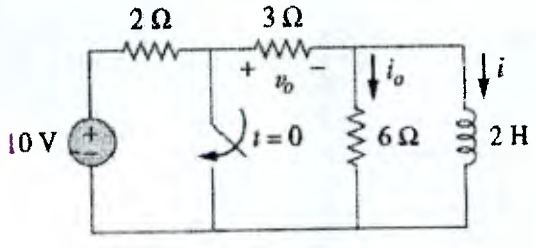
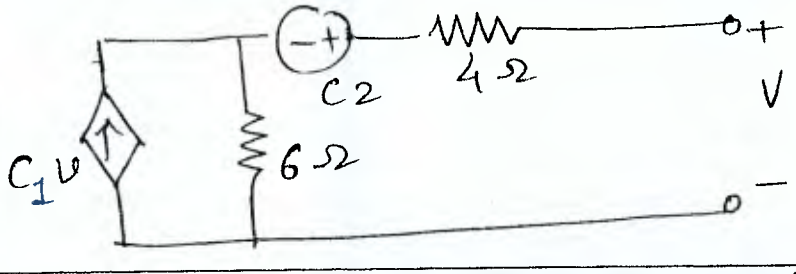
Max. Marks: 100 Duration: 3 hours

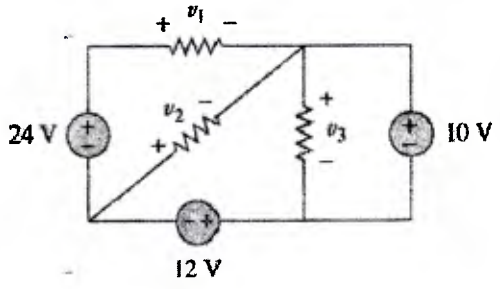
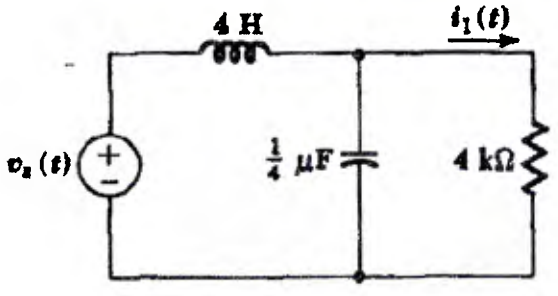
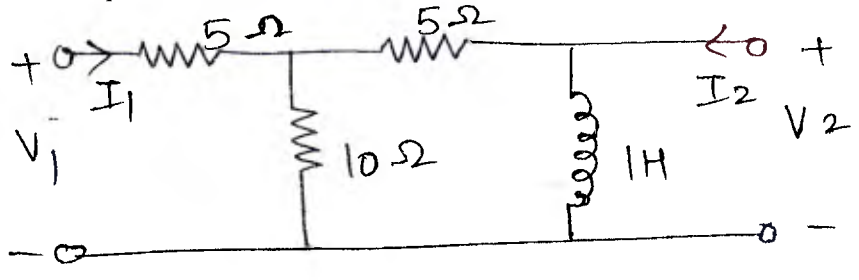
Class: SY B.Tech Semester: III Program: Electrical

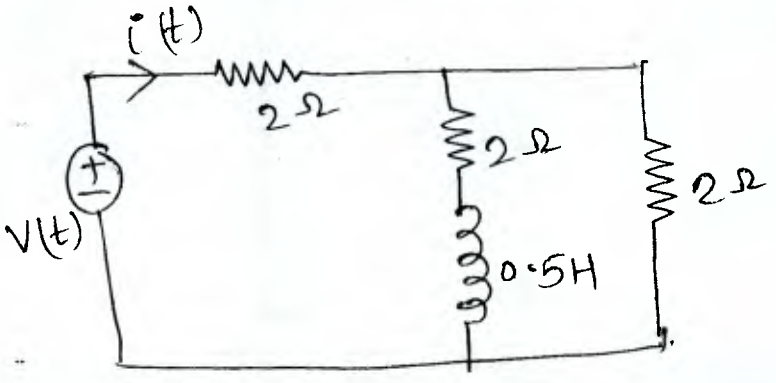
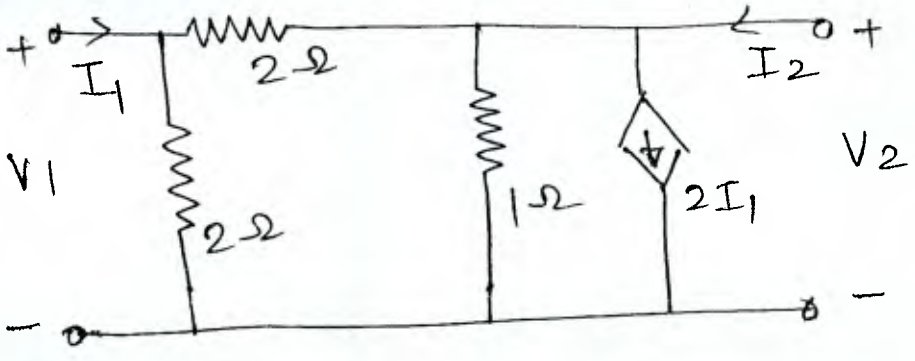
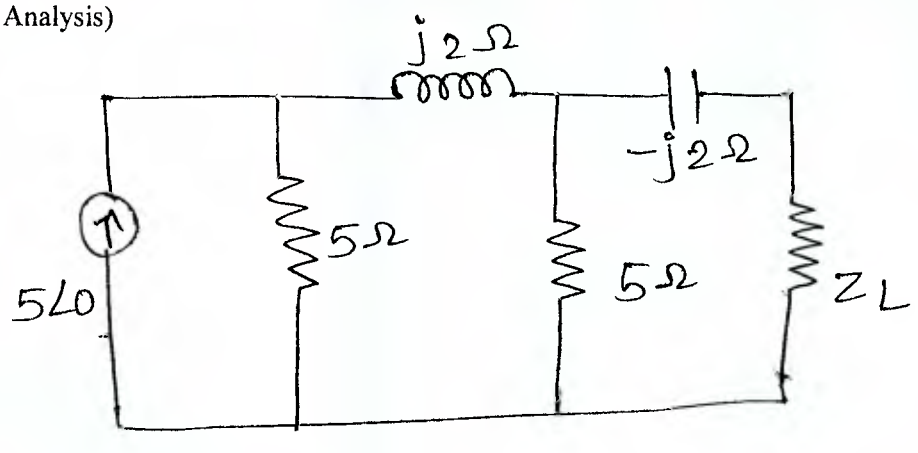
Name of the Course: **Electrical Networks** Course Code : PC-**BTE302**

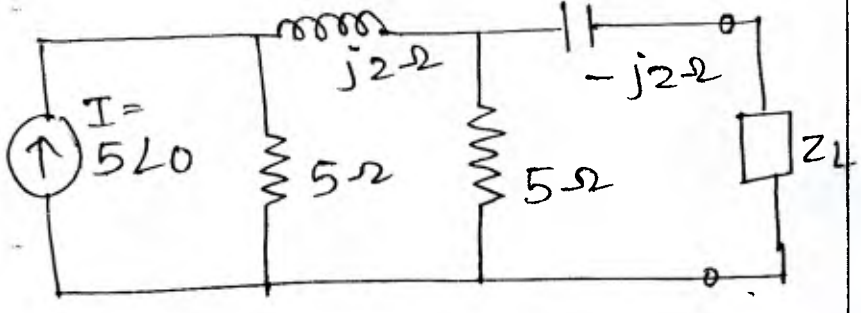
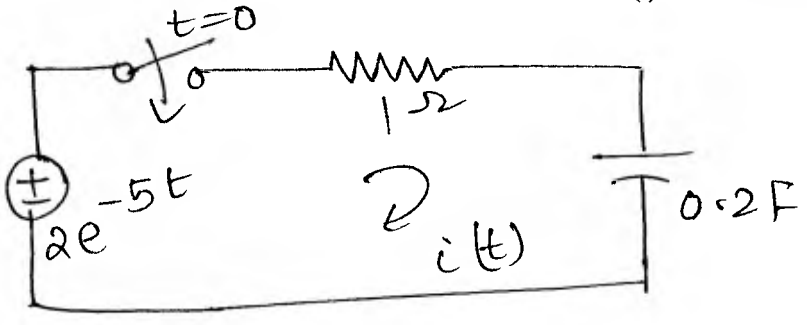
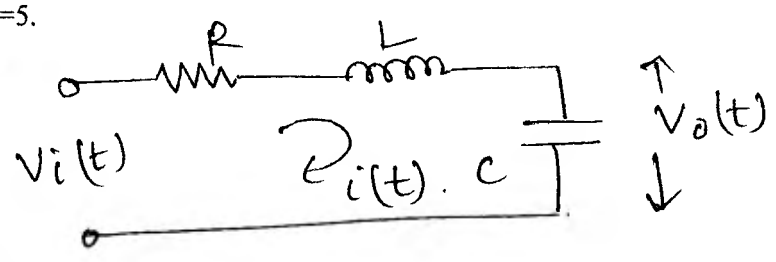
Instructions:

- Figures to the right indicate full marks
- In the absence of any data, make suitable assumptions and justify the same.

Q. No	Question	Max Marks	CO	BL
Q1a	Determine value of vo and io at t=0- , t=0+ , t=∞. The Switch is closed at t=0. 	06	01 02	02
Q1b	A series RLC network with R=10 ohm , L= 2 H and = 5F is excited by a DC voltage source v(t) = 10 V at t=0. Determine current through the capacitor and voltage across resistor for t>0. Plot these quantities. (Use time domain method and Laplace transform) [7+7]	14	02	03
Q2a	Determine Thevenin's Equivalent of following network if C1= 0.2 A/V and C2= 12 V. Determine value of load resistance that can be connected to this network that receives maximum power. 	10	01	03
Q2b	Draw the graph of given network and obtain tie-set and cut-set matrix. Also obtain number of trees possible.	10	01	02

				
Q3a	Realize a network with network function $Z(s) = \frac{2s^4+13s^2+5}{12s^3+5s}$ in Cauer I and II from.	10	04	05
Q3b	Realize a network with network function $Y(s) = \frac{2s+5}{(s+2)(s+5)}$ in Foster I and II from.	10	04	05
Q4a	In the following network determine transfer function I1(s)/ Vs(s). Plot pole – zero plot of the system and comment on the stability. 	10	03	04
Q4b	Test if given polynomial $s^4 + s^3 + 6s^2 + 2s + 3$ is Hurwitz?	05	03	02
Q4c	Determine Z parameters of the given network 	05	03	02
Q5a	For the network given below i) Determine transfer function of above network H(s) considering i(t) as output and v(t) as an input. (03) ii) Plot pole-zero plot. Comment on the stability and justify the same. (02) iii) Calculate current i(t) when input v(t)= 24 δ(t). (02) iv) Calculate current i(t) when input v(t)= 24 u(t). (03)	10	02	03

				
Q5b	Determine Z and Y parameters for following network 	10	04	02
Q6a	Determine node voltages in the following network if ZL= 10 ohm. (Use nodal Analysis) 	10	01	03
Q6b	Determine loop currents in the following network if ZL= 2+3 j ohm. (Use mesh Analysis).	10	01	03

				
Q7a	Consider a RC network as shown below. The switch is closed at t=0. Determine current the network for t>0. Determine value of i(t) at t=10 msec. 	10	02	03
Q7b	A circuit given below has transfer function $H(s) = \frac{Vo}{Vi} = \frac{10}{s^2+3s+10}$. Draw pole zero plot and comment on the stability of system. Determine values of L and C if R=5. 	10	03	04

9/3/22

Bharatiya Vidya Bhavan's

Sardar Patel College of Engineering

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Munshi Nagar, Andheri (West), Mumbai – 400058.

DSY EndSem Examination

March 2022

S. Y. B. Tech (Electrical) III

Max. Marks: 100 Duration: 3 Hr.

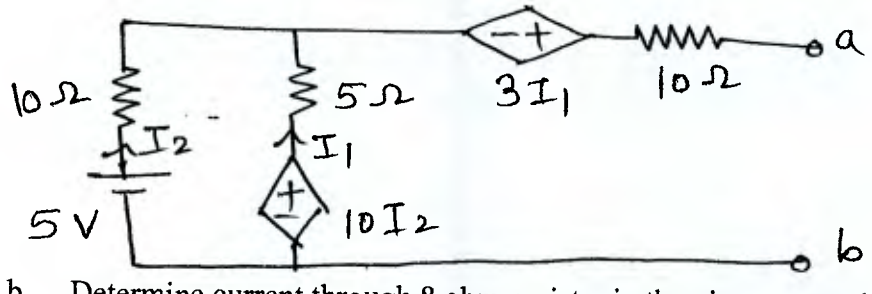
Class: SY BTech Semester: III Program: Electrical

Name of the Course: **Electrical Networks** Course Code : PC-**BTE302**

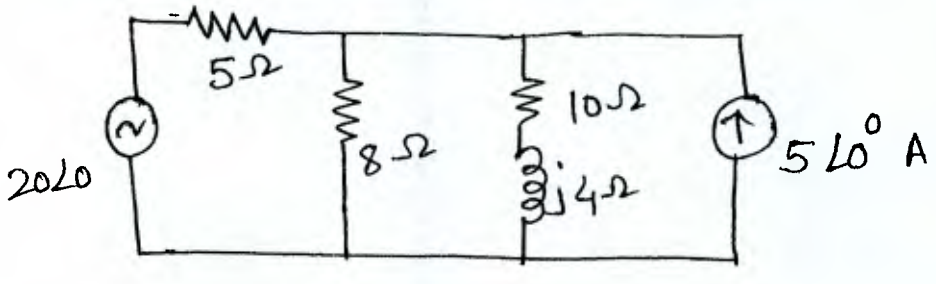
Instructions:

- Attempt any FIVE question out of Seven questions
- Answers to all sub questions should be grouped together
- Figures to the right indicate full marks
- In the absence of any data, make suitable assumptions and justify the same.

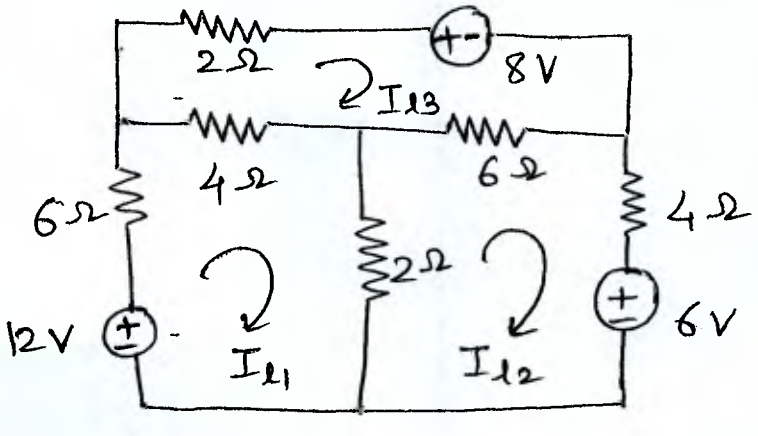
Q. No	Question	Max. Marks	Co. No.
Q1a	In the given network determine Norton's equivalent across ab.	10	



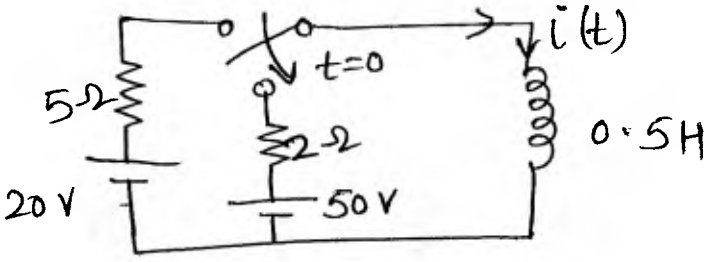
b	Determine current through 8 ohm register in the given network.	10	



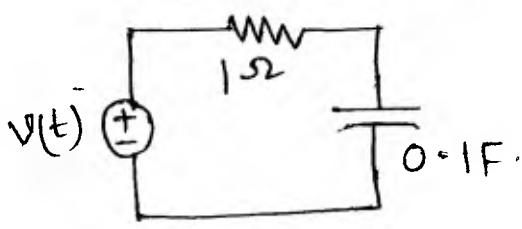
Q2a	Using graph theory determine loop currents in the given network	10	

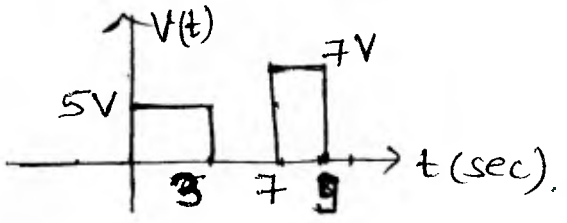


b Determine current i(t) for all time in the following network. The switch was in position 1 for very long time. It is moved to position 2 at t=0. 10

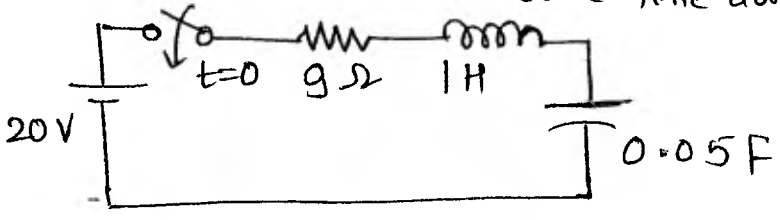


Q3a Plot voltage across the capacitor for -1<= t <=20 sec if voltage applied v(t) to the network is as shown below 10

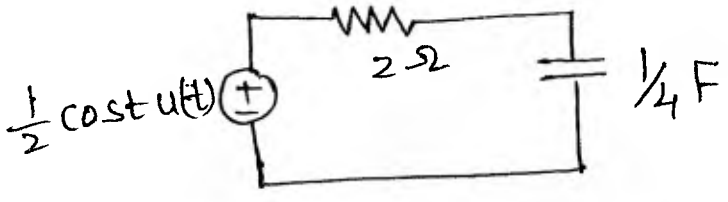




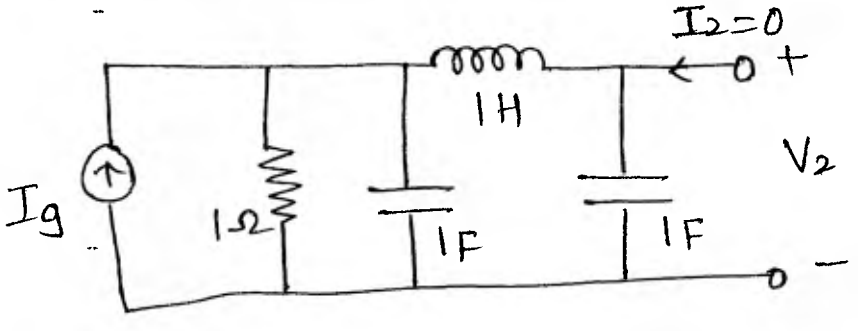
b In the given network switch is closed at t=0. Calculate current i(t) through the inductor and voltage across capacitor. (Use time domain method) 10



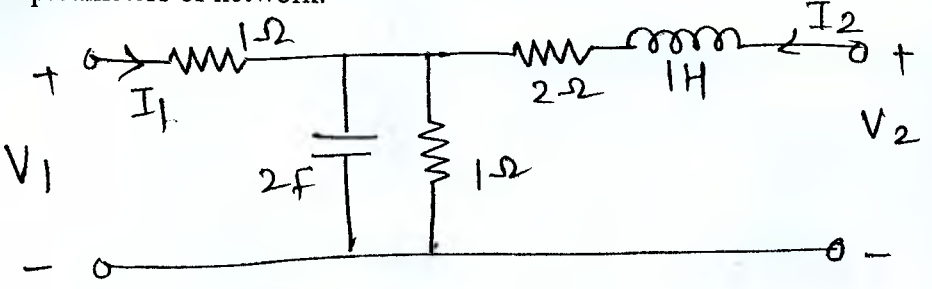
Q4a In the network given below determine voltage across capacitor for t ≥ 0. (Use Laplace transform). 10



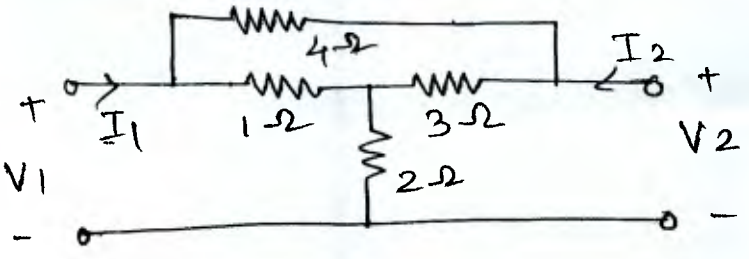
b Determine network function $\frac{V_2}{I_g}$ and draw pole zero plot. 10



Q5a Determine Z parameters of the given two port network. Also determine Y-parameters of network. 10



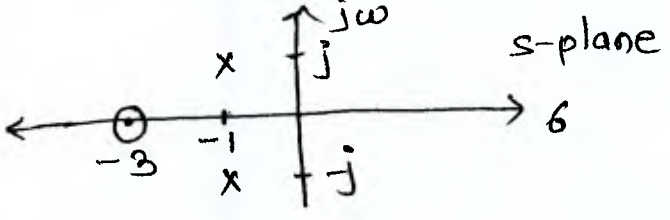
b Determine short circuit parameters of the given network. 05



c. A series RL network with R=10 ohm and L= 0.2 H , excited with a voltage source 10 $e^{-5t}\cos(100t + 20^0)$. Calculate complex frequency and current in the network. (Use complex frequency analysis) 05

Q6a Test if polynomial $2s^6 + s^5 + 13s^4 + 6s^3 + 56s^2 + 25s + 25$ is Hurwitz. 05

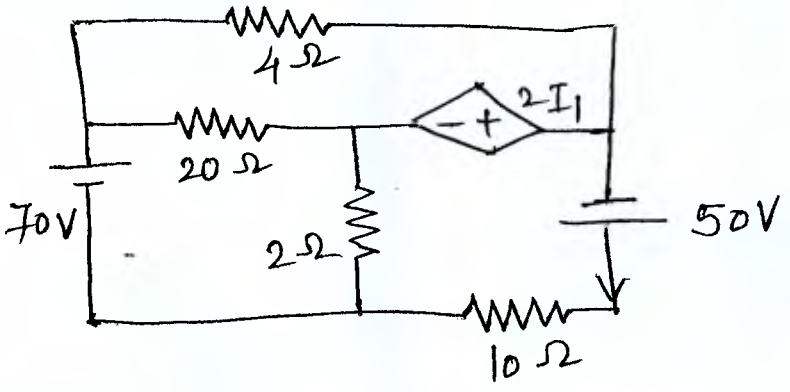
b Determine transfer function if pole – zero plot as shown below and Z(j0)=15. 05



c Realize network in Cauer forms if network function $Z(s) = \frac{s(s+8)(s+4)}{(s+1)(s+6)}$ 10

Q7a Realize Foster forms of LC impedance function $Z(s) = \frac{2(s^2+1)(s^2+3)}{s(s^2+2)}$ 12

b Obtain current through 10 ohm. 08



S. Y. B. Tech (Electrical) Sem III

Bharatiya Vidya Bhavan's

Sardar Patel College of Engineering

(A Government Aided Autonomous Institute)

Munshi Nagar, Andheri (West), Mumbai – 400058

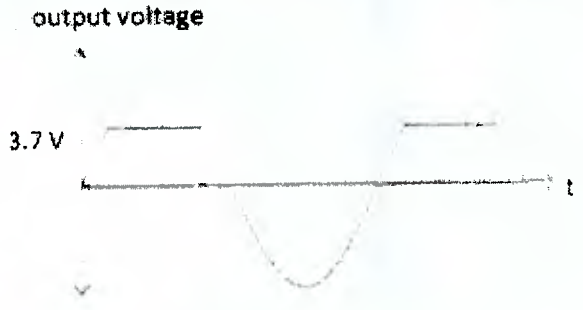
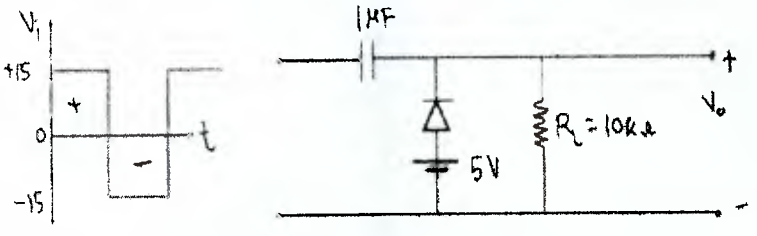
End Semester Exam March 2022

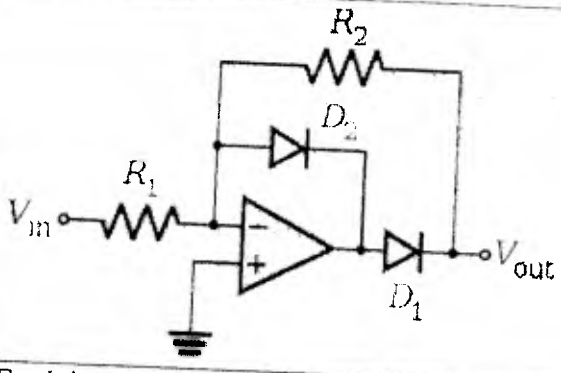
11/3/2022

Program: Electrical Engineering
Course code: PC-BTE301
Name of the Course: Electronic Circuits

Duration: 3 Hour
Maximum Marks: 100
Semester: III

Solve any five questions out of seven

Q.No.		Points	CO	Bl.	PI
1A (i)	Design the circuit to get the output as shown if the input voltage is 5 sin ωt. Assume Si diode. Justify the same. 	05	1	6	1.4.1
(ii)	Determine the output voltage V_o if input voltage as shown below is applied. Assume ideal diode. 	05	1	3	1.4.1
1B (i)	Draw equivalent circuit of opamp	03	4	2	1.3.1
(ii)	Draw and explain ac equivalent circuit of JFET. Explain the parameters.	07	2	2	1.3.1
2A (i)	Draw the diagram for voltage divider bias for a Si transistor. Given VCC = 25V; R1 = 10 kΩ; R2 = 2.2 kΩ; RC = 3.6 kΩ and RE =1 kΩ. Determine emitter voltage.	03	2	3	1.3.1
(ii)	Draw the diagram for self-biased n-channel JFET. Determine V_{DS}. Values of VD and VGS are 6 V and –2 V respectively.	03	2	3	1.3.1
(iii)	Find the required value of collector feedback bias resistor. Given collector current of 2.5 mA, R_C = 4.7kΩ, R_E = 500 Ω, V_{CC} =18V, a transistor with β=100, V_{BE} =0.7V.	04	2	3	1.3.1
B	Explain how to calculate h parameters from BJT characteristics.	10	2	2	1.3.1
3	State whether the following statements are true/false. Justify the same.				

A	Opamp is suitable for amplification of a.c. signals only.	05	4	5	1.3.1
B	The input impedance of a MOSFET is of the order of several MΩ	05	2	5	1.3.1
C	R_E in the differential amplifier can be replaced by current mirror.	05	3	5	1.3.1
D	A differentiator works as high pass filter.	05	4	5	1.3.1
4A	Identify the circuit given below. Explain its working with the help of suitable waveforms. 	10	4	6	1.4.1
B	Explain the terms UT and LT with respect to Schmitt trigger.	10	4	2	1.4.1
5	Draw the neat circuit diagram using opamp showing proper component values to obtain the required output for the input/inputs given as listed below. Explain the same.	20	4	6	1.4.1

	Input applied	Required output
A	V_1, V_2	$-(V_1 + V_2)$
B	V_1, V_2	$(V_1 - V_2)$
C	V_1	$I = -V_1/R$
D	V_1	$-1/RC(\int V_1 dt)$

6A	By selecting proper components draw the circuit of instrumentation amplifier with gain of 8. Explain the same.	10	4	6	1.4.1
B	Draw and explain block diagram of opamp.	10	4	2	2.1.3
7A	Explain successive approximation type ADC	10	3	5	1.4.1
B	Explain R – 2R ladder type Digital to analog converter.	10	3	5	1.4.1

Bharatiya Vidya Bhavan's

Sardar Patel College of Engineering

(A Government Aided Autonomous Institute)
Munshi Nagar, Andheri (West), Mumbai – 400058

11/3/22

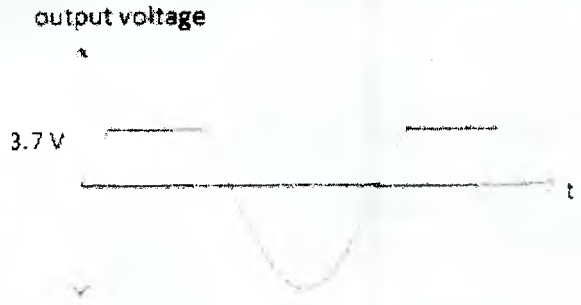
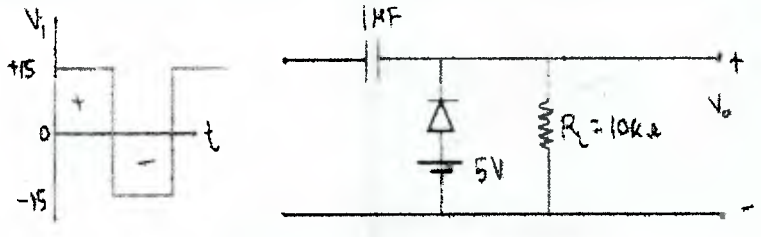
End Semester Exam March 2022

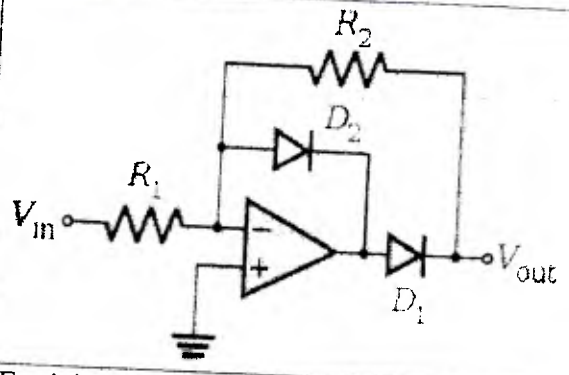
S. Y. B. Tech (ETRX) Sem III

Program: Electrical Engineering
Course code: PC-BTE301
Name of the Course: Electronic Circuits

Duration: 3 Hour
Maximum Marks: 100
Semester: III

Solve any five questions out of seven

Q.No.		Points	CO	Bl.	PI
1A (i)	Design the circuit to get the output as shown if the input voltage is 5 sin ωt. Assume Si diode. Justify the same. 	05	1	6	1.4.1
(ii)	Determine the output voltage V_o if input voltage as shown below is applied. Assume ideal diode. 	05	1	3	1.4.1
1B (i)	Draw equivalent circuit of opamp	03	4	2	1.3.1
(ii)	Draw and explain ac equivalent circuit of JFET. Explain the parameters.	07	2	2	1.3.1
2A (i)	Draw the diagram for voltage divider bias for a Si transistor. Given VCC = 25V; R1 = 10 kΩ; R2 = 2.2 kΩ; RC = 3.6 kΩ and RE =1 kΩ. Determine emitter voltage.	03	2	3	1.3.1
(ii)	Draw the diagram for self-biased n-channel JFET. Determine V_{DS}. Values of VD and VGS are 6 V and –2 V respectively.	03	2	3	1.3.1
(iii)	Find the required value of collector feedback bias resistor. Given collector current of 2.5 mA, R_C = 4.7kΩ, R_E = 500 Ω, V_{CC} =18V, a transistor with β=100, V_{BE} =0.7V.	04	2	3	1.3.1
B	Explain how to calculate h parameters from BJT characteristics.	10	2	2	1.3.1
3	State whether the following statements are true/false. Justify the same.				

A	Opamp is suitable for amplification of a.c. signals only.	**05**	**4**	**5**	**1**
B	The input impedance of a MOSFET is of the order of several MΩ	**05**	**2**	**5**	**1**
C	R_E in the differential amplifier can be replaced by current mirror.	**05**	**3**	**5**	**1.**
D	A differentiator works as high pass filter.	**05**	**4**	**5**	**1.**
4A	Identify the circuit given below. Explain its working with the help of suitable waveforms. 	**10**	**4**	**6**	**1.**
B	Explain the terms UT and LT with respect to Schmitt trigger.	**10**	**4**	**2**	**1.4.**
5	Draw the neat circuit diagram using opamp showing proper component values to obtain the required output for the input/inputs given as listed below. Explain the same.	**20**	**4**	**6**	**1.4.**

	Input applied	Required output
A	V_1, V_2	$-(V_1 + V_2)$
B	V_1, V_2	$(V_1 - V_2)$
C	V_1	$I = -V_1/R$
D	V_1	$-1/RC (\int V_1 dt)$

6A	By selecting proper components draw the circuit of instrumentation amplifier with gain of 8. Explain the same.	**10**	**4**	**6**	**1.4.1**
B	Draw and explain block diagram of opamp.	**10**	**4**	**2**	**2.1.3**
7A	Explain successive approximation type ADC	**10**	**3**	**5**	**1.4.1**
B	Explain R – 2R ladder type Digital to analog converter.	**10**	**3**	**5**	**1.4.1**

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Sardar Patel College of Engineering

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Munshi Nagar, Andheri (West), Mumbai – 400058

S. Y. B. Tech (Electrical) Sem III 25/7/22

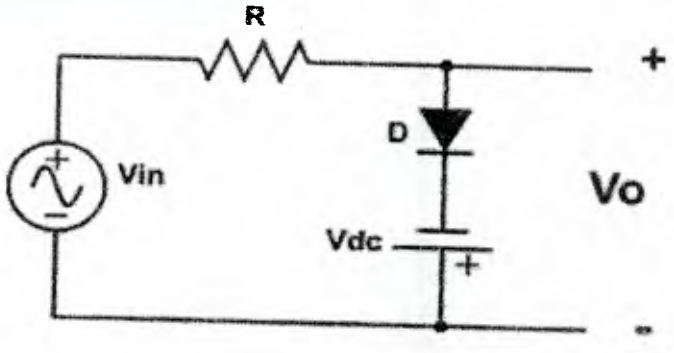
Re Exam JULY 2022

Program: Electrical Engineering
Course code: PC-BTE301
Name of the Course: Electronic Circuits

Duration: 3 Hour
Maximum Marks: 100
Semester: III

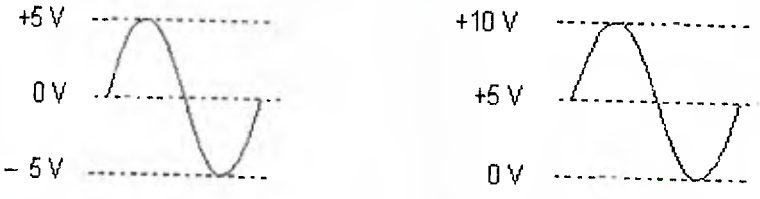
Solve any five questions out of seven

Q.		Points	CO	BL	PI
1	State whether the following statements are true/false. Justify the same.				
A	Opamp is suitable for amplification of d.c. signals.	5	4	5	1.3.1
B	Instrumentation amplifier is used in medical electronics.	5	4	5	1.3.1
C	The input impedance of a MOSFET is of the order of several MΩ	5	2	5	1.3.1
D	Voltage follower is used as buffer for impedance matching.	5	3	5	1.3.1
2A	In the circuit arrangement with FET, V_{GG} is 2 V, $R_G = 1M\Omega$, $R_D = 2K\Omega$, $V_{DD} = 16$ V. $I_{DSS} = 10mA$, $V_P = -8V$. Draw the circuit diagram. Calculate V_{DSQ}. Which type of biasing is used? Explain the same.	10	2	3	2.1.3
B	Draw and explain ac equivalent circuit of JFET. Explain the parameters.	10	2	2	1.3.1
3A (i)	Sketch the output waveform for the following circuit. Given $V_{in} = 5 \sin \omega t$. $V_{dc} = 2.5$ V. Assume ideal diode.	05	1	1,2	1.4.1



(ii) Select the proper components and draw the circuit diagram for the input and output waveforms shown. Explain the same. — 05 | 1 | 6 | 1.4.1

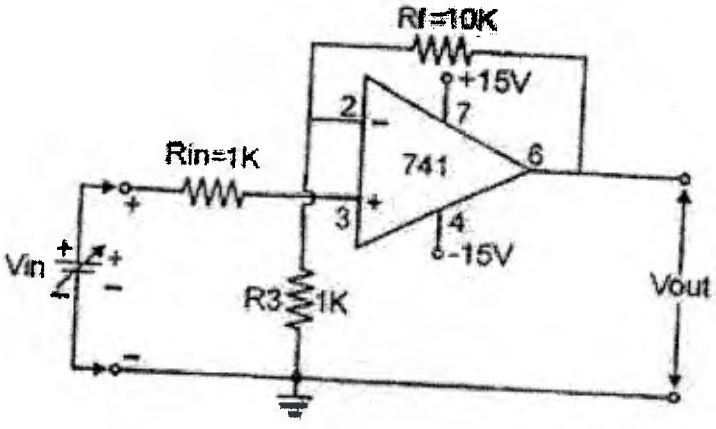
Input voltage **Output voltage**



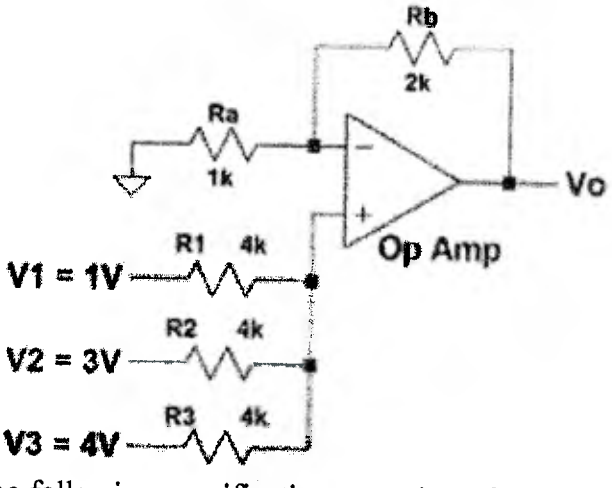
3B Determine R_C, R_B for the fixed bias CE BJT circuit such that operating point is $V_{CE} = 8$ V and $I_C = 2$ mA. Supply voltage is 15V d.c. Use Si transistor with $\beta = 100$. Take base-emitter voltage $V_{BE} = 0.6$V. Determine — 10

stability factor. Draw ac equivalent circuit. Determine Zi, Zo, and A_v. Given $h_{fe} = 100$, $h_{ie} = 2\ k\Omega$.

4A (i)	Identify the circuit given below. Determine V_o. Explain its working. V_{in} = 0.5 V	5	4	2	2.1.3



(ii)	Identify the circuit given below. Determine V_o. Explain its working.	5	4	2	2.1.3



4B	The following specifications are given for the dual input, balanced-output differential amplifier: $R_C = 3.3\ k\Omega$, $R_s = 150\ \Omega$, $h_{fe} = 100$, $h_{ie} = 1\ k\Omega$, V_{CC} and V_{EE} are 12V, and -12 V respectively, $V_{BE} = 0.7V$. $R_E = 8.2\ k\Omega$. Draw the circuit diagram. Determine the operating points (I_{CQ} and V_{CEQ}) of the two transistors. Determine A_c, A_d, R_o, R_i, CMRR (dB)	10	3	3	2.1.3
5 A	Draw and explain block diagram of opamp.	10	4	2	2.1.3
B	Explain the following terms w.r.t. opamp IC 741. Specify typical values (i) Slew rate (ii) UGB (iii) Input resistance (iv) output resistance (v) CMRR	10	4	2	1.3.1
6A	Explain the OPAMP as a Schmitt Trigger. Draw corresponding waveforms. What is UTP and LTP?	10	4	2	2.1.3
6B	Explain use of opamp as a differentiator.	10	4	2	2.1.3
7A	Explain dual slope integrating type ADC.	10	4	2	2.1.3
B	Explain R – 2R ladder type digital to analog converter.	10	4	2	2.1.3