F 3519 (Pages : 2) Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, NOVEMBER 2016

Third Semester

Branch : Common to all Branches

EN 010 302—ECONOMICS AND COMMUNICATION SKILLS

(AI, AN, AU CE, CH, CS, EC, EE, EI, IC, IT, ME, MT, PE, PO, ST)

[New Scheme—2010 Admission onwards]

{Improvement/Supplementary}

Time : Three Hours Maximum : 100 Marks

Part A

Answer **all** *questions.*
Each question carries 3 *marks.*

1. What are the functions of Commercial banks ?
2. Mention *six* MNC's other than IT field.
3. What is meant by tax evasion system ?
4. Mention the measures to control inflation.
5. What is TRIPS and TRIMS ?

(5 × 3 = 15 marks)

Part B

Answer **all** *questions.*
Each question carries 5 *marks.*

6. Explain the role of Small Scale Industries (S.S.I.).
7. Explain the disadvantages of privatisation.
8. Comment on deficit financing.
9. What is demand pulls and cost push effects of inflation ?
10. Explain the impact of WTO decisions on Indian industry.

(5 × 5 = 25 marks)

Part C

Answer **all** *questions.*
Each full question carries 12 *marks.*

11. Explain the role of RBI in Indian Economy.

Or

12. Comment on the role of stock markets. Briefly explain the problems facing by Indian stock markets.

Turn over

13. Discuss the role of MNC's in Indian Economy.

Or

14. Discuss the future prospects of IT industry in India.

15. Write notes on the following :—

(a) PI. (b) DPI.

(c) GNP.

Or

16. Explain the difficulties in estimating national income.

17. Explain the direct and indirect taxation system of the Ministry of Finance in India.

Or

18. Explain the consiquences and steps to control the tax evasion system.

19. Explain the causes of disequilibrium in India's Balance of Payments (BOP).

Or

20. Explain the importance of General Agreement on Tariffs and Trade (GATT).

(5 × 12 = 60 marks)

F 3542 (Pages : 2) Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, NOVEMBER 2016

Third Semester

Branch : Applied Electronics and Instrumentation / Electronics and Communication Engineering

AI 010 305 / EC 010 305—ANALOG CIRCUITS—I [AI, EC]

(New Scheme—2010 Admission onwards)

[Improvement/Supplementary]

Time : Three Hours Maximum : 100 Marks

Part A

Answer **all** *questions.*
Each question carries 3 *marks.*

1. What is tilt. Explain.
2. State and explain the need of biasing.
3. Sketch the transfer characteristics of MOSFET and explain.
4. Make a comparison table of FET Vs BJT.
5. Write short notes on transformerless power amplifiers.

(5 × 3 = 15 marks)

Part B

Answer **all** *questions.*
Each question carries 5 *marks.*

6. Analyse the output response of high pass RC circuit for square and sine wave inputs.
7. Derive different z-parameters of a basic two-port network.
8. Sketch an n-channel enhancement mode MOSFET with common source configuration using potential divider bias and explain its performance.
9. How does the construction of a MOSFET differs from that of a BJT and JFET.
10. With diagram, explain the working of class-D power amplifier.

(5 × 5 = 25 marks)

Turn over

Part C

Answer **all** *questions.*
Each full questions carries 12 *marks.*

11. With diagrams explain the operation of a :

    (i) Differentiator.

    (ii) Integrator.

    Derive output relations in both cases.

Or

12. With diagrams, explain the operations in detail of LC and π filters. Compare their performance in terms of ripple content and rectification efficiency.

13. Derive the hybrid parameters of CC model. give conversion formula for CC to CB.

Or

14. Sketch and explain approximation model of common base amplifier configuration and drive its parameters.

15. Analyse Single stage discrete MOSFET amplifier in Common Source configuration.

Or

16. With neat circuit diagram explain the construction and working of a source follower.

17. Draw a common emitter high frequency equivalent circuit and derive high frequency parameters.

Or

18. With diagram explain the operation of a common gate MOSFET amplifier circuit.

19. Draw the circuit diagram of a push-pull power amplifier and explain its working.

Or

20. Sketch diagram of a current shunt feed back circuit. Explain its working.

(5 × 12 = 60 marks)

F 3530 (Pages : 2) Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, NOVEMBER 2016

Third Semester

Branch : Applied Electronics and Instrumentation Engineering/Electronics and Communication Engineering

AI 010 304/EC 010 304—SOLID STATE DEVICES (AI, EC)

(New Scheme—2010 Admission onwards)

[Improvement/Supplementary]

Time : Three Hours Maximum : 100 Marks

Assume missing data, if any, reasonably, stating the same.

Part A

Answer **all** *questions.*

Each question carries 3 *marks.*

1. What is meant by compensation ?
2. Define quasi fermi-level.
3. What is an ohmic contact ?
4. What is early effect ?
5. Define threshold voltage of ideal MOS capacitor.

(5 × 3 = 15 marks)

Part B

Answer **all** *questions.*

Each question carries 5 *marks.*

6. Derive the expression for temperature dependency of carrier concentration.
7. Write diode equation. Explain the parameters of the equation.
8. Mention and discuss the potential applications of varactor diodes.
9. Draw the drain characteristic of a JFET and explain.
10. Draw the CV characteristics of an ideal MOS capacitor and explain.

(5 × 5 = 25 marks)

Turn over

Part C

Answer **all** *questions.*

Each full question carries 12 *marks.*

11. Draw the energy band diagrams of semi conductors, conductors and insulators. Explain them.

Or

12. Explain the significance of fermi-level in semiconductors.

13. State and derive continuity equations.

Or

14. Plot the minority-carrier current components and total current in a PN diode as a function of distance from the junction.

15. Explain the various break down mechanisms in PN junction. Explain the characteristics and applications of any one break down diode.

Or

16. Explain the operation and characteristics of LED. Which are the materials used for fabrication ?

17. Explain the operation of BJT with various current components. Derive the equations for the terminal current.

Or

18. Explain the various regions of the output characteristics of JFET.

19. Draw a set-up to measure CV characteristics of a MOSFET and explain.

Or

20. Draw the circuit of a CMOS inverter and explain its principle of operation.

(5 × 12 = 60 marks)

F 3553 (Pages : 2) Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, NOVEMBER 2016

Third Semester

Branch : Applied Electronics and Instrumentation/Electronics and Communication/ Electronics and Instrumentation/Instrumentation and Control Engineering

AI 010 306/EC 010 306/EI 010 306/IC 010 306—COMPUTER PROGRAMMING

[AI, EC, EI, IC]

[New Scheme—2010 Admission onwards]

(Improvement/Supplementary)

Time : Three Hours Maximum : 100 Marks

Write neat and efficient C programs wherever required.

Part A

Answer **all** *questions.*
Each question carries 3 *marks.*

1. What are the advantages of flow chart ?
2. Explain the syntax of GO TO statement.
3. What are external variables ? Give examples.
4. What is a pointer ?
5. What is a macro ?

(5 × 3 = 15 marks)

Part B

Answer **all** *questions.*
Each question carries 5 *marks.*

6. Explain the relational operators in C.
7. Explain the syntax and uses of switch statement.
8. What is a Union ? What are its uses ?
9. Explain the difference between 'Call by reference' and 'Call by value'.
10. Explain the steps involved in creating a data file.

(5 × 5 = 25 marks)

Turn over

Part C

Answer **all** *questions.*
Each question carries 12 *marks.*

11. Draw a flow chart to classify the given triplets (set of 3 numbers) to different types of triangles, if they represent a triangle. Write the corresponding algorithm also.

Or

12. Explain with examples the syntax of data input and output functions.

13. Write a program to find the number and sum of all integers greater than 100 and less than 200 that are divisible by 7.

Or

14. Write a program to find the sum of the series :

$$s = 1 + x + \frac{x^2}{2!} + \frac{x^3}{3!} + \ldots\ldots + \frac{x^n}{n!}.$$

15. Write a program to arrange 1000 numbers in ascending order using bubble sort method.

Or

16. Explain with an example, the method of sending an entire structure as a parameter to a function.

17. Write a program using pointers to add two matrices and to return the resultant matrix to the calling function.

Or

18. Explain with an example the use of pointers in passing a function to another function.

19. Write a program to illustrate error handling in file operations.

Or

20. Explain the role of C preprocessor.

(5 × 12 = 60 marks)

F 3520 (Pages : 6) Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, NOVEMBER 2016

Third Semester

Branch : Applied Electronics and Instrumentation/Electronics and Communication/ Instrumentation and Control/Electronics and Instrumentation Engineering

AI 010 303/EC 010 303/ EI 010 303/IC 010 303—NETWORK THEORY [AI, EC, EI, IC]

(New Scheme—2010 Admission onwards)

[Improvement/Supplementary]

Time : Three Hours Maximum : 100 Marks

Assume missing data, if any required, stating the same.

Part A

Answer **all** *questions.*
Each question carries **3** *marks.*

1. State and explain Norton's theorem.
2. Obtain the step response of RL series circuit.
3. State and explain Maximum power transfer theorem for a.c. circuits.
4. Using definite integrals, find $L\{t^3\}$.
5. Define transmission parameters and write the relationship between input and output ports.

(5 × 3 = 15 marks)

Part B

Answer **all** *questions.*
Each question carries **5** *marks.*

6. Using mesh-current analysis determine the current flowing through the 6Ω resistance shown in the network in Fig. 1.

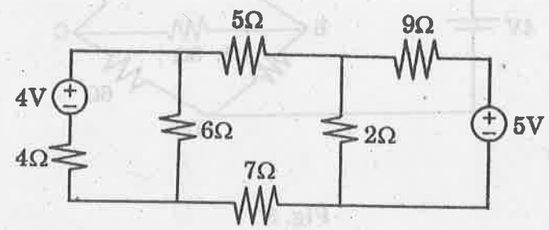

Fig. 1

Turn over

7. The impulse response of a network is $h(t) = 2u(t) - 2u(t-3)$. If the excitation to the network is $4e^{-2t}\,u(t)$, determine the response.

8. Using Thevenin's theorem, find what impedance must be connected between terminals A and B of the network shown in Fig. 2, that would receive maximum power ?

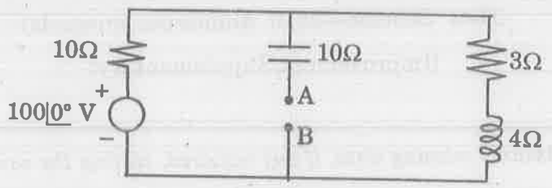

Fig. 2

9. Describe the restriction on the location of poles and zeros in driving point functions.

10. Derive the relationship between the admittance and transmission parameters of a two-port network.

(5 × 5 = 25 marks)

Part C

Answer **all** *questions.*
Each full question carries 12 *marks.*

11. (a) In the network in fig. 3, find the voltage V_{BD} and its polarity using loop current analysis.

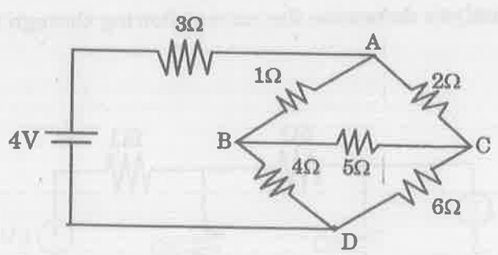

Fig. 3

(6 marks)

19. A network has transmission parameters $\begin{bmatrix} (2+j) & 200 \\ 0.002j & 1 \end{bmatrix}$. Determine the parameters for two such network in cascade. Show the steps in detail.

Or

20. Sketch the Bode plot for $G(s) = \dfrac{1000}{(1+0.1s)+(1+0.001s)}$.

Determine :

(a) Phase margin ;

(b) Gain margin ; and

(c) Stability of the system.

(5 × 12 = 60 marks)

(b) Use Thevenin's theorem to calculate the power in 15 Ω resistor of the circuit shown in Fig. 4

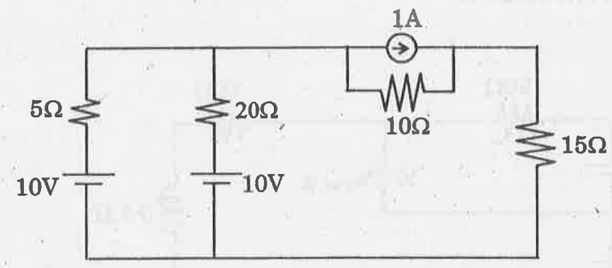

Fig. 4

(6 marks)

Or

12. (a) Applying Kirchoff's laws, calculate the currents in the supply lines of the network in Fig. 5.

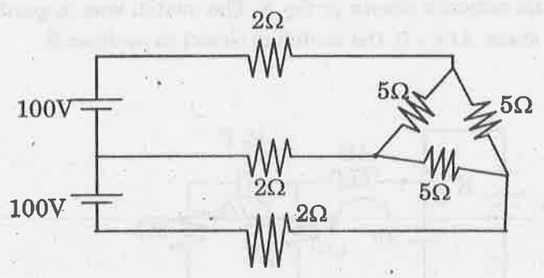

Fig. 5

(6 marks)

(b) Find the current I and the currents in all the branches of the network shown in Fig. 6.

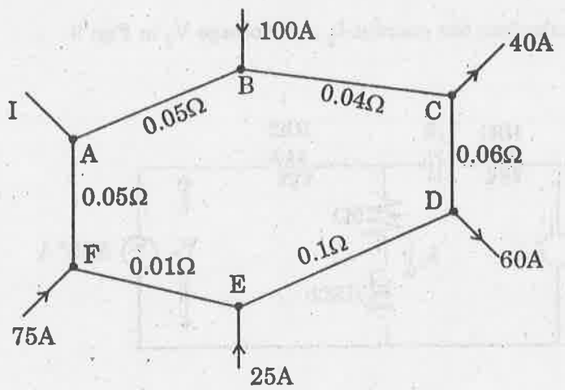

Fig. 6

(6 marks)

The network shown in Fig. 7 below reaches a steady state with switch K closed. At $t = 0$, the switch K is opened. Find $i(t)$ for $t > 0$.

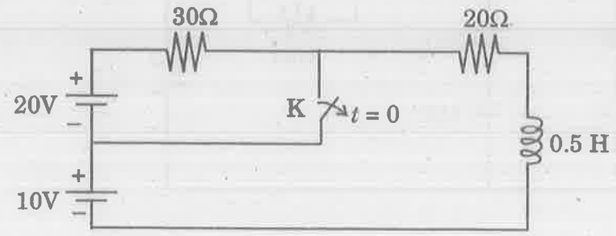

Fig. 7

Or

Solve for $i_1(t)$ and $i_2(t)$ in the network shown in fig. 8. The switch was in position 1 for $t < 0$, and the network was in steady state. At $t = 0$, the switch is closed to position 2.

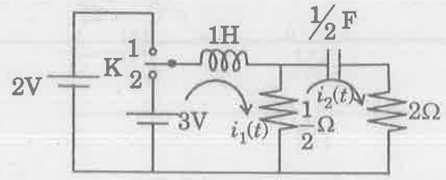

Fig. 8

Using the node method, calculate the current I_2 and voltage V_2 in Fig. 9.

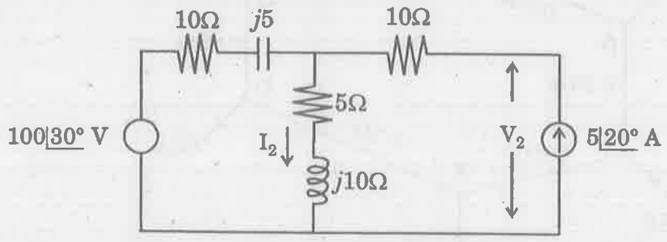

Fig. 9

Or

16. Calculate the currents $i_1, (t)$ and $i_2 (t)$ in Fig. 10, assuming zero initial conditions :

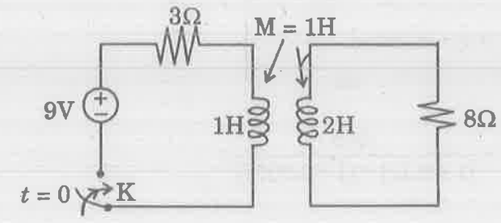

Fig. 10

17. At time $t = 0$, a sinusoidal voltage 10 sin wt applied to an RL circuit as shown below (Fig. 11). Determine expression for the current flowing :—

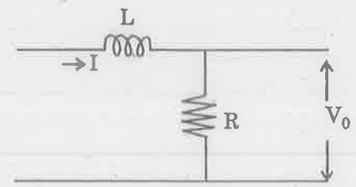

Fig. 11

Or

18. Find the inverse Laplace Transform of the following :—

(a) $F_1(s) = \dfrac{2s+5}{(s+1)(s+2)}$.

(b) $F_2(s) = \dfrac{2s^2+3s+2}{(s+1)^3}$.

(c) $F_3(s) = \dfrac{1+e^{-4t}}{s^2(s+4)}$.