Hall Ticket Number :										

R-15

Code: 5G121

I B.Tech. II Semester Supplementary Examinations May 2018

C Programming and Data Structures

(Common to All Branches)

Max. Marks: 70 Time: 3 Hours

Answer *all five* units by choosing one question from each unit (5 x 14 = 70 Marks)

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UNIT–I

1. a) Define pointer and explain about pointer arithmetic. 7M
   b) List the four dynamic memory allocation functions in C and give their syntax with examples. 7M

OR

2. a) What are the features and uses of pointers? 7M
   b) Write a C program to add two numbers using command line arguments. 7M

UNIT–II

3. a) Differentiate between structure and union. 6M
   b) Give the tracing of quick sort algorithm for the data [1, 2, 3, 4, 5, 6, 7, 8] to be sorted in ascending order. Discuss its time complexity. 8M

OR

4. a) Write a program in C to copy the contents of one file to another. 7M
   b) Write an iterative algorithm for binary search and discuss its time complexity. 7M

UNIT–III

5. a) Convert the following infix expressions to postfix expressions.
   i) A + B * C + D ii) (A + B) * (C + D) iii) A + B + C + D 6M
   b) Write a program in C to implement operations on queue.(Use pointers) 8M

OR

6. a) Write an algorithm to evaluate a postfix expression. 8M
   b) Give the advantages and disadvantages of recursion. 6M

UNIT–IV

7. a) Write a C program for insertion operation in a singly linked list. 7M
   b) Write C functions for insertion and deletion operations in doubly linked list. 7M

OR

8. a) Write a recursive program to reverse the given singly linked list. 8M
   b) Give the applications of circular linked list. 6M

UNIT–V

9. a) Define binary search tree. Write a C function to insert a new node in a binary search tree. 8M
   b) Give the applications of graphs. 6M

OR

10. a) Write a C function to search a given key in a given binary search tree. 8M
    b) Define the following regarding graphs.
    i) Undirected graph ii) In degree iii) Digraph 6M

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Hall Ticket Number :										

R-15

Code: 5G321

I B.Tech. II Semester Supplementary Examinations May 2018

Electronic Devices And Circuits-II

(Common to EEE & ECE)

Max. Marks: 70 Time: 3 Hours

Answer *all five* units by choosing one question from each unit (5 x 14 = 70 Marks)

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UNIT–I

1. a) Explain the selection of Q- point for a transistor bias circuit and discuss the limitations on the output voltage swing 8M

   b) Calculate the maximum and minimum values of Ic and VCE for the base bias circuit when β_{min}=50 and β_{max}=200. Given R_B=470KΩ, R_c=2.2KΩ, V_{cc}=18v and β=100 6M

OR

2. a) Explain with the circuit diagram the procedure for analysis of a collector to base bias circuit 8M

   b) Transistor biased in a voltage divider bias circuit with R1=48KΩ, R2=15KΩ, Rc=1.5KΩ, RE=1KΩ and Vcc=15V. compute emitter voltage V_E, Collector Voltage V_C and VCE 6M

UNIT–II

3. a) Explain the construction of N channel JFET. Also explain the drain and transfer characteristics of the same 7M

   b) Draw and explain the drain characteristics of N-channel depletion MOSFET 7M

OR

4. a) Define Transconductance, Drain to Source resistance and Pinch off voltage. 6M

   b) The p-channel FET has a I_{Dss}= -12mA, V_p=5v, V_{gs}= 5.32v calculate I_D, g_m and g_{mo} 8M

UNIT–III

5. a) Write about classification of an amplifiers? 7M

   b) what is importance of an input impedance in the amplifier circuit explain 7M

OR

6. a) Draw the circuit of a practical single stage transistor amplifier. Explain the function of each component? 7M

   b) Explain the DC and AC load line analysis of an amplifier? 7M

UNIT–IV

7. a) Draw and explain the working of 2-Stage RC coupled amplifier 7M

   b) Compare different types of coupling. 7M

OR

8. a) Draw the circuit of transformer coupled CE amplifier and explain 7M

   b) Draw the circuit of capacitor coupled 2-stage CE amplifier and explain 7M

UNIT–V

9. a) Explain the construction and working of Tunnel diode in detail 7M

   b) Explain the construction and working of Schottky diode in detail 7M

OR

10. a) Explain the varactor diode in detail 7M

    b) Explain the working of UJT with suitable diagrams 7M

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Hall Ticket Number :										

Code: 5GC22

R-15

I B.Tech. II Semester Supplementary Examinations May 2018

Engineering Chemistry

(Common to EEE and ECE)

Max. Marks: 70 Time: 3 Hours

Answer all five units by choosing one question from each unit (5 x 14 = 70 Marks)

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UNIT–I

1. a) What is the disadvantage of hard water?
   b) What are the important sources of water?

OR

2. a) Distinguish between temporary and permanent hardness of water.
   b) Describe the Zeolite process used for softening of water.

UNIT–II

3. Describe the construction of lead-acid storage cell with the reactions occurring during charging and discharging.

OR

4. Define corrosion. Explain the mechanism of hydrogen evolution and oxygen absorption in electrochemical corrosion.

UNIT–III

5. Write the preparations, properties and applications of Buna-S and Buna-N.

OR

6. What are Inorganic polymers? Write the applications of inorganic polymers in detail.

UNIT–IV

7. a) Clarify the difference between octane number and cetane number?
   b) Tabulate the names of the fractions, their compositions, boiling points and important applications when petroleum is distilled?

OR

8. a) What are the effects of contaminants in liquid fuels? What was the main Idea in understanding effects?
   b) What are the uses of proximate and ultimate analysis?

UNIT–V

9. a) Write a note on the conditions leading to failure of a refractories material.
   b) Explain how the dimensional stability and porosity will affect the properties of refractories.

OR

10. Explain refractoriness, porosity, thermal conductivity and thermal spalling of refractories.

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Hall Ticket Number :										

R-15

Code: 5G523

I B.Tech. II Semester Regular & Supplementary Examinations May 2018

Engineering Drawing-II

(Common to EEE, ECE, CSE & IT)

Max. Marks: 70 Time: 3 Hours

Answer *all five* units by choosing one question from each unit (5 x 14 = 70 Marks)

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UNIT–I

1. A hexagonal plate of side 30 mm is resting on one of its sides on VP and inclined at 40° to HP. Its surface is inclined at 35° to VP. Draw its projections. 14M

OR

2. Draw the projections of a circular thin plate of diameter 50 mm resting on the ground on a point 1 on the circumference, its plane surface inclined at 45^o to HP and plan of the diameter making 30^o with VP. 14M

UNIT–II

3. Draw the projection of a cylinder with diameter 50 mm and axis length 65 mm. It is lying on H.P on one of its generators and its axis is inclined at 30° to VP and parallel to H.P. 14M

OR

4. A pentagonal prism, side of base 25 mm and axis 50 mm long rests with one of its shorter edges on H.P such that the base containing the that edge makes an angle of 30^o to H.P and its axis is parallel to V.P. Draw the projections. 14M

UNIT–III

5. Draw the projection of hexagonal prism of base side 30 mm and axis 50 mm, when it is resting on HP on one of its lateral edge with a face containing that edge making 30^o to HP. The axis is inclined at 45^o to VP and is parallel to HP. 14M

OR

6. A cone of base 40 mm diameter and axis 50 mm long touches the V.P on a point of its base circle. Its axis is inclined at 30° to V.P and 45^o to H.P. 14M

UNIT–IV

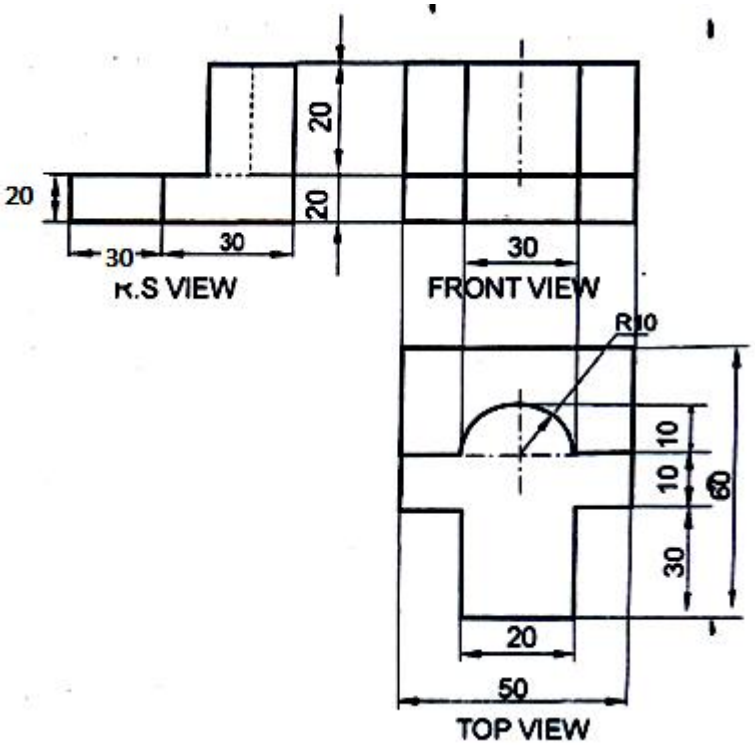
7. A waste paper basket is in the form of a frustum of a hexagonal pyramid of base side 15 mm and top 30 mm. Height is 100 mm. Draw its isometric projection. 14M

OR

8. Draw the isometric projection of a cone of diameter 30 mm and height 60 mm resting with its base on ground. 14M

UNIT–V

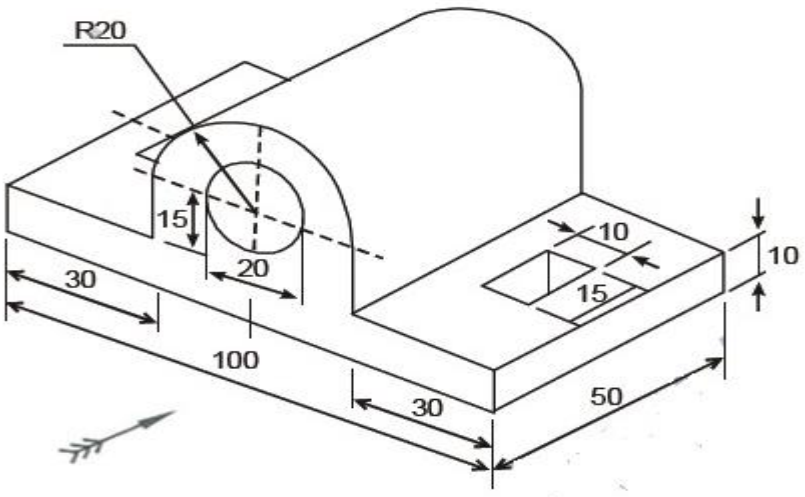
9. Draw the isometric view for the object shown in the figure.



14M

OR

10. Draw the Orthographic views of the plan,elevation and side view for the given figure. 14M



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Hall Ticket Number :										

R-15

Code: 5GC24

I B.Tech. II Semester Supplementary Examinations May 2018

Engineering Mathematics-II

(Common to All Branches)

Max. Marks: 70 Time: 3 Hours

Answer *all five* units by choosing one question from each unit (5 x 14 = 70 Marks)

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UNIT–I

1. Change the order of integration in $\int_0^1 \int_x^{\sqrt{2-x^2}} \frac{x}{\sqrt{x^2+y^2}}\, dy\, dx$ and hence evaluate it. 14M

OR

2. Evaluate $\int_1^e \int_1^{\log y} \int_1^{e^x} \log z\, dz\, dx\, dy$. 14M

UNIT–II

3. a) Find the Laplace transform of $te^{-t}\sin 3t$. 7M

   b) Find the Laplace transform $\int_0^t [(e^t \sin t)/t\, dt]$. 7M

OR

4. a) Find $L^{-1}\left\{\frac{s}{(s^2+1^2)^2}\right\}$ by convolution theorem. 7M

   b) Find $L^{-1}\left\{\frac{s}{(s^2+a^2)^2}\right\}$ by $\log\left(\frac{s+1}{s-1}\right)$. 7M

UNIT–III

5. Solve $(D^2+9)x = \sin t$ using Laplace transform given that $x(0)=1$, $x\left(\frac{\pi}{2}\right)=1$ 14M

OR

6. Solve $y''-3y'+2y=4t+e^{3t}$, $y(0)=1$, $y'(0)=1$. 14M

UNIT–IV

7. a) Find the directional derivative of $f(x,y,z)=xy^3+yz^3$ at the point $(2,-1,1)$ in the direction of vector $\bar{i}+2\bar{j}+2\bar{k}$. 7M

   b) Show that $\text{div}(\text{grad}\, r^n) = n(n+1)\, r^{n-2}$. 7M

OR

8. A vector field is given by $\bar{f}=\sin y\, \bar{i} + x(1+\cos y)\bar{j}$. Evaluate the line integral over a circular path given by $x^2+y^2=a^2$, $z=0$. 14M

UNIT–V

9. Verify Green's theorem for $\int_c [(xy+y^2)dx+x^2dy]$, where C is bounded by $y=x$ and $y=x^2$. 14M

OR

10. Verify Stoke's theorem for $\bar{f}=(2x-y)\,\bar{i}-yz^2\bar{j}-y^2z\,\bar{k}$ over the upper half surface of the sphere $x^2+y^2+z^2=1$ bounded by the projection of the xy plane. 14M

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Hall Ticket Number :										

R-15

Code: 5GC21

I B.Tech. II Semester Supplementary Examinations May 2018

Technical English

(Common to All Branches)

Max. Marks: 70 Time: 3 Hours

Answer *all five* units by choosing one question from each unit (5 x 14 = 70 Marks)

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UNIT–I

1. a) Why does the writer say that the modern technology acts like a foreign body and it has become inhuman? 7M

   b) Complete the table with the noun form or the verb form of the word.

Verb	Noun
alleviate	
	suffocation
exhaust	
	insignificance
product	
	sophistication
violent	

7M

OR

2. a) Write your view on "Technology with A Human Face". 7M

   b) Write the correct past tense and past participle form of each verb.

S.no	Present tense	Past tense	Past participle
1	Abridge		
2	Back		
3	Campaign		
4	Leap		
5	Shine		
6	Sink		
7	alleviate		

7M

UNIT–II

3. a) How has human development affected climate patterns on the Earth? 7M

   b) Write a letter to BHEL requesting the General Manager to permit you to do practical training on the topic "Electrical Drives" for one Month in August 2018. 7M

OR

4. a) What is the inter relation between human strategies and climate change? 7M

   b) Fill up the blanks with the correct form of the verbs, given in the brackets.

      i. Human beings_____(transform) the environment.
      ii. We_____(live) on the planet now
      iii. The Sun_____(rise) in the East.
      iv. She _____(visit)Taj Mahal last year.
      v. He _____(just complete) his home work
      vi. Sita _____(be)taller than Geeta.
      vii. Venkat _____(speak) English well 7M

UNIT–III

5. a) What is the function of Heliostats? 7M

   b) Rewrite the following sentences into interrogative sentences.

      i. She is a healthy woman
      ii. Priya watches TV every evening
      iii. He can climb trees easily
      iv. Cherry cooks his own breakfast
      v. They will arrive tomorrow
      vi. The boy has returned the books
      vii. They are responsible 7M

OR

6. a) What are the various steps involved in power generation? 7M

   b) Write an e mail to your friend congratulating him on getting a job. 7M

UNIT–IV

7. a) "Water is the basic of all life", Explain. 7M

   b) Choose the correct form of the verb that agrees with the subject.

      i. There _____ no reason for this (is/are)
      ii. The average workers earnings _____goes up dramatically(has/have)
      iii. Here _____ two apples(is/are)
      iv. My pants _____ torn (was/were)
      v. Two and two _____(make/makes) four
      vi. Some of the voters _____ still angry(is/are)
      vii. Our thanks _____to the workers who supported the Union(go/goes) 7M

OR

8. a) Write the main causes of soil erosion? 7M

   b) Write a report on an accident you witnessed. 7M

UNIT–V

9. a) "Ignorance is the mother of evil", Explain. 7M

   b) Change the voice from the followings.

      i. they play cricket
      ii. She is taking coffee
      iii. Post the letter
      iv. Don't consult him
      v. Who played foot ball yesterday
      vi. Had you taken coffee
      vii. Are you playing Chess 7M

OR

10. a) How is the word unattached explained in the Lesson The Secret of Work. 7M

    b) Write at least seven positive connotations. 7M

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