Code No: 11392

FACULTY OF ENGINEERING

B.E. III – Semester (Civil)(Main & Backlog) Examination, Nov./Dec. 2018

Subject: Engineering Geology

Time: 3 Hours **Max. Marks: 70**

Note: Answer all questions from Part A & any FIVE questions from Part – B.

PART – A (2x10 = 20 Marks)

1) Define porphyritic texture in igneous rock
2) Draw a neat sketch of fold and label its parts.
3) What are the oxidation and reduction processes in chemical weathering?
4) Define perched water table.
5) Calculate compressive strength (CO) of a rock for which load is 5 kg and area 2cms.
6) Give the check list of instruments for resistivity survey.
7) Calculate coefficient of harness of rock for which loss of weight of rock is 20 grms.
8) What is stand up in tunnel?
9) What are isoseismals?
10) What are the causes for origin of Tsunami?

PART – B (5x10 =50 Marks)

11 a) Write the distinguishing features following rocks
i) Granite ii) Gabbro iii) Shale iv) Khondalite 10M

12 a) Explain the assessment of degree of weathering. 5M
b) Describe the various types of the aquifers. 5M

13 a) Explain the engineering consideration of Aeolian land forms in the civil engineering. 5M
b) Describe Dory's testing machine for determining abrasive resistance of rock. 5M

14 Explain the types of problems associated with dam foundation and reservoirs and a note on solutions for the problems. 10M

15 a) What are the leakage aspects of reservoir? 5M
b) Give the foundation geology of Srisailam dam. 5M

16 a) Write various types of the tunnel supports. 5M
b) What are the causes for earthquakes? 5M

17 Give an example of recent disaster in India and add note on rehabilitation. 10M

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CODE NO: 11398

FACULTY OF ENGINEERING

B.E (EEE/EIE) III-Semester (CBCS) (Main & Backlog) Examination,

November / December 2018

Subject: Prime Movers and Pumps

Time: 3 Hours **Max. Marks: 70**

Note: Answer all questions from part A and any five questions from part B.

PART- A (20 Marks)

1. Define Newtonian Fluids? Give examples
2. What is viscosity? How it vary with temperature for fluids
3. What is cavitation? What are the causes?
4. Define specific speed of a turbine?
5. What is priming? Why is it necessary?
6. State the limitation of gas turbine.
7. What do you mean by compounding of a steam turbine?
8. Define the Dryness fraction?
9. Discuss the reason for modification of Rankine cycle for steam engine.
10. What methods are used in reducing the speed of the turbine rotor?

PART- B (5 X 10 = 50 Marks)

11. a) Derive the Bernoulli's equation and list it applications
    b) Water is flowing through a pipe having diameters 25 cm and 15 cm at section 1 and 2 respectively. The rate of flow through pipe is 40 lit/hr. the section 1 is 8 m above datum and section 2 is 6 m above datum. If the pressure at section 1 is 44.24 N/cm^2. Find the intensity of pressure at section 2.

12. a) Describe the working principle of an pelton turbine with neat sketch.
    b) What is the function of a draft tube? In which type of turbines a draft tube is used? what are the different types of draft tube.

13. a) Define a centrifugal pump. Explain the working of a single stage centrifugal pump with neat sketch.
    b) Reciprocating pump running at 30 rpm delivers 0.012 m^3/s of water. The diameter of the piston is 250 mm and stroke length is 500 mm. Determine the theoretical discharge and coefficient of discharge.

14. a) Describe the construction and working principle of locomotive boiler.
    b) Discuss the reason for modification of Rankine cycle for steam engine.

15. a) What do you mean by compounding of a steam turbine? Discuss various methods of compounding of a steam turbine.
    b) Explain with a neat sketch the working of a constant volume combustion gas turbine.
16. a) What are the role of stay vanes and scroll case in a Francis turbine.
    b) Derive an expression for the loss of head due to friction in pipes.

17. a) What is Venturimeter? Derive an expression for the discharge through a venturimeter
    b) A hydraulic turbine develops 7225 kW power under a head of 25 meter at 135 rpm. Calculate the specific speed of the turbine.

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CODE NO: 11405

FACULTY OF ENGINEERING

BE (CBCS) (ECE) III-Semester Examination, November / December 2018

Subject: Electronic Devices

Time: 3 Hours **Max. Marks : 70**

Note: Answer all questions from Part-A and answer any five questions from part-B

PART – A (20 Marks)

1. Differentiate between transition capacitance and diffusion capacitance of PN junction diode. (2)
2. What is a reverse recovery time of a diode? (2)
3. Explain the necessity of bleeder resistor in LC filter. (2)
4. What are the advantages and disadvantages of bridge rectifier? (2)
5. What is thermal runway in transistors? Write a condition to avoid this. (2)
6. For a transistor find β, α and I_C when I_E = 10mA, I_B =500μA. (2)
7. Why h-parameters are preferred to analyze a circuit using BJT. (2)
8. Draw the low frequency h-parameter equivalent circuit in CE configuration. (2)
9. Compare JFET and MOSFET with respect to various features. (2)
10. Sketch and explain the small signal model of JFET. (2)

PART – B (50 Marks)

11. (a) Explain the working of PN junction under forward bias and reverse bias with neat diagram? (6)
    (b) Write the differences between Zener break down and Avalanche break down in diodes? (4)

12. (a) Explain the operation of FWR with a capacitor filter and derive for ripple factor. (6)
    (b) Find the ripple factor of a FWR with C-filter for 5% ripple and frequency of 100Hz.The Required DC output voltage is 30V and load to be connected is 1kΩ. (4)

13. (a) Derive the stability factor equation for a Collector to base bias circuit. (5)
    (b) An NPN transistor with β=50 is used in a common emitter circuit with a resistance to collector to base bias. Assume V_{BE} = 0.7V ,V_{CC} =10V ,R_C = 2KΩ.The bias is obtained by connecting a 100 KΩ resistance from collector to base. Find
    (i) Quiescent point (ii) Stability factor S (5)

14. (a) How to derive an approximate model from exact model of h-parameters. Draw an approximate model for CB amplifier. (5)
    (b) For a CB amplifier driven by a voltage source of internal resistnce R_S = 600Ω the load impedance is R_L =1200Ω. The h-parameters are h_{fb}= 22 Ω, h_{fb}= -0.98 and h_{ob} =0.25μA.Compute the current gain A_I , the input impedance R_i , Voltage gain A_V and output impedance R_o. (5)

15. (a) Explain the construction and operation of n-channel JFET and draw drain and transfer characteristics. (6)
    (b) Differentiate between depletion and enhancement MOSFETS. (4)

16. (a) Draw and explain V-I characteristics of a tunnel diode. (5)
    (b) Explain how a MOSFET acts a switch. (5)

17. Write short notes on the following. (10)
    (a) LED
    (b) Thermal Breakdown in transistors
    (c) Silicon Controlled Rectifier

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Code No. 11410

FACULTY OF ENGINEERING

B.E. (M/P) III - Semester (CBCS) (Main & Backlog) Examination,
November / December 2018

Subject : Engineering Thermodynamics

Time : 3 Hours **Max. Marks: 70**

Note: Answer all questions from Part-A & any five questions from Part-B.

PART – A (20 Marks)

1 Distinguish between microscopic and macroscopic approaches of thermodynamics. [2]
2 Distinguish between Intensive and Extensive properties with examples. [2]
3 What is the application of Zeroth law of thermodynamics? [2]
4 How first law of thermodynamics is applicable to constant pressure process? [2]
5 State Clausius inequality. [2]
6 What is significance of availability for a non flow process? [2]
7 For steam as pure substance what does critical point state means. [2]
8 Write down Claperyon equation and its significance. [2]
9 Differentiate between air standard Diesel and Dual cycle. [2]
10 Define Mass fraction and Mole fraction. [2]

PART- B (50 Marks)

11 (a) Define (i) System (ii) Process (iii) Reversibility [5]
(b) Explain the working of constant pressure Ideal gas thermometer. [5]

12 (a) Derive the expression for work done for a reversible polytropic process. [4]
(b) Air at 100kPa and 290K flows steadily through a compressor at a rate of $5m^3/s$. During the compression process the pressure and temperature of air are respectively raised to 250kPa and 400K. There is also a heat loss of 15kJ/s to the cooling water. Determine the power required to drive the compressor. Presume that air behaves as a perfect gas and neglect changes in kinetic energy and potential energy. [6]

13 (a) Define and prove Carnot theorem. [5]
(b) Air at 20^oC and 1.05 bar occupies $0.025m^3$. The air is heated at constant volume till its pressure is 4.5 bar and then cooled at constant pressure back to original temperature. Calculate the net heat flow from air, net entropy change. [5]

14 (a) Explain the process of steam generation with the help of P-V diagram. [5]
(b) One Kg of steam at a pressure of 8 bar and dryness 0.8 is expanded hyperbolically in a cylinder to a pressure of 0.5 bar. Determine the final condition of steam and the heat transfer across the cylinder walls. [5]

15 Explain Otto cycle with the help of P-V and T-S diagram and derive its efficiency. [10]

16 (a) A reversible engine working in a cycle takes 4800 kJ of heat from a source at 800K per minute and develops 20 kW power. The engine rejects heat to two reservoirs at 300K and 360K. Determine the heat rejected to each sink in kJ/min. [5]
(b) Prove that internal energy is a point function. [5]

17 (a) Explain the terms (i) Sensible Heat (ii) Latent Heat (iii) Enthalpy of Fluid (iv) Specific Steam Consumption. [5]
(b) Explain P-V-T surface significance. [5]

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Code No. 11412 / CBCS

FACULTY OF ENGINEERING

B.E. (AE) III Semester (CBCS) (Main & Backlog) Examination, Nov. / Dec. 2018

Subject: Automotive Electrical and Electronics Engineering

Time: 3 Hours **Max. Marks: 70**

Note: Answer all questions from Part – A & any five questions from Part – B.

PART – A (2x10 = 20 Marks)

1. Define watt-hour efficiency of battery?
2. What is earth return system?
3. Draw the circuit model of DC series motor.
4. Explain the behaviour of starter during starting.
5. What is third brush regulation?
6. Draw the circuit of bridge rectifier.
7. List the recent trends in automotive electronic engine management system
8. List the various dash board instruments.
9. List the various types of sensors used in an automobile.
10. What are the different instruction formats in 8085 microprocessor?

PART – B (5x10 = 50 Marks)

11 Explain the construction and principle of operation of lead acid battery with a neat sketch. [10]

12 a) Explain the principle of operation and characteristics of D C series motor. [5]
b) Illustrate Bendix drive with a neat sketch. How does it differ from Folo-Thru drive? [5]

13 Explain the principle of operation of:
a) Shunt generator [5]
b) Cut-Out relay [5]

14 Explain the following:
a) Electromagnetic Interference& Electromagnetic Compatibility. [5]
b) Dashboard system. [5]

15 a) Discuss sensors for speed and coolant temperature. [5]
b) Explain the principle of Solenoid. [5]

16 Write a short note on:
a) Various tests on battery [5]
b) Starter switch [5]

17 Explain the following:
a) Voltage and current regulators [4]
b) Onboard diagnostic system. [3]
c) Applications of Microprocessors in Automobiles. [3]

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Code No. 11418/CBCS

FACULTY OF ENGINEERING

B.E. (CSE) III - Semester (CBCS) (Main & Backlog) Examination,
November / December 2018

Subject : Data Structures

Time : 3 Hours **Max. Marks: 70**

Note: Answer all questions from Part-A & any five questions from Part-B.

PART – A (20 Marks)

1 Consider the following pseudo code and find the asymptotic time complexity

```
if n > 10
        print "the value of n is greater than 10"
for i = 1 to n
        for j = 1 to n
            print i*j
            print "Done".
```

2 What are the advantages of doubly linked lists over single linked lists?

3 What is the postfix form of the infix expression? A + B∗(C+D) / f + D∗E.

4 What is skip list? Give an example of ideal skip list.

5 Draw all possible AVL trees of height 3.

6 Write a function to count the number of elements in a binary tree.

7 State the difference between breadth first search and depth first search.

8 How prim's algorithm is different from Kruskal's algorithm?

9 What are the various factors to be considered in deciding a sorting algorithm?

10 Give the best, average and worst case time complexities of Insertion and Quick Sort.

PART – B (50 Marks)

11 What is a sparse matrix? Explain the representation of sparse matrix. Write down a function to multiply two sparse matrices. (10)

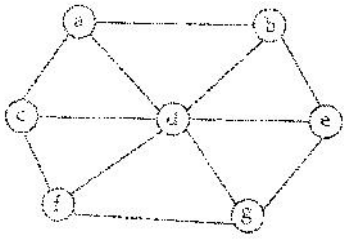
12 (a) Write about performance analysis of an algorithm. (5)
(b) What is Hashing? Explain about the Hash Table. Illustrate different Hash Functions with help of examples. (5)

13 Write a C++ program to implement circular queue using Doubly Linked List. (10)

14 Construct a B-tree of order 5 by inserting the following items one by one. (10)

C N G A H E K O M F W L T Z D P R

15 (a) Draw four different spanning trees for the following graph. (4)

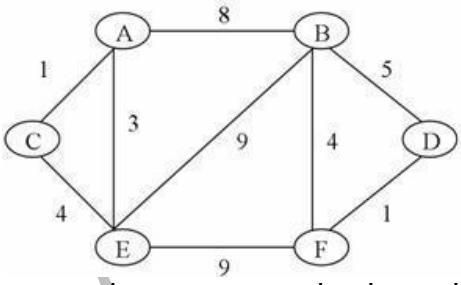


(b) Make a Binary Search Tree (BST) for the following sequence of numbers:

{100, 50, 200, 300, 20, 150, 70, 180, 120, 30}. Traverse the obtained

BST in Preorder, Postorder, and Inorder. (6)

16 What is Minimum Cost Spanning tree (MST)? Explain Prim's algorithm to construct MST and execute prim's algorithm on the following graph. (1+5+4)



17 (a) Explain how the given numbers are sorted using selection sort

56, 23, 43, 7, 9, 82, 12.

(5)

(b) Construct a min heap for the data 18, 15, 25, 6, 45, 50. (5)

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Code No. 11424

FACULTY OF ENGINEERING

B.E III-Semester (CBCS) (I.T) (Main & Backlog) Examination,

November / December, 2018

Subject : Data Structures

Time : 3 Hours **Max Marks : 70**

Note: Answer all questions from Part – A & Any five questions from Part – B.

Part - A (20 Marks)

1. What is space complexity explain with example.
2. Write a procedure to convert an arithmetic expression from infix to postfix.
3. Define circular queue and write its advantages.
4. Define stack with example and write its applications.
5. Differentiate between arrays and linked lists.
6. Explain about shell sort with example.
7. Describe array representation of binary trees with example.
8. Define a minimum spanning tree with example.
9. Define Min Heap with example.
10. Compare and Contrast BFS and DFS.

Part – B (50 Marks)

11. What is String ADT. Write a C++ program to implement String ADT. (10)

12. (a) Write C++ function to perform following operations on stacks using arrays (5)
    a. push b. pop c. Is Empty() d. Is Full()
    (b) Convert the following infix expression to postfix form: (5)
    A+B/C*D-E.

13. Write a C++ program for Linked Queue. (10)

14. Given the Following list of numbers. (10)
    16 12 2 6 80 20 9 15 5 79 6 Use selection sort to sort them.

15. (a) What are minimum cost spanning trees? Write an algorithm for minimum cost spanning trees using prim's algorithm. (6)
    (b)Write algorithm for DFS graph traversal. (4)

16. (a) Write algorithm for insertion into an AVL tree with example. (8)
    (b) What are B-trees? (2)

17. Write short notes on the following (5+5)
    a) Red Black Trees.
    b) Iterators for Chains.

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Code No. 11046

FACULTY OF ENGINEERING

B.E. 2/4 (Civil) II – Semester (Suppl.) Examination, November / December 2018

Subject: Fluid Mechanics – I

Time: 3 Hours **Max.Marks: 75**

Note: Answer all questions from Part A and any five questions from Part B.

PART – A (25 Marks)

1 The viscosity of the gas _____ with increase in temperature. 1
2 The pressure inside a soap bubble of 10 mm diameter above atmosphere is ____ 2
3 Define buoyancy and centre of buoyancy. 3
4 List out different types of flows and note down the basic differences also. 3
5 A jet of liquid is issued through a nozzle inclined to horizontal by 60^o upward. The starting velocity of jet is 18 m/s. The maximum vertical distance achieved by the jet above the nozzle is _____. 3
6 The forces on a pipe bend can be obtained by using _____ equation. 1
7 What do you understand by Reynolds number? Mention its significance in fluid mechanics. 3
8 Define vortex flow with examples for forced and free vortex. 3
9 In a atmosphere, where p = 16.5 kN/m^2 and ° = 0.265 kg/m^3 and ¥ = 1.4, the speed of the sound is _____. 3
10 In a sudden contraction, the velocity head changes from 0.5 to 1.25 m, the coefficient of contraction is 0.67 the head loss due to contraction is _____. 3

PART – B (5x10 = 50 Marks)

11 a) Prove that the pressure intensity in the liquid is directly proportional to height of the point from free surface of liquid. 5

b) A velocity potential function for the two dimensional steady state flow is given by¨ =x(2y-1). Find out the velocity at the point p (2,3). Also find out the value of stream function passing through the point p. 5

12 A 45^o reducing bend is connected to a pipeline whose inlet and outlet diameter are 60 cm, 30 cm respectively. The water flow through the pipe is 0.6 m^3/s, the pressure of water at inlet is 90 kN/m^2. Find the total force exerted on the bend. 10

13 A venturimeter is to be fitted to a horizontal pipe of 25 cm diameter which carries 7.2 m^3 of water per minute. The pressure head carrying the flow is 6 m of water. Find the minimum diameter of throat if there is no negative pressure head at the throat if Cd = 0.98. 10

14 a) Write down Euler's equation of motion and then find out Bernoulli's equation for isothermal, adiabatic process. 5

b) Find the pressure on the nose of an aircraft flying with 800 kmph through still air and Mach number when atmospheric air pressure and temperature are 68.7 kN/m and -1^oC. Take ° =1.295 kg/m^3 for the air. 5

..2

15 a) Derive a formula developed by Darcy for loss of head due to friction for the flow through pipe. 5

b) A pipe carrying water is suddenly increased in diameter from 35 to 70 cm. The flow rate is 0.25 m^3/s. Find the head loss due to enlargement and pressure in the larger diameter pipe. 5

16 A pipe line is 30 cm in diameter for 1000 m and 15 cm diameter for next 1000 m. Find the discharge from the system for transmitting maximum power. Total pressure at the intake is 5.5 kN/m^2. Take f = 0.008 for both the pipes. 10

17 a) Design a pipeline when pipes are connected in series. 3

b) Define local and convective acceleration. 3

c) A open tank is first filled with water up to 1.5 m depth and oil is on the water having the depth of 1 m. The specific gravity of oil is 0.85. Find pressure at the bottom of the tank, pressure at the interface of water and oil. 4

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Code No. 11054

FACULTY OF ENGINEERING

B.E. 2/4 (EEE/Inst.) II-Semester (Backlog) Examination, November / December 2018

Subject : Electro Magnetic Fields

Time : 3 Hours **Max. Marks: 75**

Note: Answer all questions from Part-A & any five questions from Part-B.

PART – A (25 Marks)

1 Write the formula for DEL operator in spherical system. 2

2 Point charges 5nC and -2nC are located at (2,0,4) and (-3,0,5) respectively find the force $\overline{F}$ on point charge at (1, -3, 7) of 1nC. 3

3 Explain Linear, Nonlinear Isotropic homogeneous and non-homogeneous Dielectrics. 3

4 Write the two Maxwell's equation used for boundary conditions in $\overline{E}$. 2

5 Write the formula for Energy stored in magnetostatics field in terms of $\overline{B}$ and $\overline{H}$. 2

6 A multilayer coil of 2000 turns of fine wire is 20mm long and has thickness of 5mm. If the coil carries a current of 5m A find MMF generated. 3

7 Derive Continuity Equation. 3

8 Define Displacement current and current Density of it. 2

9 Define Penetration depth and skin effect. 2

10 In a medium characterized by
$\sigma = 0$ $\mu = \mu_0$, $\epsilon = \epsilon_0$ $\overline{E} = 20 \sin(10^8 t - \beta z)\, a_y$ (V/m) find $\overline{\nabla} \times \overline{E}$. 3

PART - B (50 Marks)

11 (a) Find $\overline{D}$ due to charged sphere of radius 'a' of charged density ρ_v(C/m^2). 7
(b) Given $D = z\rho \cos^2\phi\, \hat{a}_z$ C/m^2, find the total charged enclosed by cylinder of radius 1m with $-2 \le z \le 2$m and charged density at (1,π/4, 3). 3

12 (a) Derive Energy density in $\overline{E}$ field in terms of $\overline{D}$ and $\overline{E}$.
(b) Derive Conduction and Convection currents 10

13 Derive $\overline{H}$ for Infinitely long Co-Axial Transmission line and draw graph between H_0 vs ρ. 10

14 (a) Write Maxwell's equation in point form for (i) TVF and (ii) static field 5
(b) Explain boundary conditions for magnetic field. 5

15 A uniform plane wave propagating in medium has $\overline{E} = 2e^{-\alpha z}\sin(10^8 t - \beta z)\, \hat{a}_y$(V/m) if the medium is characterized by $\epsilon_r = 1$ $\mu_r = 20$ and $\sigma = 3$ find β, α, H. 10

16 (a) Derive V at a point P due to a point charge at infinity and write the formula for V due to surface charge. 5
(b) Derive Coulomb's law 5

17 Write short notes on : 10
(a) Curl of a vector
(b) Derive the relation between $\overline{E}$ and V
(c) Derive Laplace and Poisson's equation

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Code No. 11060

FACULTY OF ENGINEERING

B.E. 2/4 (ECE) II – Semester (Backlog) Examination, November / December 2018

Subject: Networks and Transmission Lines

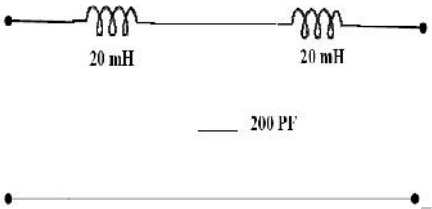
Time: 3 Hours **Max.Marks: 75**

Note: Answer all questions from Part – A and any five questions from Part – B.

PART – A (25 Marks)

1 Define the characteristic impedance and propagation constant. 2

2 Find cut-off frequency of the filter section. 2



3 Show that for a filter $Z_{OT} \times Z_{O\pi} = Z_1 Z_2$. 3

4 Determine the 'L' and 'C' values of a constant K high pass filter with a cut-off frequency of 2 kHz to be terminated in a resistive load of 600 Ω. 3

5 Design a symmetrical T attenuator with Ro=600 Ω and attenuation of 10 db. 3

6 Mention any two important functions of an equalizer. 2

7 Define phase velocity and group velocity and establish relation between them. 3

8 Write on important specifications of telephone cable. 2

9 Why is a quarter wave transmission line acts as a impedance inverter. 3

10 What is the importance of normalized impedance? Where it is used? 2

PART – B (5x10=50 Marks)

11 Define the image and iterative impedance of a network. Define expressions for the image and iterative impedances for asymmetrical T-n/w. 10

12 Design a composite T-section LPF with f_c =3.3 kHz,design impedance R_k =200Ω and f_∞= 3.6 kHz. 10

13 a) Differentiate between various method of network synthesis. 4

b) Synthesize the given network in cauer-II form. 6

14 a) The VSWR measured on UHF transmission line working at a frequency of 300 MHz is found to be 'z' if the distance between load and voltage minimum is 8metre. Calculate the value of load impedance. 5

b) Explain with neat circuit diagram, how to measure the primary constants of transmission line experimentally. 5

15 a) A certain line has a characteristic impedance 100Ω is terminated in a load Zr=200+j100Ω .Design a single stub to match the line to the load using Smith chart. 7

b) What are applications of Smith chart? Explain. 3

16 a) For a two port network, show that Zo=(Zsc*Zoc)^½ and tanhp=(Zsc/Zoc)^½ . 6

b) Why m-derived filter is preferred over constant-k filter. Explain. 4

17 Write short notes on: 10

a) Single stub matching

b) Notch filter

c) Phase equalizer

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Code No: 11068

FACULTY OF ENGINEERING

BE 2/4 (M/P) II - Semester (Backlog) Examination, November / December 2018

Subject : Basic Electronics

Time: 3 Hours **Max Marks: 75**

Note: **Answer all questions from Part-A & Any questions From Part-B.**

Part - A (25 Marks)

1. Define (i) n-type semiconductor (ii) p-type semiconductor 3
2. What is the function of a filter circuit? 2
3. For a transistor if I_E = 1, MA and ~ = 0.98 Determine I_C. 2
4. Give the symbols for n-channel and p-channel FETs 3
5. Prove that the gain with negative feedback in amplifiers is Af = $\frac{A}{1-A}$ where A is open loop gain and is feedback ratio 3
6. In an RC-phase shift oscillator, if $R_1 = R_2 = R_3$ = 800 KΩ and $C_1 = C_2 = C_3$ = 100 pF. Determine the frequency of oscillation 3
7. List the characteristics of an ideal op-AMP 2
8. Give the truth table of Half adder and Half subtractor 3
9. Define gauge factor 2
10. Mention applications of CRO 2

PART – B (50 Marks)

11. a) Explain the term doping and its need? 3
    b) Explain the working of a center tapped FWR 7
12. Explain how p-channel JFET works 10
13. a) A voltage series feedback amplifier has open loop gain of 500, input resistance R_i = 3KΩ, output resistance R0 = 20 KΩ and = 0.01 Calculate A_f, R_{if}, Ro_f of amplifier with feedback 6
    b) Explain why positive feedback is necessary to produce oscillations 4
14. a) Explain in how op-amp based integrator circuit works 5
    b) Realize full adder circuit using half adders 5
15. a) Explain the use of thermocouple for temperature measurement 5
    b) Draw the block diagram of CRO 5
16. How transistor can be used as an amplifier? Explain 10
17. Write short notes on (i) zener Voltage regulator (ii) LCD 5+5

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Code No. 11070

FACULTY OF ENGINEERING

B.E. 2/4 (AE) II - Semester (Backlog) Examination, November / December 2018

Subject : Thermal Engineering

Time : 3 Hours **Max. Marks: 75**

Note: Answer all questions from Part-A and answer any five questions from Part-B.

PART – A (25 Marks)

1 Define thermodynamics. How it is differ from heat transfer?
2 What do you understand by intensive and extensive properties?
3 What is meant by flow of work?
4 Define heat engine and Refrigerator.
5 What is a perpetual motion machine of 1^{st} kind (PMM-1)?
6 State the applications of compressed air.
7 Define the COP of Refrigeration and COP of heat pump.
8 State the advantages and disadvantages of gas turbines over IC engines.
9 State and briefly explain Fourier's law of conduction.
10 Explain the physical significance of critical radius of insulation.

PART – B (50 Marks)

11 In a Nozzle at the inlet the enthalpy of fluid passing is 3000 kJ/kg and the velocity is 60m/s. At the outlet the enthalpy of the fluid passing is 2762 kJ/kg. The Nozzle is horizontal and there is no heat loss from it.
(i) Find the velocity at the outlet from the nozzle
(ii) If the inlet area is $0.1m^2$ and specific volume at inlet is 0.1187 m^3/kg find the mass flow rate.

12 Obtain the equations for work done during various non flow process
(i) Isothermal process (ii) Adiabatic process

13 A Reversible engine operating between 600^oC and 40^oC. This Engine drives a reversible refrigerator operating between 40^oC and -18^oC still there is a net work output of 370 kJ and the heat Received by the engine is 2100 kJ. Determine the cooling effect.

14 Explain the concept of Reheating and Regeneration employed in Gas turbines with the help of neat sketches. Draw T-S diagrams for the same.

15 Explain the working principles of vapour compression Refrigeration system with neat sketch and draw p-h diagrams.

16 Derive the expression of LMTD for counter flow Heat exchanger.

17 Write short notes on :
(a) Steafan Boltzmann's Law
(b) Limitations of First law of Thermodynamics
(c) Applications of Fins

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Code No. 11074

FACULTY OF ENGINEERING

BE. 2/4 (C.SE) II-Semester (Backlog) Examination, November / December 2018

Subject: Microprocessor & Interfacing

Time: 3 Hours **Max. Marks: 75**

Note: Answer all Questions from Part A and any Five Questions from Part B

PART – A (25 Marks)

1	Define microprocessor and microcontroller.	(3)
2	State the internal operations of microprocessor.	(2)
3	Differentiate between peripheral and memory mapped I/O.	(3)
4	Describe the call and return instructions with examples.	(2)
5	How many number of T-states are required for STA 8050?	(3)
6	List the 8085 vectored interrupts.	(2)
7	State the addressing modes of 8051 with examples.	(3)
8	Draw the flag register of 8086 microprocessor.	(3)
9	What are the specific features of Pentium processor.	(2)
10	Write an ALP to add two numbers using 8051 microcontroller.	(2)

PART – B (50 Marks)

11	a) Explain the Pin diagram of 8085 microprocessor.	(6)
	b) Describe the arithmetic instructions of 8085 with examples.	(4)
12	Draw and explain the OUT instructiris timing diagram.	(10)
13	Explain the PCI (8251) with a neat diagram.	(10)
14.	Describe the functional block diagram of 8254.	(10)
15	Explain the architecture of 8051 microcontroller.	(10)
16	a) Describe the features of 8086 microprocessor.	(6)
	b) List and explain the addressing modes of 8086.	(4)
17	Write a short note on the following	
	a) 8257 DMA Controller. b) Registers of 8086.	(5+5)

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Code No. 11079

FACULTY OF ENGINEERING

B.E. 2/4 (I.T.) II - Semester (Backlog) Examination, November / December 2018

Subject : Computer Organization and Microprocessors

Time : 3 Hours **Max. Marks: 75**

Note: Answer all questions from Part-A & any five questions from Part-B.

PART – A (25 Marks)

1 Define Stack. Give any two examples of stack instruction.
2 Explain DMA.
3 Write any two differences between serial and parallel Interface.
4 Describe RLC, RRC rotate instruction.
5 Explain any two differences between multi computer and multi processor.
6 Define locality of reference in cache memory.
7 Write about modes of transfer of 8255.
8 Define Virtual memory.
9 Write an assembly language program to add two 8-bit nos.
10 Explain the function of SO, SI, IO/$\overline{M}$ signals in the 8085 architecture.

PART – B (50 Marks)

11 (a) Evaluate serial and parallel buy standards of RS232-C. (5)
(b) Interpret the stack concept of 8085 with example. (5)

12 (a) Explain the operation of Accessing I/O devices. (6)
(b) Interpret the Historical perspectives of computer. (4)

13 Define mapping. Explain three mapping techniques of memory in detail. (10)

14 Write the Internal architecture of 8085 with neat sketch. (10)

15 (a) Analyze Interfacing operation of D to A converter. (7)
(b) Perform fully nested mode of operation on given data. (3)
IR0 IR1 IR2 IR3 IR4 IR5 !R6 IR7

16 Explain the operation of Interval timer (intel 8254) and its interfacing with 8085. (10)

17 Write short notes on the following: (10)
(a) Secondary Storage
(b) Modes of 8255

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