Code No. 11010/BL

FACULTY OF ENGINEERING

B.E. 2/4 (Civil) I-Semester (Backlog) Examination, May / June 2019

Subject: Building Planning and Drawing

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) Draw the conventional sign for stone and brick (3)
2) Define header and stretcher (2)
3) Draw the isometric view of beveled brick and door opening (3)
4) Draw the isolated footing of course rubbled masonry (2)
5) Draw a line diagram of simple truss of 10 m span. (3)
6) Sketch the elevation of a fully glazed door? (2)
7) What is a footing? mention the difference between shallow and deep footing. (3)
8) What is a flight in a staircase (2)
9) What is the importance of elevation for a given section (3)
10) Give the minimum sizes of bedroom and kitchen . (2)

PART – B (50 Marks)

11) Draw the plan and isometric view of wall junction for one and a half brick wall in English bond. Draw minimum 4 layers. (10)

12) Draw front elevation and sectional elevation of a fully glazed door of 1.2m x 2.1m to a scale of 1: 50. (10)

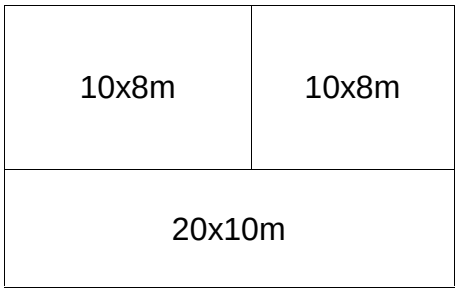
13) Draw the elevation and sectional plan of ashlar fine masonry. (10)

14) Draw the front and sectional elevation of an open well staircase in a residential block to reach a floor height of 3.1m. (10)

15) Draw the plan and elevation of a RC circular footing of a foundation in a residential building (10)

16) Write in detail the steps involved in planning of two storied residential building (10)

17) The line diagram of a building is shown in the figure below. Draw plan and sectional elevation to a scale of 1 : 50 and locate doors and windows . Take thickness of wall as 300mm. (10)



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Code No. 11018/BL

FACULTY OF ENGINEERING

B.E. 2/4 (EEE/Inst.) I – Semester (Backlog) Examination, May / June 2019

Subject: Electronic Engineering – I

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

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

PART - A (25 Marks)

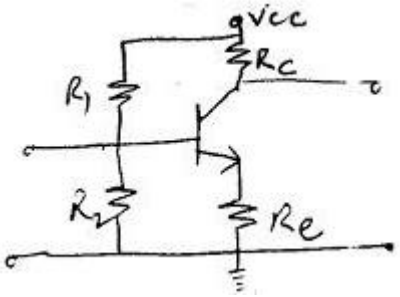
1. What is the ratio of forward bias to reversebios current in a diode if magnitude of voltage applied is same? 2M
2. What are the effects of temperature on diode characteristics? 3M
3. What are the major blocks in CRO? 2M
4. Define % regulation and efficiency for a rectifier? 3M
5. What is thermal runaway in BJT? 2M
6. What are the factors which effect operating –point stability 3M
7. Draw low frequency pi-model for BJT? 2M
8. What are the advantages of h-parameters? 3M
9. Compare enhancement and depletion MOSFETS? 2M
10. Draw self bias circuits of JEFT? 3M

PART – B (5x10 = 50 Marks)

11 Draw PN junction biasing-band diagrams with all current components and explain? 10M

12 Draw and explain the circuit diagram of full wave rectifier with LC-fitter. Derive expression for ripple factor? 10M

13 For the circuit shown find R1, R2, and Re if = 50, V_{BE} = 0.7v, V_{CC} = 25v, R_c = 5kΩ V_{CE} = 12v, I_c = 1.5mA and stability factor 'S' = 3? 10M



14 Derive expressions for current gain, input resistance, voltage gain and output resistance of a CE BJT amplifier. Calculate the same if load resistance is 4KΩ, source resistance is 1 KΩ. Assume suitable values of h-parameters? 10M

15 a) Explain V-I characteristics of JFET for CD-configuration? 5M
b) Compare CS, CD and CG configurations of JFET amplifier? 5M

16 a) Explain Zener voltage regulator with characteristics? 5M
b) Explain working principle of light emitting diode. What are it's applications? 5M

17 Write short notes on : (4M+3M+3M)
a) Compensation techniques
b) DIAC and TRIAC
c) Depletion MOSEFT-construction and working.

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Code No. 11024 / BL

FACULTY OF ENGINEERING

B.E. 2/4 (ECE) I – Semester (Backlog) Examination, May / June 2019

Subject: Electromagnetic Theory

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. Find in Rectangular coordinate system the unit vector which is a in the direction of E at point P(2,3, -4) if E = (xy ax + yz ay + z az). (2.5)
2. Define Gauss's Law. (2.5)
3. Given the potential field V = 100 $\sqrt{r}$ volts; in free space; find E and D. (2.5)
4. Define Poison's and Laplaces equations. (2.5)
5. State and prove Ampere's Law. (2.5)
6. Define Scalar and Vector Magnetic Potential. (2.5)
7. Explain the concept of EM wave polarization. (2.5)
8. State Poynting Theorem. (2.5)
9. Define Skin depth. (2.5)
10. Define Maxwell's equations. (2.5)

PART – B (50 Marks)

11 a) State and prove Divergence Theorem? (5)

b) Calculate the Divergence of G at point P (2 , -3 , 4); **G** = (x $\mathbf{a_x}$ + y$\mathbf{a_y}$ +z $\mathbf{a_z}$); **G=** r **ar.** (5)

12 a) A Dipole at the origin in free space has P = 80π ϵ_0 $\mathbf{a_z}$ Col-mt; Find V at P(x,y,z) also find **E** at same point (5)

b) State and prove Uniqueness Theorem. (5)

13 a) Find an expression for B (magnetic flux density) for a current loop. (5)

b) The current density in solid long cylindrical conductor of 2.5mm radius is 2.4 A/mm^2 Calculate the magnetic field intensity at radial distances of 1.25mm & 10mm. (5)

14 a) Define Magnetic Vector potential and hence derive an expression for the same. (5)

b) Define Maxwell's equations in Integral and differential forms for free space. (5)

15 a) Distinguish between Conductors and Dielectrics. (5)

b) Show that $\Gamma = \{ [\sqrt{\epsilon r1}\cos(\theta i) - \sqrt{\epsilon r2}\cos(\theta t)] / [\sqrt{\epsilon r1}\cos(\theta i) + \sqrt{\epsilon r2}\cos(\theta t)] \}$ (5)

16 a) Define inconsistency in Ampere's law? And show that **Curl H = [J +** d/dt**(D)].** (5)

b) State and prove P = E X H watts /mt^2. (5)

17 a) Write short notes on Electrostatic & Magneto static Boundary conditions. (5)

b) Obtain an expression for Capacitance of a Coaxial cable. (5)

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Code No. 11030/BL

FACULTY OF ENGINEERING

B.E 2/4 (M/P/AE) I-Semester (Backlog) Examination, May / June 2019

Subject: Mechanics of Materials

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 following terms

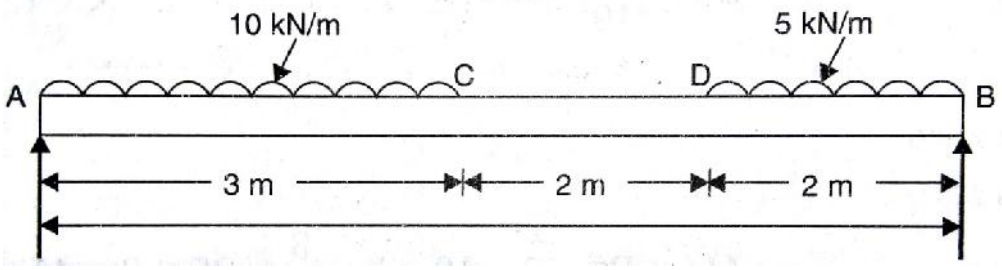
   a)Bulk Modulus b)Factor of Safety.

2. A rod of 200cm long and of diameter 3cm is subjected to an axial pull of 30KN. If the young's modulus of the material of the rod is $2x10^5$ N/mm^{2,} calculate elongation of the rod. [3]
3. Define Point of contraflexure with a sketchs [2]
4. A cantilever beam of length 2m carries a point load of 1KN at its free end, and another load of 2KN at a distance of 1m from the free end. Draw SFD and BMD for the cantilever. [3]
5. Define torsion and polar moment of inertia. with a sketchs [2]
6. Define spring. What are the various types of spring explain clearly with neat sketch. [3]
7. Draw the shear stress distribution diagram for T-Section. [2]
8. Define Principal planes and Principal Stresses. sketchs [3]
9. What is the difference between strut and column? with a sketchs [2]
10. What do you mean by thin cylinder and what are the stresses developed due to internal fluid pressure. [3]

PART-B (5 x10=50 Marks)

11. A steel tube of 30mm external diameter and 25mm internal diameter encloses a gun metal rod of 20mm diameter to which it is rigidly joined at each end. The temperature of the whole assembly is raised to 140^0C and the nuts on the rod are then screwed lightly home on the ends of the tube. Find the intensity of stress in the rod when the common temperature has fallen to 30^0C. The value of E for steel and gun metal is 2.1 X 10^5N/mm^2 and 1 X 10^5N/mm^2 respectively. The co-efficient of linear expansion for steel and gun metal is 12 X 10^{-6} per ^{0}C and 20 X 10^{-6} per ^{0}C. 10

12. Draw the shear force and bending moment diagrams beam as shown in below figure. And also calculate maximum bending moment. 10



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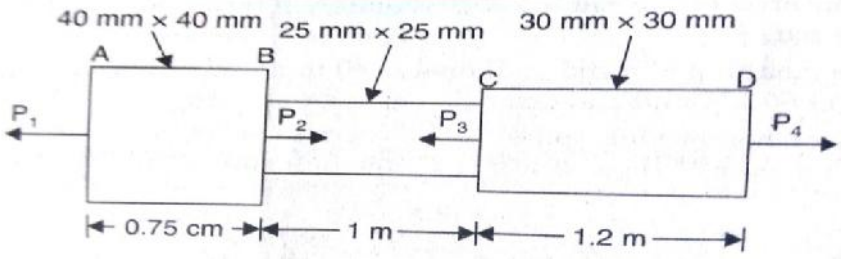
13. Derive the equation for slope and deflection of a simply supported beam carrying a point load at the centre of the beam. With near sketchs 10

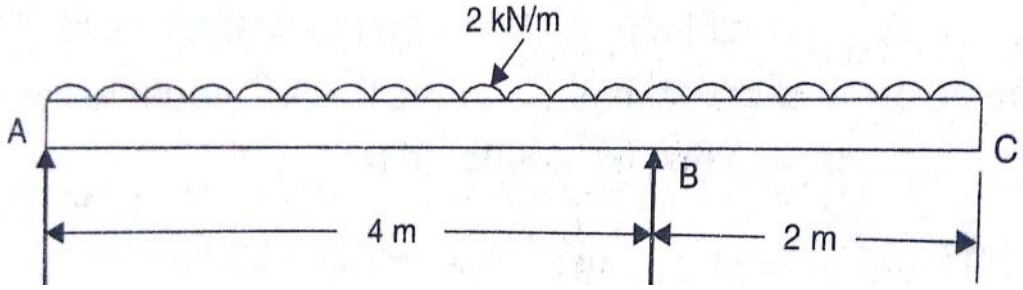
14. A rectangular beam 100mm wide and 250mm deep is subjected to a maximum shear force of 50KN. Determine a) Average shear stress b) maximum shear stress c) shear stress at a distance of 25mm above the neutral axis. And also draw shear stress distribution diagram. 10

15. A closed cylindrical vessel made of steel plates 4mm thick with plane ends, carries fluid under a pressure of 3 N/mm^2. The internal diameter of the cylinder is 25cm and length is 75cm, calculate the longitudinal and hoop stresses in the cylinder in the cylinder wall and also calculate change in diameter, length and volume of the cylinder. Take E= 2.1 X 10^5 N/mm^2. And poisson's ratio is 0.286. 10

16. A member ABCD is subjected to point loads P_1, P_2, P_3 and P_4, as shown in below fig. Calculate the force P_3 necessary for equilibrium if P_1 = 120KN,P_2 = 220 and P_4 = 160KN. Determine also the net change in the length of the member. Take E= Take E=200000MN/m^2. 10



17. Draw the shear force and bending moment diagrams for the over-hanging beam carrying uniformly distributed load of 2KN/m over the entire length as shown in below figure. And also locate the point of contraflexure. 10



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Code No: 11034/S

FACULTY OF ENGINEERING

BE 2/4 (CSE) I-Semester (Backlog) Examination, May / June 2019

Subject: Data Structures Using C++

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

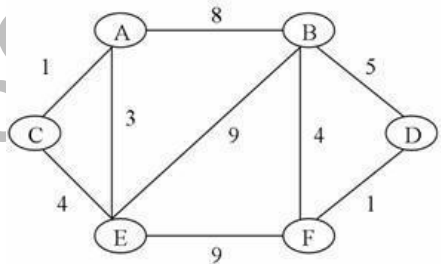
Note: Answer All Questions From Part-A & Any Five Questions From Part-B.

PART-A (25 Marks)

1. Define an Algorithm and list the criteria that Algorithms should satisfy. (2M)
2. What is a sparse matrix? Explain the sparse matrix representation. (3M)
3. What is the postfix form of the infix Expression (A+B)/B+(C+D)*E-F (2M)
4. Differentiate between sublyping and inheritance. (3M)
5. How can a polynomial such as $6x^3+5x^2-10x-12$ be represented by a linked list? (2M)
6. What is an equivalence class? How is it represented? (3M)
7. Explain collision in hash table. (2M)
8. What is minimum and maximum number of elements in an m-way search tree of height h? (2M)
9. Differentiate between Quick Sort and Merge Sort. (3M)
10. State the difference between breadth first search and depth first search. (3M)

PART-B (50 Marks)

11. Write a function to add two polynomials using arrays. (10M)
12. Write an algorithm to evaluate a post fix expression and explain with an example. (10M)
13. a) What is Minimum Cost Spanning tree (MST)? Explain Prim's algorithm to construct MST on the following graph. (1M+5M)



b) Explain Collision handling Techniques in hashing. (4M)

14. a) Construct a Max-heap from the following sequence of integer elements: (5M)
40, 50, 80, 70, 60, 90, 20, 10.

b) Explain Red-Black Trees. (5M)

15. a) What are the advantages of doubly linked lists over single linked lists? (2M)
b) Write a C++ program to implement linked stack. (8M)

16. a) Explain how the given numbers are sorted using merge sort (5M)
38, 27, 43, 3, 9, 82, 10.
b) Explain String Abstract Data Type. (5M)

17. Write Short notes on the following
a) A Mazing Problem (5M)
b) Generalized Lists (5M)

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Code No. 11040/S

FACULTY OF ENGINEERING

B.E. 2/4 (I.T.) I - Semester (Backlog) Examination, May / June 2019

Subject : Micro Electronics

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

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

PART – A (25 Marks)

1 Mention any three differences between PN Junction diode and and Schottky Diode. (3)
2 Briefly explain the principles of operation of a Varactor diode. (2)
3 Differentiate between JFET and MOSFET. (3)
4 How transistor can be used as a switch? (2)
5 Derive the expression for voltage gain in Negative feedback. (3)
6 Draw collector curve waveform for Class-A amplifier. (2)
7 List the properties of an Ideal Op-Amp. (3)
8 Draw the circuit of Comparator using OP-Amp. (2)
9 Define CMRR and Slew rate. (2)
10 What are PUN and PDN? (3)

PART – B (50 Marks)

11 (a) Draw and explain the operation of a Bridge Rectifier. (5)
(b) What is a limiter? Explain the operation of any two Clipper circuits. (5)

12 (a) Draw the structure of JFET and explain its operations. (6)
(b) Discuss about the Internal Capacitances of MOSFET. (4)

13 (a) Draw and explain the operation of any one I.C. Oscillator. (5)
(b) Discuss the properties of Negative Feedback. (5)

14 (a) Draw the Integrator circuit using Op-amp and explain. (5)
(b) Explain the working of Monostable Multivibrator. (5)

15 (a) Draw and explain the CMOS implementation of EX-OR Gate. (6)
(b) Draw the VTC of a CMOS inverter and explain. (4)

16 (a) Draw and explain the operation of a Triangular wave generator using Op-Amp. (5)
(b) Explain the physical structure and operation of an NPN transistor. (5)

17 Write short notes on the following:
(a) Op-Amp as an antialgorithmic Amplifier (5)
(b) Cathode Ray Oscilloscope (5)

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Code No: 11394/CBCS/S

FACULTY OF ENGINEERING

B.E. III – Semester (Civil)(CBCS)(Supple.) Examination, May/June 2019

Subject: Fluid Mechanics – I

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

Note: Answer all questions from Part-A and Part B & Any FIVE questions from Part-B.

PART – A (2 x 10 = 20 Marks)

1) By increasing the pressure of a liquid from 7950 KN/m^2 to 11470 KN/m^2 the volume of the liquid decreases by 1.5%. Determine the bult modulus of the liquid. 2M
2) What are the constraints on pressure measurement using a simple piezometer. 2M
3) Contrast control volume analysis with system Analysis. 2M
4) If ¨ $= 5x - \frac{10}{\sqrt{2}}y$, determine the magnitude and directions of velocity at any point in flow field. 2M
5) Mention the body forces and surface forces considered in derivation of the Euler's Equations of motion. 2M
6) What are KE and momentum correction factors? 2M
7) Why is a V notch better suited to measure low discharges? 2M
8) A pitot tube is used to measure velocity. The difference of stagnation and static pressure heads is 60 KPa. Find the velocity if water is flowing and C= 0.96 2M
9) What is the equation of state of a gas? 2M
10) What is the classification of flow based on Mach Number. 2M

PART – B (5 x 10 = 50 Marks)

11 a) Draw a neat sketch of micro monometer & derive the expression for pressure difference. 5M
b) Two Vertical parallel plates distance t apart are partially immersed in a liquid of surface tension ± and specific weight ¥ .Obtain an expression for capacity rise h. 5M

12 a) Distinguish between i) laminar and turbulent flows ii) compressible and Incompressible flows. 5M
b) The velocity potential function is ¤ $= 4\left(x^2 - y^2\right)$ find the stream function · 5M

13. a) Derive the continuity equation in three dimensions from system analysis. 5M
b) A 10 cm long nozzle of exit diameter 10 cm is attached to a pipe of 30cm diameter. The nozzle is vertical. If a water jet issuing out of the nozzle reaches a height of 4.5 m above the nozzle exit, calculate the discharge. Also by assuming a total head loss in the nozzle equal to 10% of the exit velocity head, calculate the pressure at the base of the nozzle. 5M

14 The diameter of a pipe bend is 30 cm at inlet and 15 cm at outlet and the flow is turned through 120^o in a vertical plane. The axis at inlet is horizontal and the center of the outlet section is 1.5 m below the center of the inlet section. Total volume of water is the bend is 0.9 m^3 Calculate the magnitude and direction of the force exerted on the bend by water flowing through it at 120 liter/s and when the inlet pressure is 0.15 N/mm$^{2.}$ 10M

15 a) Derive the equation for velocity of a pressure wave. 6M
b) In the case of a projectile travelling in air (° = 66.68 kpa) (t = -6.8^{o}c) the much angle is found to be 30$^{o.}$ Determine the velocity of the projectile. 4M

contd..2..

16 a) Prove that lines of constant · are the streamlines of the flow. 5M

b) Find the discharge over a weir 8m long and 3m high flowing under a head of 2.4m. The width of the approach channel is 10 m. Assume suitable value of Cd. 5M

17 a) Draw a neat sketch of venture meter and derive the expression for discharge if a mercury differential manometer is used for measurement of pressure difference. 5M

b) State the limitations on the bernoulli's equation and explain how they are over come for a real fluid flow. How do you modify the equation if a pump is operating between section one and two. 5M

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Code No. 11400 / CBCS / S

FACULTY OF ENGINEERING

B.E. (EE/Inst.) III – Semester (CBCS) (Suppl.) Examination, May / June 2019

Subject: Electro Magnetic Fields.

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

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

PART – A (10x2 = 20 Marks)

1 Write the properties of potential function.
2 What is divergence theorem?
3 What is Coulomb's Law?
4 What do you mean by dielectric capacitance?
5 Write Poisson's and Laplace equations.
6 Define self and mutual inductances.
7 What do you mean by steady state magnetic field?
8 Write the Maxwell's equations in integral form.
9 Write the Maxwell's equations in differential form.
10 Explain the uniform plane wave propagation.

PART – B (5x10 = 50 Marks)

11 Find the electric field due to infinite long conductor and infinite sheet of charge using Gauss's Law.

12 A cylindrical capacitor consists of an inner conductor of radius 'a' and outer conductors, whose inner radius is 'b'. The space between the conductors is filled with a dielectric permittivity ϵ_r and length conductor is L. Find the value of the capacitance.

13 Using Biot-Savart's Law, determine the magnetic field intensity due to a straight current carrying filamentary conductor of finite length AB.

14 Derive the Maxwell's equation in point and integral form.

15 Deduce the poynting's theorem from Maxwell's equations and find the total time average power, crossing a given surface 'S'.

16 A parallel plate capacitor with plate area of 5 cm^2 and plate separation of 3 mm has a voltage of 50 $\sin 10^3$ + t - V applied to its plates. Calculate the displacement current assuming $\epsilon = 2\Sigma O$.

17 a) Explain conductor properties and boundary conditions.
b) Describe Stoke's theorem.
c) Obtain the energy stored in electric and magnetic fields.

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Code No: 11406/CBCS/S

FACULTY OF ENGINEERING

B.E. III Semester (ECE)(CBCS) (Supple.) Examination, May / June 2019

Subject: Switching Theory and Logic Design

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

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

PART – A (10x2=20Marks)

1. Convert the given value $(A56)_{16}=(\quad)_8$ and $(\quad)_z$
2. Find the complement of the function F1-x'yz'+x'y'z
3. Differentiate between combinational logic circuits and sequential logic circuits.
4. Realize function g=ab+cd using NOR gates only.
5. Realize half subtractor using 2 input NAND gates.
6. Show the internal logic diagram of 8x4 ROM using decoder and OR gates.
7. Draw the state diagram of a T-FF
8. Differentiate between Moore and Melay FSM
9. Construct 4X1 Multiplexer using 2X1 Multiplexer
10. To Design a ÷50 how many 7490s are required? Draw the functional diagram.

PART – B (5x10=50 Marks)

11. (a) Design a BCD to Excess-3 code convertor
    (b) Simplify the function using K-Map F1(A,B,C,D,E)=Σ(0,1,4,5,16,17,21,25,29)

12. (a) Express the function F(A,B,CD)= D(A'+B)+(B'D) in sum of minterms and product of maxterms.
    (b) Design a 2 bit comparator and implement the function with logic gates.

13. (a) Implement the function F=AB+CD+E using NAND gates
    (b) Design a BCD adder using Binary adder

14. (a) Obtain the characteristic equation and Excitation tables of JK and DFFs
    (b) Design a priority encoder with eight inputs

15. (a) Compare Asynchronous and Synchronous counters.
    (b) Design a ÷4 UP/Down counter with a control x=1 to up count and x=0 for down Count.

16. (a) Implement the function f(a,b,c)=Σ(0,1,2,3,6,7) using a 74153
    (b) Find the minimal SOP and minimal POS expression for function f
    f(w,x,y,z)=® (1,4,5,6,11,12,13,14,15)

17. Write short notes on,
    a) Shift registers
    b) Hazards in switching circuits
    c) ROM using Decoder

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Code No. 11416 / CBCS / S

FACULTY OF ENGINEERING

B.E. (M/P) III - Semester (CBCS)(Suppl.) Examination, May / June 2019

Subject : Fluid Mechanics

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

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

PART – A (20 Marks)

1 State Newton's law of viscosity. (2)
2 What are the uses of flow nets? (2)
3 What are the properties of stream function? (2)
4 List out the engineering applications of Bernoulli's theorem. (2)
5 Name the different forces present in a fluid flow. (2)
6 What are the different pressure measuring devices? (2)
7 Identify the different pressure measuring devices. (2)
8 Define boundary layer thickness. (2)
9 What examples can you find to explain viscous flow? (2)
10 Write an expression for velocity of sound wave in a compressible fluid in terms of bulk modulus and density of fluid. (2)

PART – B (50 Marks)

11 (a) A shaft of diameter 74.90 mm rotates in a bearing of diameter of 75 mm and length of 125mm. The annular space between the shaft and bearing is filled with oil having coefficient of viscosity 0.16 stokes and specific gravity 0.90. Determine the power in ever coming viscous resistance in the bearing at 1800 r.p.m. (5)
(b) Derive the continuity equation for incompressible fluid in Cartesian coordinates.(5)

12 (a) A pipe of 300 mm diameter conveying 0.30m^3/s of water has a right angled bend in horizontal plane. Find the resultant force exerted on the bend if the pressure at inlet and outlet of bend are 24.525 N/cm^2 and 23.544 N/cm^2. (5)
(b) Derive Euler's equation of motion for the three dimensional flow and obtain energy equation from it. (5)

13 (a) An oil of specific gravity 0.8 is flowing through a venturimeter having inlet diameter 20 cm and throat diameter 10 cm. the oil-mercury differential manometer shows a reading of 25 cm. Calculate the discharge of oil through the horizontal veturimeter take C_d=0.98. (5)
(b) Describe a venturimeter and find an expression for measuring discharge of fluid through a pipe with this device. (5)

14 (a) A truck having a projected area of 7 square metres traveling at 65 km/hr has a total resistance of 1995 N of this 25 percent is due to rolling friction and 12 percent is due to surface friction the rest is due to form drag. Make calculation for the coefficient of form drag. Take density of air as 1.15 kg/m^3. (5)
(b) Derive Hagen-Poiseulle's equation for laminar flow through circular pipes and state the assumptions made in it. (5)

..2

15 (a) What is Mach number? What is the importance of Mach number for the study of compressible fluid flows? (5)

(b) A gas with a velocity of 300 m/s is flowing through a horizontal pipe at a section where the pressure is $6x10^4$ N/m^2 (Absolute) and temperature 4^{o}C. The pipe changes in diameter and at this section the pressure is $9x10^4$ N/m^2 (Absolute). Find the velocity of gas at this section if the flow of the gas at this section is adiabatic.(5)

16 (a) A crude oil of viscosity 0.97 Poise and relative density 0.9 is flowing through a horizontal circular pipe of diameter 100 mm and length 10 m. If 1000 N of oil is collected in a tank in 24 seconds, Calculate. (i) Discharge in the pipe (ii) Average velocity (iii) Reynolds number (iv) Difference of pressure at the two ends of pipe. (6)

(b) The stream function for a two dimensional flow is given by $\Psi = 2xy$, calculate the velocity at Point P(2, 3). Find the velocity potential function $\varnothing$. (4)

17 Write short notes on the following:

(a) Weirs and Notches (3)

(b) Turbulent Boundary Layer and Laminar Sub Layer (3)

(c) Stagnant Properties of compressible fluid flow. (4)

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Code No. 11414 / CBCS / S

FACULTY OF ENGINEERING

B.E. (AE) III - Semester (CBCS)(Suppl.) Examination, May / June 2019

Subject : Automotive Engineering Drawing

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

Note: Answer all questions from Part-A & Part-B. Assume any missing data suitably and mention clearly.

PART – A (20 Marks)

1 Sketch neatly a Knuckle joint for connecting two 40 mm diameter rods. Give all important dimensions. (6)

2 Sketch a compressed muff coupling for joining shafts of diameters 30 mm each. (6)

3 Draw the following views of a hexagonal headed bolt of diameter 25 mm:
(a) Front view (b) Right side view (3)

4 Draw the profile of the following threads
(a) Buttress (b) Square (2)

5 Draw conventional representation of the following:
(a) External thread (b) Internal thread (c) Glass (material) (3)

PART – B (50 Marks)

6 Parts of an Eccentric are shown in figure Assemble all the parts and draw the following using first angle projection.

(a) Half-sectional Front View (30)

(b) Top view (10)

(c) Side view (10)

..2

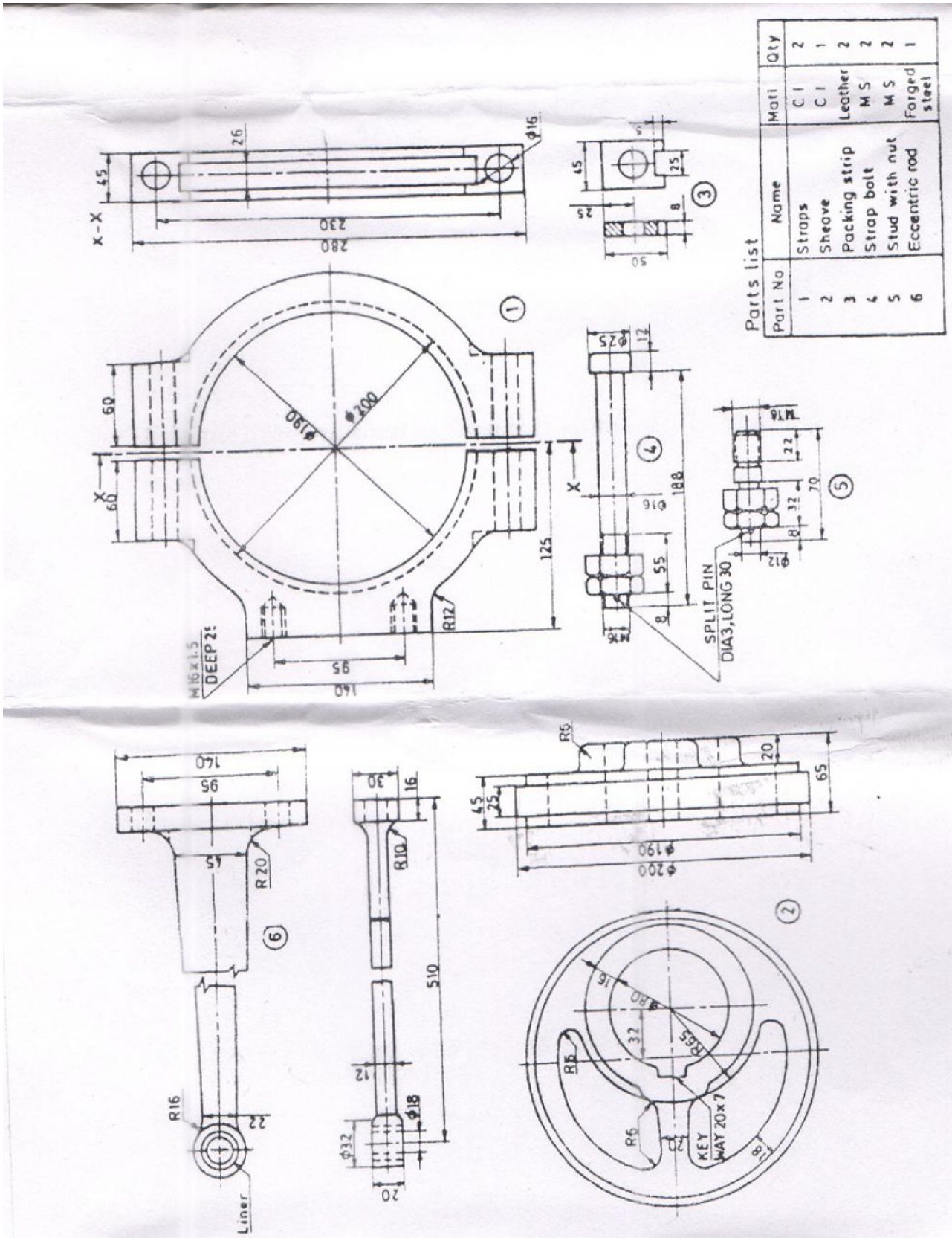

Fig. 3 Details of Eccentric

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Code No. 11420 / CBCS / S

FACULTY OF ENGINEERING

B.E. (CSE) III - Semester (CBCS) (Suppl.) Examination, May / June 2019

Subject : Logic and Switching Theory

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

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

PART – A (25 Marks)

1 Distinguish between Canonical and Standard form.
2 Convert the following to indicated bases :
(a) 1792 to octal
(b) 226 to binary
3 Differentiate between Implicants and Prime Implicants.
4 What is an Equivalence Function?
5 Implement the following Boolean function using 4-to-1 line Multiplexer
$F(x, y, z) = \Sigma m(1, 2, 6, 7)$
6 Differentiate between Integrated Circuits and Discrete Circuits.
7 Explain about PAL (Programmable Array Logic) Devices.
8 Write the Excitation table of T and D Flip-flop.
9 Differentiate between Synchronous and Asynchronous counter.
10 Compare Combinational Circuit and Sequential Circuits.

PART – B (50 Marks)

11 (a) Reduce the following Boolean expression to the indicated number of literals (5)
(i) x'y' + xyz + x'y to 3 literals
(ii) w' x (z' + y' z) + x(w + w'yz) to one literals.
(b) Use NOR gates to realize the Boolean function (5)
F(A, B, C, D) = AB + B'C + CD

12 (a) Simplify a 4-Variable function using k – map (5)
$F(w, x, y, z) = \Sigma m(0, 2, 10, 13, 15)$
(b) Find the minimal SOP and POS forms for the function using k-map (5)
$F(a, b, c, d) = \Sigma\, m\,(0, 2, 8, 9, 10, 15) + \Sigma\, d(1, 3, 6, 7)$

13 (a) What is an Adder? What are the different types of Adders explain? (5)
(b) Explain about carry look ahead Adder with diagram. (5)

14 A Sequential Circuits has to D flip flop A, B and one input X and an output function Y. It can be specified by the following equation.
$D_A = A_x + B_x$, $D_B = A'x$ $Y = (A + B)\, x'$
(a) Draw the logic diagram of the circuit.
(b) Derive the state table and state diagram for the circuit. (10)

15 Design a Synchronous Sequential Counter that follows the state sequence 0, 1, 2, 3, 4, 5, 6, 7 using n flip-flops.

16 Simplify using Quine - Mccluskey method (10)
$F(a, b, c, d) = \Sigma_m(1, 2, 3, 5, 7, 9, 10, 11, 13, 15)$

17 Write short notes on the following:
(a) MOORE and MELAY machine
(b) Decoder with Truth Table
(c) Characteristics tables of various types of Flip-Flops

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Code No. 11426 / CBCS / S

FACULTY OF ENGINEERING

B.E. (I.T) III – Semester (CBCS) (Suppl.) Examination, May / June 2019

Subject: Environmental Studies

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

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

PART – A (10x2 = 20 Marks)

1 What are the main objectives of Environmental Education?
2 How does land degradation takes place? Write its adverse effects.
3 Define consumers and classify them.
4 What are the significance of food chain and food web?
5 What is meant by ethical value of biodiversity?
6 What are the biodiversity 'Hot Spots'? Mention hot sports in India.
7 Write briefly how human activities can introduce pollution in environment.
8 Define thermal pollution and mention the causes of thermal pollution.
9 Write short notes on Watershed Management.
10 Define Eutrophication.

PART – B (5x10 = 50 Marks)

11 a) How do you contribute for Environmental Conservation? 5
b) Discuss the consequences of over drawing surface and ground water. 5

12 a) What is ecosystem? Explain the structure, characteristics and types of aquatic ecosystem. 5
b) Differentiate between grazing and detritus food chain with examples. 5

13 a) What is biodiversity? Explain the importance of biodiversity to the human kind. 5
b) Briefly explain the conservation methods of biodiversity. 5

14 Write short notes on:
i) Thermal pollution 5
ii) Noise Pollution. 5

15 Classify solid waste. Write the adverse effects of solid waste. State how can the solid waste be managed. 10

16 a) Write and explain the salient features of "Forest Conservation Act" of the Indian Constitution. 5
b) Write merits and demerits of wind energy. 5

17 Write short notes on the following:
a) Global warming 5
b) Rain water harvesting. 5

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