Code NO: 11087

FACULTY OF ENGINEERING

BE 3/4 (Civil/CSE/IT) I-Semester (Backlog) Examination, Nov. / Dec. 2018

SUBJECT : Managerial Economics and Accountancy

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

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

PART-A (25Marks)

1. Define Managerial Economics 3
2. Explain about Income Elasticity demand 2
3. Difference between perfect and Imperfect market 3
4. What is Net working capital? 2
5. Explain the significance of Double Entry book-keeping 3
6. Explain about macro managerial economics 2
7. What is Law of supply? 3
8. Define Book cost and out of Pocket cost 2
9. What is Payback period 3
10. What is Ledger? 2

PART-B (50Marks)

11. Explain the Fundamental Principles of managerial Economics 10

12. From the following information given below. Calculate 1) P/V Ratio 2) B.E.P 10
c) Margin of safety d) Margin of safety Ratio. Sales Rs.3,00,000 fixed cost Rs. 90,000 Variable cost Rs. 1,50,000

13. Write Short note on
    a) External Economics of Scale 5
    b) Usefulness of Break – Even Analysis 5

14 Calculate the average rate of Return Investment Rs. 30,000. Expected life 5 years. 10

Year	1	2	3	4	5
Profit after Tax	3,000	3,000	2,000	1,000	1,000

The Rate of Return is 12%

15. Prepare a bank Reconciliation Statement as on 31.02.2010 10
    a) Balance as per cash book Rs. 1,729
    b) Cheque issued but not presented for payment Rs. 600
    c) Cheque received and deposited in bank but not collected and credited before closing data Rs. 150
    d) Interest on investment collected and credited in pass book Rs. 2,500
    e) Bank charges Rs. 15 and interest on overdraft Rs. 85 debited in pass book.

16. a) Write law of demand and its exceptions 5
    b) Explain the concepts of price, income of cross elasticity of demand 5

17. a) Write any two conventions of accounting 5
    b) Write Journal Entries for the following transactions. 5
    1-3-2016 Rakesh Commenced business with cash Rs. 50,000
    2-3-2016 Sold goods for cash Rs. 15,000
    3-3-2016 Rent paid to land lord Rs. 10,000
    4-3-2016 Received interest Rs. 1,000
    5-3-2016 Deposited in bank cash Rs. 10,000

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Code No. 11093

FACULTY OF ENGINEERING

B.E. 3/4 (EEE/Inst.) I - Semester (Backlog) Examination, November / December 2018

Subject : Linear Control Systems

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 are the effects of feedback on control system? (2)

2 What is the difference between DC servo motor and DC motor? (2)

3 Determine the range of K for stability of unity feedback system
Whose Open loop transfer function is $G(s) = \frac{k}{S(S+1)(S+2)}$. (3)

4 What is the cause of Transient response of second order system? (2)

5 Write the difference between types and order of a system? (3)

6 What is Phase Margin? (2)

7 Draw the polar plot for the transfer function $G(s) = \frac{1}{(S(1+S)^2}$. (3)

8 Check the Observability of the system (3)

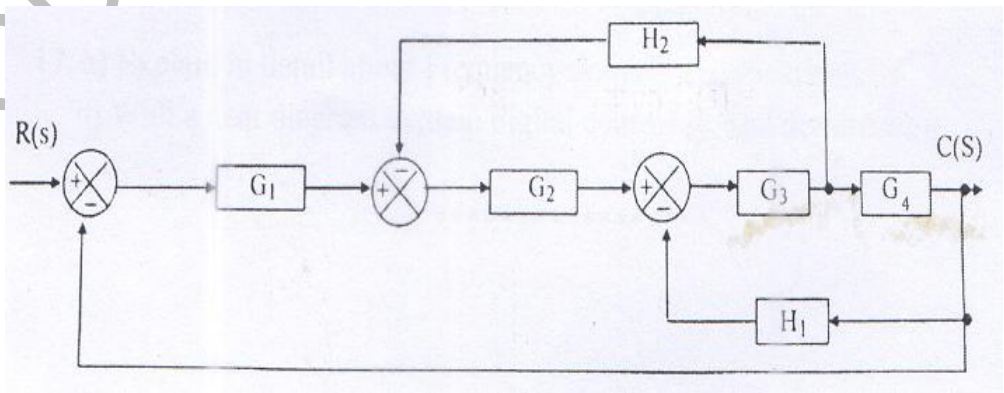
$$\begin{bmatrix} \dot{x}_1 \\ \dot{x}_2 \\ \dot{x}_3 \end{bmatrix} = \begin{bmatrix} 0 & 1 & 0 \\ 0 & 0 & 1 \\ 0 & -2 & -3 \end{bmatrix} \begin{bmatrix} x_1 \\ x_2 \\ x_3 \end{bmatrix} + \begin{bmatrix} 0 \\ 0 \\ 1 \end{bmatrix} u$$

9 What are the advantages of state model over transfer function? (2)

10 What is the condition for stability in Z-domain? (3)

PART – B (50 Marks)

11 (a) Determine the overall Transfer function C(s) /R(s) for the system shown below. (5)

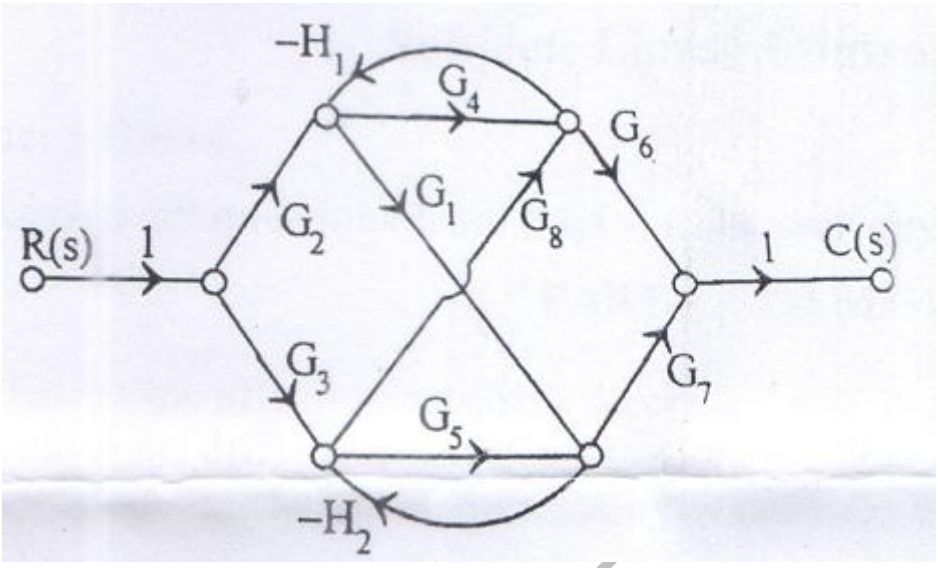


(b) Explain the principle and working of Synchro. (5)

12 Sketch the root locus for the unity feedback system whose open loop Transfer function is $G(s) = \frac{K}{S(S^2+6S+10)}$. (10)

..2

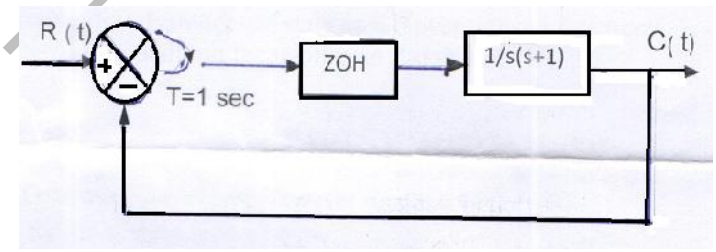
13 Find the overall Gain of the system whose signal flow graph is shown in figure. (10)



14 Sketch the Bode plot for the following transfer function and determine Gain and Phase cross over frequencies where $G(S)=\dfrac{10}{S(1+0.4S)(1+0.1S)}$. (10)

15 Determine the state transition matrix where $A=\begin{bmatrix}-2 & 1\\ 2 & -3\end{bmatrix}$. (10)

16 Determine $\dfrac{C(Z)}{R(Z)}$ for the following system. (10)



17 (a) Explain in detail about Frequency domain specifications. (5)
(b) With a neat diagram explain digital control system architecture. (5)

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Code No. 11097

FACULTY OF ENGINEERING

B.E. 3/4 (ECE) I – Semester (Backlog) Examination, November /December 2018

Subject: Pulse & digital circuits

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. Draw the response of low pass RC circuit to ramp input? (3)
2. Draw the RLC Ringing Circuit? (2)
3. What is Slicer and Transistor Clipper? (3)
4. What is meant by multivibrator? How many stable states are in monostable multivibrator? (2)
5. Explain the procedure to detect and correct the errors in the received hamming code with the help of an example (3)
6. What do you mean by Positive and Negative Logic? (2)
7. What is Don't care condition? What are the advantages of Tabulation method over K-Map? (3)
8. Design and implement 2 - bit Comparator using Logic Gates? (2)
9. What is Flip – Flop? Write the Truth table of SR Flip – flop (3)
10. Distinguish between Moore and Melay machine? (2)

PART-B (10 x 5 = 50 Marks)

11 a) A Pulse of 5v amplitude and width of 0.5msec is applied to a high pass RC circuit consisting of R = 22kΩ and c = 0.47 «F Estimate the output voltage level and sketch the waveform. Also determine the percentage tilt in the output? (5)

b) Derive the expression for the response of RC low pass circuit to which square input is applied? (5)

12 a) Draw the circuit diagram of emitter coupled clipper? Derive the equations? (5)

b) Explain the working of Miller Sweep circuit? (5)

13 a) State and prove Clamping Theorem? (5)

b) Draw the circuit diagram of Fixed bias binary? Explain its operation? (5)

14 a) Why NAND and NOR gates are known as universal gates? (5)

b) Implement EX-OR gate and EX-NOR using NAND and NOR gates (5)

15 a) Define prime implicant and essential prime implicant? (3)

b) Minimize the following function using tabular minimization
F (A,B,C, D, E) = Σ (0, 1, 2, 8, 9, 15,17, 21, 24, 25, 27, 31) (7)

..2

16 a) Implement the full subtractor using Demultiplier? (4)

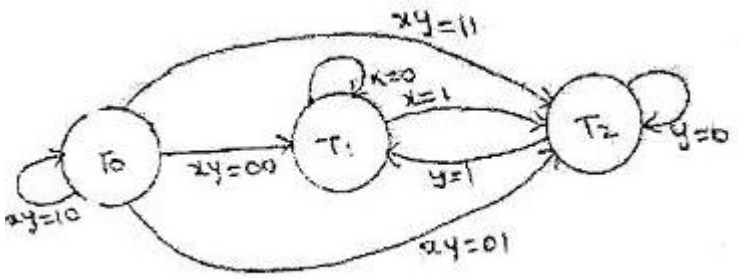
b) Write the characteristics equation and characteristic tables for the following Flip – Flop i) JK-Flip-Flop ii) D-Flip – Flop iii) T- Flip – Flop (6)

17 a) What are the limitations and capabilities of an FSM? (4)

b) For the State diagram given (6)

i) Draw the equivalent ASM Chart.

ii) Design the Control circuit using One Flip – Flop per State method



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Code NO: 11097/O

FACULTY OF ENGINEERING

BE 3/4 (ECE) I-Semester (Old) Examination, November /December 2018

SUBJECT : Microprocessors and Microcontrollers

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 differences between 8086 and 8088 microprocessors? 3
2. What is pipelining? How is this concept implemented in 8086? 2
3. Explain MOVSB and LODSB instructions of 8086? 3
4. Write the merits and demerits of macros and procedures? 2
5. Draw the control word register format of 8255 in I/O AND BSR mode? 3
6. Compare between serial and parallel data transmission methods? 2
7. Describe the functions of the following pins of 8051 2
   (i) EA (ii) PSEN
8. Write the differences MOV, MOVX, MOVC instructions in 8051 microcontroller? 3
9. Describe the function of each bit in SCON register of 8051? 3
10. What is the internal ROM size of 8031 and 8051 microcontrollers? 2

PART-B (50 Marks)

11. a) Describe the architecture of 8086 with a neat block diagram 7
    b) Explain the function of the following signals 3
    (i) HOLD (ii) BHE (iii) DT/R'

12. a) Explain any five assembler directives in 8086? 5
    b) What is an interrupt vector table? Explain interrupt structure of 8086? 5

13. a) Explain the different modes of operation of 8255? 5
    b) Design a programmable timer using 8254 and 8086. Interface at an address 0080H for counter and write the ALP to generate a square wave of period 1ms. The 8086 and 8253 run at 6MHz and 1.5 MHz respectively 5

14. a) What is the need for addressing mode. Explain various addressing modes in 8051 with an example? 5
    b) Write an ALP of 8051 to find the sum of series of ten 8-bit numbers 5

15. a) Draw interface diagram of stepper motor to 8051. Write and ALP to rotate it 4 times in the clockwise and 4 times in anticlockwise direction 5
    b) Design a memory interface to 8051 with 32KB RAM and 32KB ROM with a neat diagram 5

16. a) What is the purpose of instruction queue in 8086 and explain it? 5
    b) Describe the operation of stack in 8086 5

17. Write short notes on any two
    a) 8251 USART 5
    b) Internal RAM organization of 8051 5
    c) LCD interface to 8051 5

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Code No.11113/CBCS

FACULTY OF ENGINEERING

B.E. ¾ I – Semester (A.E)(Backlog)Examination, November/December 2018

Subject : Automotive Transmission

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. Differentiate wet and dry clutches?
2. What is the function of Synchronizer?
3. What are the advantages of fluid coupling?
4. What is the function of the reaction member in the torque converter?
5. What are the advantages of the epicyclic gear box over the ordinary gear box?
6. What are the relative merits of Automatic Transmission when compared to conventional transmission?
7. What are the advantages and limitations of electrical drive?
8. What are the advantages of hydrostatic drive?
9. State any 3-advantages of electrical drives.
10. Explain the term clamping force.

Part-B (5 x 10 =50 Marks)

11. Explain briefly the construction and working principle of centrifugal clutch with neat sketch. 10
12. Explain briefly the construction and working principle of constant mesh gear box and show how in different speeds? 10
13. Describe the working of two stage and three stage torque converters with neat sketches. 10
14. Explain briefly any one type of Hydraulic transmission drive with the help of a neat sketch. 10
15. Explain the working principle of Wilson gear box briefly with neat sketch. 10
16. Explain the construction and working principle of Ford Automatic transmission system.10
17. Briefly Explain Modern electric drive for buses.(anyone) 10

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CODE NO: 11473/CBCS

FACULTY OF ENGINEERING

BE (Civil) V-Semester (CBCS)(Main) Examination, November / December 2018

Subject: Environmental Engineering

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 an intake structure? (2)
2. A water supply scheme has to be designed for a city having a population of 2,50,000 Estimate the average daily draft for an average water consumption of 300 lpcd. (2)
3. What is water softening? (2)
4. Write the requirements of a good disinfectant. (2)
5. Calculate the quantity of storm water that will reach the sewer lines, when the maximum intensity of rainfall is 30 mm/hour over a catchment area of 300 hectares. Take runoff coefficient as 0.44. (2)
6. Write the Burkli Ziegler's and Mc math's formula for quantity runoff estimation. (2)
7. What is a skimming tank? (2)
8. Sketch the layout of a sewage treatment plant. (2)
9. List the factors affecting the sludge digestion. (2)
10. Write about the quality and quantity of solid waste. (2)

Part-B (50 Marks)

11 (a) What are the general requirements of pipes used for conveying water for a township? Mention the advantages of cement concrete pipes over other pipes. (5)

(b) As per the census record, the population of a city is 12,000 in 1990, 18,000 in 2000 and 26,000 in 2010. Forecast the population for 2020 and 2030 using the geometrical increase method. (5)

12 (a) Design five slow sand filter beds from the following data for the water works of a town of population 75,000, percapita demand 135litres/day/capita. Rate of filtration is 210litres/hour/m^2. Assume maximum demand as 1.5 times the average demand. Out of five, one is to be kept as stand by and used while repairing other units. (5)

(b) Write the design aspects of continuous flow settling tanks. (5)

13. Design the section of a combined circular sewer from the following data.
Area to be served = 25 hectares.
Population of the locality = 5,500.
Max permissible velocity = 3.2 m/s
Time of entry = 5 min

…2

Time of flow = 20 min
Rate of water supply = 270 litres /day / capita.
Impermeability factor = 0.45. Assume suitably, any other data required. (10)

14 (a) With the help of a neat sketch, describe the construction and working of an intermittent sand filter. (5)

(b) Design a rectangular grit chamber for the following data. (i) flow of sewage= 55 X 10^6 litres/day. (ii)specific gravity of the grit = 2.7 (iii) size of the grit particle to be removed = 0.21 (iv) viscosity of water = 1 X 10^{-2} cm^2/sec. (5)

15. (a) With a neat sketch explain theworking and construction of oxidation ponds. (5)

(b) A sewage has a suspended solid content as 250 mg/litre. The sedimentation tank removes 55% of the suspended solids and the water content is 95%. Determine the quantity of the sludge produced after treating 6.5 x 10^6 litres of sewage. (5)

16. (a) Explain the process of anerobic sludge digestion. (5)

(b) Draw the outline of a typical water supply scheme and describe the essentials of a water supply scheme. (5)

17. Write short notes on (10)

(a) High rate trickling filters.

(b) Dewatering and drying of sewage.

(c) Sedimentation with coagulation.

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Code No. 11498/CBCS

FACULTY OF ENGINEERING

B.E. V – Semester (CBCS) (ECE)(Main) Examination November/ December 2018

Subject: Digital System Design with Verilog HDL

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

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

Part – A (20 Marks)

1. Draw a typical design flow for designing VLSI IC circuits.
2. Give the value set and nets supported by Verilog.
3. Write Verilog code for NAND fate in switch level modeling.
4. What is meant by logic synthesis?
5. Write Verilog code for T flip flop in behavioral modeling.
6. Explain need of state minimization technique in FSM.
7. Explain hazards in combinational circuit with example.
8. Differentiate between state table and flow table.
9. Describe types of semi-custom ASICs?
10. Realize 1 bit full adder using PLA.

Part – B (50 Marks)

11. a) What are the system task and compiler directives supported by verilog? 4M

    b) Write the program for full adder module using arithmetic operators and verify its functionality using stimulus. 6M

12. a) Explain initial and always block in verilog. 5M

    b) Write a verilog code for BCD-to-7-segment decoder in behavioral modeling. 5M

13. a) Differentiate between mealy and moore FSM. 2M

    b) Design synchronous sequential circuit using one hot encoding method for the state table show in Table 1 8M

Present State (y)	Input(x)	
	0	1
A	B/0	C/1
B	C/0	A/1
C	B/1	B/0

Contd…2

14. a) Describe steps involved in a analysis procedure of asynchronous sequential circuit. 3M

    b) Design vending machine controller. Draw its ASM and implement verilog program. 7M

15. Tabulate the PLA programming table for the four Boolean functions listed below. Minimise the number terms, A(x, y, x) = $\sum$m(1, 3, 5, 6), B(x, y, z) = $\sum$m (0, 1, 6, 7), C(x, y, z) = $\sum$m (3,5) and D(x, y, z) = $\sum$m (1, 2, 4, 5, 7) 10M

16. Minimize the state table shown in table 2 using participating method and design sequential circuit using D flip flop for obtain minimize table. 10M

Table 2

Present state (y)	Input (x)	
	0	1
A	C/1	B/0
B	C/1	E/0
C	B/1	E/0
D	D/0	B/1
E	E/0	A/1

17. a) Design arithmetic and logic nit (ALU) with minimum 8 instruction in verilog and verify functionality using stimulus. Draw its waveforms. 5M

    b) Explain simplified architectures of CPLD and FPGA. 5M

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Code No. 11504/CBCS

FACULTY OF ENGINEERING

B.E. V Semester (CBCS) (M/P)(Main)Examination, November/December 2018

Subject: CAD/CAM

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 are the characteristics of Bezier curves? 2
2. What is interpolation and approximation of curves? 2
3. Write the basis function of Bezier surface. 2
4. What is Coons patch surface? 2
5. What is canned cycle? 2
6. What do mean by Drive surface, part surface and check surface? 2
7. Define DNC. List its advantages. 2
8. What are the applications of Industrial Robots? 2
9. Sketch one GT layout for a typical shop floor. 2
10. State the features of the FMS system 2

Part – B (50 Marks)

11. a) Sketch and discuss the role of CAD/CAM in product life cycle Environment? 5
    b) Four vertices of Bezier polygon are Po(1,1), P_1(2,3), P_2(4,3) and P_3(3,1). Determine seven points on the Bezier curve. 5

12. a) What do you mean by curvature continuity? Discuss C0, C1, and C2 Continuity. 5
    b) A triangle A(0,0), B(1,1) and C(5,2) is rotated by an angle of 45^{o}about
    i) the origin and
    ii) about point (-1,-1). Find the new co-ordinates of the triangle. 5

13. a) Explain the C-Rep approach of solid modelling. Prepare CSG tree for the fig 1. 5

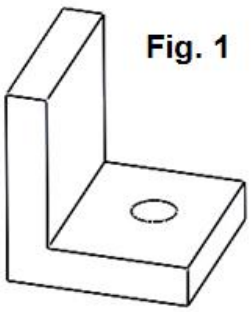


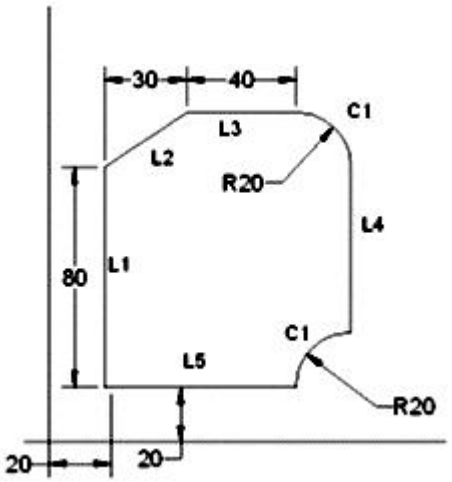
Fig. 1

b) Explain various 2D transformations with sketch. 5

contd.....2

14. Write an APT part program for the profile shown in fig.1 with cutting speed and feed rate as 850 rpm and 50 mm/min. 10

Fig. 1



15. a) Discuss the relative feature of word address, fixed block and tab sequential formats of tape preparations. 5

b) Sketch and explain open loop and closed loop types of NC feedback system? 5

16. a) What is ACC and ACO types of adaptive control system. Explain with sketch. 5

b) Sketch three different configurations of Industrial robots. 5

17. Write short Notes on 10

a) Computer aided quality control

b) CIMS

c) CAPP

d) OPTIZ coding

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Code No.11508/CBCS

FACULTY OF ENGINEERING

B.E. V Semester (CBCS)(A.E) (Main) Examination, November/December 2018

Subject : Automotive Transmission

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

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

Part – A (10 x 2 =20 Marks)

1. State the principle of friction clutch.
2. What is the principle of a synchromesh gear box?
3. What is multistage and play phase torque converts?
4. Differentiate clearly between a torque converter and a fluid coupling?
5. What are the disadvantages of Automatic Transmission when compared to conventional transmission?
6. How is reversing achieved in a planetary gear set?
7. Differentiate clearly between a hydrodynamic and hydrostatic drive systems.
8. What is the difference b/w Ford and Chevrolet drive?
9. What are the disadvantages of electrical drive system?
10. What is the role of clamping force in clutch?

Part-B (5 x 10 =50 Marks)

11. Explain briefly the construction and working principle of single plate clutch with neat sketch. 10
12. Explain briefly the construction and working principle of synchromesh box with different gears and show the power flow from lay shay to main shaft. 10
13. Describe the working of fluid coupling and torque converter with neat sketches. 10
14. Explain briefly any one type of Hydraulic transmission drive with the help of a neat sketch. 10
15. Explain the working principle of Ford T-model gear box briefly with neat sketch. 10
16. Explain the construction and working of Janney Hydrostatic drive with neat sketch. 10
17. Briefly explain ward Leonard electrical drive with a neat sketch. 10

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Code No. 11515 / CBCS

FACULTY OF ENGINEERING

B.E. (CSE) V – Semester (CBCS) (Main) Examination, Nov. / Dec. 2018

Subject: Managerial Economics and Accountancy

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 Explain opportunity cost principle

2 What is elasticity of demand?

3 Explain production function.

4 What is the importance of break-even analysis?

5 What is working capital?

6 How is it possible to forecast demand?

7 Distinguish between Risk and uncertainty.

8 What is the significance of double entry book keeping?

9 What is the importance of trial balance in accounting?

10 Write journal entries for the following transactions.

PART – B (5x10 = 50 Marks)

11 What is the usefulness of Managerial Economics to engineers?

12 What is law of demand and Its assumptions and exceptions?

13 How price is determined under perfect competition?

14 From the following information find out:
   a) P/V ratio
   b) B.E.P.
   c) Margin of safety
   d) Sales to earn profit of Rs. 12,000

   Total fixed cost Rs. 9,000, Total variable cost Rs. 15,000, Total sales Rs. 30,000.

15 From the following cash inflow find out the net present value. Cost of investment Rs. 80 lakhs rate of return is Rs. 10%.

Year	1	2	3	4
Cash inflow (Rs)	35 lakhs	15 lakhs	25 lakhs	35 lakhs

16 Prepare an analytical Petty Cash Book

2013			Rs.
April	1	Received cash from head cashier	6,000
"	4	Bought postage and stamps	500
"	8	Paid for stationary	360
"	10	Paid for cartage	120
"	15	Paid for taxi hire	220
"	22	Paid office expenses	330
"	25	Bought postage stamps	90
"	28	Paid to Sham	180
"	30	Sent telegram to Mumbai	240

17 Trial Balance of Charandas as on 31-12-2014 you are required to prepare Trading, Profit and Loss Account and Balance Sheet as on date.

Particulars	Debit (Rs.)	Credit (Rs.)
Cash in hand	2,000	
Cash at bank	17,100	
Purchases, sales	50,000	1,20,600
Debtors, creditors	17,000	9,400
Wages	12,400	
Fuel, Power	6,000	
Carriage	4,200	
Returns	700	600
Opening stock	6,800	--
Machinery	25,000	--
Furniture	9,000	--
Salaries	20,000	--
General expenses	4,000	--
Travelling expenses	1,400	
Drawings	5,000	
Capital	--	50,000
Total	1,80,600	1,80,600

Adjustments:

a) Closing stock Rs. 8,000
b) Provide depreciation @ 5% on machinery and 15% on furniture.
c) Outstanding salaries Rs. 1,000
d) Maintain bad debts @ 5% on sundry debtors.

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