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IV/IV B.Tech DEGREE EXAMINATION**OCTOBER, 2016****Common for ECE, EEE, EIE & CH****Seventh Semester****Industrial Management And Entrepreneurship Development****Time:** Three Hours**Maximum :** 60 Marks*Answer Question No.1 compulsorily.*

(1X12 = 12 Marks)

Answer ONE question from each unit.

(4X12=48 Marks)

1. Answer all questions

(1X12=12 Marks)

- a Principle
- b Company
- c Selling
- d Production control
- e MRP
- f Budgeting
- g Management
- h Human resource
- i Motivation
- j Entrepreneurship
- k Product
- l Analysis

UNIT – I

- 2.a Define the functions of Management. 6 M
- 2.b Define Joint Stock Company and explain its features. 6 M

(OR)

- 3.a Define Advertising and explain its merits and demerits. 6 M
- 3.b Define the stages of Product Life Cycle. 6 M

UNIT – II

- 4.a Define the types of Production Systems. 6 M
- 4.b Define the concepts FSN Analysis and VED Analysis. 6 M

(OR)

- 5.a Define Working Capital and explain its principles. 6 M
- 5.b Manohar purchased machinery for his business at Rs 1,50,000 on 1/1/1990. Assuming annual depreciation is 10%, calculate depreciation for 5 years under fixed installment method and life of the machine is 10 years. 6 M

UNIT – III

- 6.a Define Recruitment and explain its sources. 8 M
- 6.b Explain the process of Selection. 4 M

(OR)

- 7.a Define Performance Appraisal and explain the methods of it. 6 M
- 7.b Define Leadership and explain its styles. 6 M

UNIT – IV

- 8.a Define Entrepreneurship and explain the factors affecting Entrepreneurship. 6 M
- 8.b Define Product Design and explain its process. 6 M

(OR)

- 9.a Define the concept Product Analysis. 4 M
- 9.b Define Training and explain the need of training for enterprises. 8 M

IV/IV B.Tech (Supplementary) DEGREE EXAMINATION

(Seventh Semester)

INDUTRIAL MANAGEMENT & ENTREPRENEURSHIP DEVELOPMENT (Scheme of Valuation for SET – II)

Time: 3 hours

Answer Question No.1 compulsorily

4nswer ONE Question from each unit

Max Marks: 60 Marks

(12x1=12 Marks)

(4x12=48 Marks)

1. Answer all Questions

(12x1=12 Marks)

- A principle is a fundamental truth.
- A company is place where production will take place.
- It is first and foremost a transaction between the seller and the prospective buyer.
- It is the task of predicting, planning and scheduling work, taking into account manpower, materials availability and other capacity restrictions.
- It is a production planning, scheduling, and inventory control system used to manage manufacturing processes.
- It is an important component of financial success.
- Management is an art of getting things done through people.
- It refers to the individuals or personnel or workforce within an organisation.
- It is the idea, need, emotion & organic state which prompts a man to action.
- It is the process of designing, launching and running a new business.
- A product can be a service or an item. It can be physical or in virtual or cyber form.
- Analysis is the process of breaking a complex topic or substance into smaller parts in order to gain a better understanding of it.

UNIT - I

- a. Management. (2 Marks)
Functions of Management. (4 Marks)
- b. Joint Stock Company. (2 Marks)
Features of Joint Stock Company. (4 Marks)

(OR)

- a. Advertising. (2 Marks)
Merits and Demerits of Advertising. (4 Marks)
- b. Product Life Cycle. (2 Marks)
Stages of Product Life Cycle. (4 Marks)

UNIT - II

- a. Production Systems. (2 Marks)
Types of Production Systems. (4 Marks)
- b. FSN Analysis. (3 Marks)
VED Analysis. (3 Marks)

(OR)

- a. Working Capital. (2 Marks)
Principles of Working Capital. (4 Marks)
- b. Depreciation Problem. (6 Marks)

I Year = 1,50,000 – 15,000 = 1,35,000.
II Year = 1,35,000 – 15,000 = 1,20,000.
III Year = 1,20,000 – 15,000 = 1,05,000.
IV Year = 1,05,000 – 15,000 = 90,000.
V Year = 90,000 – 15,000 = 75,000.

UNIT - III

- a. Recruitment. (2 Marks)
Sources of Recruitment. (6 Marks)
- b. Selection. (2 Marks)
Process of Selection. (2 Marks)

(OR)

- | | |
|-----------------------------------|-----------|
| 7. a. Performance Appraisal. | (2 Marks) |
| Methods of Performance Appraisal. | (4 Marks) |
| b. Leadership. | (2 Marks) |
| Styles of Leadership. | (4 Marks) |

UNIT - IV

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|-------------------------------------|-----------|
| 8. a. Entrepreneurship. | (2 Marks) |
| Factors affecting Entrepreneurship. | (4 Marks) |
| b. Product Design. | (2 Marks) |
| Process of Product Design. | (4 Marks) |

(OR)

- | | |
|-------------------------|-----------|
| 9. a. Product Analysis. | (4 Marks) |
| b. Training. | (2 Marks) |
| Need of training. | (6 Marks) |

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IV /IV B.Tech DEGREE EXAMINATION**October, 2016****Electronics & Communication Engineering****Seventh Semester****VLSI Design****Time:** Three Hours**Maximum :** 60 Marks*Answer Question No.1 compulsorily.*

(1X12 = 12 Marks)

Answer ONE question from each unit.

(4X12=48 Marks)

1. Answer all questions

(1X12=12 Marks)

- Define figure of merit of MOS transistor
- What is latch-up in CMOS circuits?
- What is the difference between positive and negative photoresist.
- Write different layers available in MOS layouts.
- Mention different types of scaling available in MOS technology.
- Draw the stick diagram of CMOS inverter.
- Construct NAND gate using NMOS pass transistors.
- Design AND gate using pass transistors.
- What is the importance of PMOS and NMOS transistors in a transmission gate?
- What is the main advantage of ASIC design compared to FPGA?
- Define always statement in verilog HDL.
- Explain reg. data type in verilog HDL.

UNIT I

- Discuss various steps involved in the fabrication of NMOSFET. 6M
- Give the comparison between CMOS and Bipolar technologies. 6M

(OR)

- Deduce the expressions for drain-to-source current versus drain-to- source voltage of a NMOS transistor 6M
- Find g_m for an n-channel transistor with $V_{gs}=1.2V$; $V_{tn}=0.8V$; $(W/L) = 10$; $\mu_n C_{ox} = 92\mu A/V^2$. 6M

UNIT II

- Explain step-by- step procedure for drawing the stick diagram of single metal single polysilicon nMOS inverter. 6M
- What are layout design rules? Why is metal- metal spacing larger than poly –poly spacing. 6M

(OR)

- Illustrate driving large capacitive loads with super buffers 6M
- Describe three sources of wiring capacitances. Explain the effect of wiring capacitance on the performance of a VLSI circuit. 6M

UNIT III

- Design ALU to implement various logic functions and arithmetic functions using adder element. 6M
- Design 4 X 1 MUX using pass transistor. Draw the stick diagram for the same. 6M

(OR)

- Design a 4 bit shift register and draw the stick diagram for shift register cell. 6M
- Describe the nature of a parity generator and explain its structured design approach. 6M

UNIT-IV

- Illustrate how logic functions can be realized using nMOS PLA with an example 6M
- Draw the general architecture of FPGA and explain. 6M

(OR)

- Mention different modeling styles in verilog HDL. Write a program for 4 input multiplexer from 2 input multiplexers. 6M
- What is the difference between Flop-Flop and Latch? Write a verilog HDL program for a latch. 6M

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IV/IV B.Tech (Regular/Supplementary) DEGREE EXAMINATION

November, 2016

Electronics & Communication Engineering

Seventh Semester

Microwave Engineering

Time: Three Hours

Maximum : 60 Marks

Answer Question No.1 compulsorily.

(1X12 = 12 Marks)

Answer ONE question from each unit.

(4X12=48 Marks)

1. Answer all questions

(1X12=12 Marks)

- Define Specific Absorption Rate and give its units
- Draw the structure of H-plane Tee
- Define directivity for a directional coupler
- What is the principle involved in Transferred Electron Devices
- Give the full forms of the acronyms IMPATT and TRAPATT
- An IMPATT diode has efficiency $\eta = 20\%$, $V_{omax} = 100V$, $I_{omax} = 100mA$.
Find the CW output power
- Define velocity modulation
- What is a cross field device?
- Draw two slow wave structures
- Define VSWR and Reflection coefficient
- what is the behavior of a frequency meter when the signal frequency matches the frequency on the meter
- what is the most common method of measuring power in a microwave test bench

UNIT I

- Prove that a matched lossless, nonreciprocal three port device is a circulator 6M
 - A 100 W power source is connected to the input of a directional coupler with Coupling factor=30 dB, Directivity=35 dB and insertion loss =1 dB. Find the output powers at the transmitted, coupled and isolated ports. Assume all ports to be matched. 6M

(OR)

- Explain how Magic Tee can be used to deliver double the transmitted power to an antenna connected to one of its ports from two transmitters connected to two of its ports 6M
 - What is Faraday rotation? How an Isolator is designed using this principle 6M

UNIT II

- Explain the operation of IMPATT diode with neat sketches 6M
 - A n-type GaAs Gunn diode has the following parameters: 6M
Threshold field $E_{th} = 2800$ V/cm, Applied field $E = 3200$ V/cm,
Device length $L = 10$ micro meters, frequency $f = 10$ GHz
Doping concentration $n_0 = 2 \times 10^{14} \text{ cm}^{-3}$
Compute Electron drift velocity, current density and negative electron mobility

(OR)

- State Gunn effect and explain how high field domain is formed 6M
 - Explain with neat sketches the operation of Microwave Tunnel diode 6M

UNIT III

6. a) Why conventional tubes are not suitable for operating at microwave frequencies? 6M
 b) A reflex klystron operates at the peak of $n=1$ or $\frac{3}{4}$ mode. The dc power input is 40mW and ratio of $V_1/V_0 = 0.278$ 6M
 Determine the (i) efficiency of reflex klystron, (ii) Total output power
 (iii) If 20% of the power delivered by the electron beam is dissipated in the cavity walls, find the power delivered to the load

(OR)

7. a) Bring out the differences between Two cavity klystron and Reflex klystron in terms of construction and working 6M
 b) What are slow wave structures? How a Helix slow wave structure amplifies a microwave signal 6M

UNIT IV

8. a) What is a standing wave? How High VSWR is measured using a microwave test bench 6M
 b) Explain how slotted wave section is used to find the frequency of the microwave signal 6M

(OR)

9. a) Give the details of the components in a Microwave test bench 6M
 b) What is a Bolometer? How Bolometer technique is used to measure the power of a microwave generator 6M

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IV/IV B.Tech (Regular/Supplementary) DEGREE EXAMINATION**November, 2016****Electronics and Communication Engineering****Seventh Semester****Satellite Communications****Time:** Three Hours**Maximum :** 60 Marks*Answer Question No.1 compulsorily.*

(1X12 = 12 Marks)

Answer ONE question from each unit.

(4X12=48 Marks)

1. Answer all questions

(1X12=12 Marks)

- a What are the functions of earth station?
- b Name types of orbits used for satellite communication?
- c Why uplink frequency is higher than the downlink frequency?
- d What are the applications of VSAT network?
- e What do you understand by the term “orbital perturbations” explain in brief?
- f What is “Azimuth” and “Elevation” angles? Define with proper diagram.
- g What are the different types of space craft antennas used? Mention them.
- h Define transponder.
- i Write “link equation” expression in decibels.
- j What is the difference between a satellite earth station & microwave link?
- k What are the major sources of error in GPS receiver.
- l Write the equation for C/A sequence?

UNIT – I

- 2.a Explain about the launch and launch-vehicles for the satellite. 6M
- 2.b A satellite is in a 322-km high circular orbit. Determine
 - i. The orbital angular velocity in radians per second;
 - ii. The orbital period in minutes,
 - iii. The orbital velocity in meters per second.
 Assume the average radius of the earth and kepler’s constant. 6M

(OR)

- 3.a Derive the equation of orbit with suitable diagrams? 6M
- 3.b What is kepler’s three laws of planetary motion? Give the mathematical formulation of kepler’s third law of planetary motion. 6M

UNIT – II

- 4.a What is Doppler effect? Explain how it is useful for tracking? 6M
- 4.b Explain in detail about 6/4 GHz communication satellite sub system. 6M

(OR)

- 5.a Explain the functioning of a spade DAMA satellite system with neat block diagram. 6M
- 5.b A TDMA system operates at 100M bits/s with a 2ms frame time. Assume that all slots are of equal length and that a guard time of 1μs is required between slots. Compute the efficiency of the communication resource (CR) for the case of 1,2,5,10 slots per frame. 6M

UNIT – III

- 6.a A Satellite at a distance of 36,000km from earth radiates a power of 5W from an antenna with a gain of 16db. Find the power received by an earth station antenna with a gain of 45db. Operating frequency is 11Ghz. 6M
- 6.b Explain in detail why uplink frequency is higher than downlink frequency? 6M

(OR)

- 7.a Explain the VSAT network configuration ? 6M
- 7.b Explain what is “leapfrog technology”? give three examples of leapfrog technology. 6M

UNIT – IV

- 8.a Find the exact altitude of a GPS satellite that has an orbital period equal to precisely one half of a side real day. use a value of mean earth radius $r_e=6378.14\text{km}$ and a sidereal day length of 23h 56 min 4.1s. 6M
- 8.b With the help of block diagram explain GPS receiver operation. 6M
- (OR)**
- 9.a Explain satellite signal acquisition. 6M
- 9.b Explain how to find the position location in GPS system . 6M

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IV/IV B.Tech (Regular/Supplementary) DEGREE EXAMINATION

November, 2016

Electronics and Communication Engineering

Seventh Semester

Digital Image Processing

Time: Three Hours

Maximum : 60 Marks

Answer Question No.1 compulsorily.

(1X12 = 12 Marks)

Answer ONE question from each unit.

(4X12=48 Marks)

1. Answer all questions

(1X12=12 Marks)

- List the components of Digital image processing
- What is 'Chess board distance'?
- What are the 4- connected neighbors of a pixel P located at(x,y) in an image.
- Write the equation of an image negative ?
- Write the Transfer function of 2-D ideal high pass filter
- Draw the transformation function of power law transformations
- Define image restoration
- Write an expression for Gaussian noise model
- What are the advantages of Wiener filter
- List any two applications of image segmentation
- What is signature?
- What are the different Boundary descriptors

UNIT I

2.a Explain the different elements of Digital image processing

4 M

2.b Consider the image segment shown.

8 M

(a) Let $V=\{0,1\}$ and compute the lengths of the shortest 4-, 8- and m-path between p and q

If a particular path does not exist explain why?

(b) Repeat for $V=\{1,2\}$

	4	1	2	1(q)
	2	2	0	2
	1	2	1	1
(p)	1	0	1	4

(OR)

3.a Correlate the elements of HVS and image processing

6 M

3.b Consider the two image subsets S1 and S2, shown in the following figure. For $V=\{1\}$, determine

6 M

Whether these two subsets are (a) 4- adjacent (b) 8- adjacent, or (c) m-adjacent

	S1				S2				
0	0	1	1	0	0	0	0	0	
1	1	0	1	0	0	1	0	0	1
1	0	0	1	0	1	1	1	0	0
0	1	1	1	1	0	0	0	0	1
0	0	1	1	1	0	0	1	1	1

UNIT II

4.a Describe Histogram matching using an example

6M

4.b Explain Smoothing filters in frequency domain to avoid ringing artifacts

6M

(OR)

5.a State and prove the properties of 2-D Fourier Transform

8 M

5.b Explain the arithmetic and logical operators used for image enhancement

4 M

UNIT III

- | | | |
|-----|--|-----|
| 6.a | Explain the image restoration in the presence of noise only. | 6 M |
| 6.b | Explain the image restoration using Inverse Filtering. | 6 M |

(OR)

- | | | |
|-----|--|-----|
| 7.a | Explain the LZW coding algorithm using an example | 8 M |
| 7.b | Explain the Transform coding algorithm using suitable block diagrams | 4 M |

UNIT IV

- | | | |
|-----|---|-----|
| 8.a | Explain the region based segmentation | 6 M |
| 8.b | Explain the gradient operators used in image segmentation | 6 M |

(OR)

- | | | |
|-----|---|-----|
| 9.a | What is thresholding. Explain various thresholding techniques and also write the differences between local and global thresholding. | 6 M |
| 9.b | Explain any three regional descriptors | 6 M |

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IV/IV B.Tech (Regular/Supplementary) DEGREE EXAMINATION**November, 2016****Electronics & Communication Engineering****Seventh Semester****Mobile Application Development****Time:** Three Hours**Maximum :** 60 Marks*Answer Question No.1 compulsorily.*

(1X12 = 12 Marks)

Answer ONE question from each unit.

(4X12=48 Marks)

1. Answer all questions

(1X12=12 Marks)

- a Define scope and life time of a variable.
- b What is meant by a constructor?
- c Define an abstract class.
- d Explain package, give the examples of different packages in java.
- e Write a java program to display the date.
- f Explain the difference between throw and throws keywords.
- g What is an android?
- h Define android views.
- i Screen Orientation.
- j Explain shared preferences.
- k What is the role of XML in android applications
- l APK file.

UNIT – I

- 2.a Define polymorphism. Write a java program to illustrate method overloading. 4M
- 2.b Define Inheritance. Explain how multiple inheritance can be implemented in java. 8 M

(OR)

- 3.a Explain final keyword with suitable examples in java. 4 M
- 3.b Write a java program to illustrate different types of parameter passing mechanisms 8 M

UNIT – II

- 4.a Explain File streams. 4 M
- 4.b Define exception handling. Write a java program to explain user defined exceptions. 8 M

(OR)

- 5.a Explain about packages in java. 4 M
- 5.b Write a java program to explain different String class methods. 8 M

UNIT – III

- 6.a Describe android application architecture? 4 M
- 6.b Explain the components of android application. 8 M

(OR)

- 7.a Explain briefly android development environment 4 M
- 7.b Explain different android user interface controls. 8 M

UNIT – IV

- 8.a What are the methods of camera class and explain them. 4 M
- 8.b Explain the fundamental steps involved in developing an application to use database. 8 M

(OR)

- 9.a Develop an android application for creating and using service. 6 M
- 9.b Discuss about sensors in android. 6 M