CODE: 13CE4026 **AR13** **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMUS)
IV B.TECH I SEMESTER REGULAR EXAMINATIONS, NOVEMBER-2016
Remote Sensing & GIS Applications
(CIVIL ENGINEERING)

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

PART-A

Answer all questions **[1 x 10 = 10M]**

1. a) What is visible spectrum?
   b) Define IFOV
   c) Explain Whisk broom sensor
   d) What is Raster data?
   e) What is re sampling?
   f) What is TIN in surface analysis?
   g) Define topology?
   h) Explain Mie Scattering
   i) What is map projection?
   j) Geospatial Data

PART-B

Answer one question from each Unit **[5 x 12=60M]**

UNIT – 1

2. a) Explain major wavelength ranges used for remote sensing
   b) Explain spectral reflectance curve with neat sketch.

(OR)

3. a) Explain different types of EMR reflections takes place in atmosphere?
   b) Explain advantages and dis-advantages of remote Sensing?

UNIT-II

4. a) List out different active and passive sensors in IRS program?
   b) Describe any three very high spatial resolution satellites?

(OR)

5. a) Explain satellite platforms
   b) Describe Land sat satellite program

UNIT-III

6. a) What is image interpretation key and explain?
   b) Explain image rectification?

(OR)

7. Explain image enhancement techniques

UNIT-IV

8. a) Explain GIS work flow
   b) What are different types of map projections?

(OR)

9. a) What is a vector data model and explain?
   b) Write differences between vector and raster data.

UNIT-V

10. a) Explain overlay analysis in GIS
    b) Explain buffer analysis and advantages

(OR)

11. Describe how remote Sensing and GIS is used to flood mapping and mitigation

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AR13

CODE: 13EE4024 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B.TECH I SEMESTER REGULAR EXAMINATIONS, NOVEMBER, 2016

POWERSYSTEM OPERATION AND CONTROL

(Electrical & Electronics Engineering)

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

PART-A

ANSWER ALL QUESTIONS **[1 x 10 = 10 M]**

1. a) When do discontinuities occur in the fuel cost curve and the incremental cost curve?
   b) What are the points to be noted for an economic load dispatch including transmission losses?
   c) What is the objective of hydrothermal coordination problem?
   d) List out the methods for the solution of unit commitment problem?
   e) List put the various needs for frequency regulation in power system.
   f) What is the purpose of a speed changer?
   g) What is Tie-line Bias control?
   h) List the advantage of multi area operation.
   i) What is the need for compensation of reactive power?
   j) Compare series and shunt compensation

PART-B

Answer one question from each unit **[5x12=60M]**

UNIT-I

2. a Explain with an algorithm for economic generation scheduling without losses 6M
   b The incremental costs in Rs. Per MW-Hr for two units in a plant are given by 6M
   $dc1/dp1 = 1.0p1 + 200$; $dc2/dp2 = 1.2p2 + 160$;
   The minimum and maximum generation on each unit is to be 20 MW and 125 MW respectively. Determine the economic allocation between the units for a total load of 150 MW.

(OR)

3. a Derive the coordination equations for economic dispatch with losses coordinated 6M
   b The cost curves of two plants are $C1 = 0.05\ P_{G1}^2 + 20\ P_{G1} + 150$; $C_2 = 0.05\ P_{G2}^2 + 15\ P_{G1} + 180$ The loss co-efficient for the above system are given as B11 =0.0015 /MW, B12 =B21 = -0.0004/MW and B22 = 0.0032/ MW. Determine the economical generation scheduling corresponding λ=25 Rs./MWh and corresponding system load that can be met with. 6M

UNIT-II

4. a From the fundamentals discuss about hydro thermal scheduling. 8M
   b What are advantages of hydro thermal plants combinations? 4M

(OR)

5. Explain with a neat flowchart the procedure for finding the solution for unit commitment problems using forward DP method. 12M

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CODE: 13EE4024 SET-2

UNIT-III

6.	a	Explain the necessity of maintaining a constant frequency in power system operation.	4M
	b	Two generators rated 200 MW and 400 MW are operating in parallel. The droop characteristics of their governors are 4% and 5% respectively from no load to full load. Assuming that the generators are operating at 50 Hz at no load, how would a load of 600 Mw be shared between them? What will be the system frequency at this load? Assume free governor operation. Repeat the problem if both the governors have a droop of 4%.	8M

(OR)

7.	a	Derive the model of a speed governing system and represent it by a block diagram.	6M
	b	Explain the steady state analysis of a single area isolated power system.	6M

UNIT-IV

8.		Derive the Tie line power of a two area load frequency control with a neat block diogram.	12M

(OR)

9.		Two interconnected areas 1 and 2 have the capacity of 200MW and 500MW respectively. The incremental regulation and damping torque co-efficient for each area on its own base are 0.2 pu and 0.08 pu respectively. Find the steady state change in system frequency from a nominal frequency of 50 Hz and the change in steady state tie-line power following a 750MW change in load of area 1.	12M

UNIT-V

10.	a	Explain the objective of an ideal compensator	6M
	b	Classify the compensators by function and type.	6M

(OR)

11.	a	Explain series compensation with a suitable example.	6M
	b	Explain shunt compensation with a suitable example	6M

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AR13

CODE: 13ME4028 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B.TECH I SEMESTER REGULAR EXAMINATIONS, NOVEMBER-2016

INDUSTRIAL HYDRAULICS & PNEUMATICS

(Mechanical Engineering)

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

PART-A

ANSWER ALL QUESTIONS **[1 x 10 = 10 M]**

1. a) Performance of pumps
   b) Types of hydraulic actuators
   c) Types of flow control valves
   d) Accessories used in Accumulators
   e) Meter out circuits
   f) Hydraulic press circuit
   g) Pneumatic actuators
   h) PE converter
   i) Speed control circuit
   j) Pneumatic vacuum systems

PART-B

Answer one question from each unit **[5x12=60M]**

UNIT-I

2. a) What are the advantages, limitations and applications of hydraulic system 6 M
   b) With a neat sketch explain the working of an axial piston motor 6 M

(OR)

3. With a neat sketch explain the construction and working of unbalanced type gear pump and derive expression for the volumetric displacement of the pump 12 M

UNIT-II

4. a) State various types of hydraulic valves 6 M
   b) What is direction control valve? Why is it required in hydraulic system 6 M

(OR)

5. a) Explain the spring loaded type accumulator used in hydraulic system 6 M
   b) What are the various functions of hydraulic accumulators 6 M

UNIT-III

6. Explain with hydraulic circuit how speed control can be achieved in hydraulic motor 12 M

(OR)

7. Draw and explain the circuit diagram of meter in speed control hydraulic system 12 M

AR13

CODE: 13ME4028 **SET-2**

UNIT-IV

8.	a)	Explain briefly the end position cushioning of pneumatic cylinders.	6 M
	b)	Discuss the PLC applications in fluid power	6 M
		(OR)	
9.	a)	Whys is pneumatic system is selected for factory automation?	6 M
	b)	Explain in brief the elements of pneumatic system	6 M

UNIT-V

10.	Explain the time delay pneumatic circuit and give its applications	12 M
	(OR)	
11.	Sketch and explain the motion control diagram for 2 cylinder circuit	12 M

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CODE: 13EC4029 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B.TECH I SEMESTER REGULAR EXAMINATIONS, NOVEMBER-2016

MICROWAVE ENGINEERING

(ELECTRONICS & COMMUNICATION ENGINEERING)

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

PART-A

ANSWER ALL QUESTIONS **[1 x 10 = 10 M]**

1. a) Write the expression for cut off frequency of rectangular cavity resonator?
   b) What is the frequency range of X-band in microwave frequency band?
   c) Write the properties of S-matrix.
   d) Define directivity of a directional coupler.
   e) Define velocity modulation.
   f) What is bunching?
   g) What are the advantages of TWT?
   h) Write the applications of magnetron.
   i) What is Gunn effect?
   j) Define VSWR?

PART-B

Answer one question from each unit **[5 x 12=60M]**

UNIT-I

2. (a) Derive the wave equation for a TM wave and obtain the field components in a rectangular wave guides. 8M
   (b) How waveguides are different from normal two wire transmission lines, Discuss the similarities and dissimilarities. 4 M

(OR)

3. (a) An air filled rectangular wave guide has dimensions 4 x 2.5cm operated in dominant TE_{10} mode. Frequency of operation is 10 GHz. Determine cut of wave length. 6 M
   (b) Define dominant and de-generate modes in a rectangular wave guides. 6 M

UNIT-II

4. (a) Explain the E-plane tee and determine its S-matrix. 6 M
   (b) Explain circulator, obtain the scattering matrix for a 3-port circulator and also prove that it is impossible to construct a perfectly matched lossless reciprocal 3-port junction. 6 M

(OR)

5. (a) Draw and explain of directional coupler, find the coupling factor and directivity of directional coupler. 6 M
   (b) Explain the Gyrator and isolator with neat sketch. 6 M

AR13

CODE: 13EC4029 SET-1

UNIT-III

6. A two-cavity amplifier klystron has the following parameters beam voltage V_o= 900V, beam current I_o= 30mA, frequency f=8GHz, gap spacing in either cavity d= 1mm, spacing between centers of cavities L=4cm, effective shunt impedance R_{sh}=40KΩ, determine — 12 M

   (i) The electron velocity

   (ii) The dc electron transit time

   (iii) The input voltage for maximum output voltage

   (iv) The voltage gain in decibels.

(OR)

7. (a) Draw and explain of reflex klystron and write its applications. — 8 M
   (b) Explain in brief about the limitations of conventional vacuum tubes. — 4 M

UNIT-IV

8. (a) Explain the operation of 8 cavity cylindrical magnetron with neat sketch. — 8 M
   (b) Explain the hartree conditions and PI-mode operation. — 4 M

(OR)

9. (a) Discuss in detail about helix travelling wave tube. — 6 M
   (b) Discuss the performance of magnetrons and list the important applications. — 6 M

UNIT-V

10. (a) Draw and explain in detail about IMPATT diode. — 6 M
    (b) Draw a neat diagram of a microwave bench setup and explain in detail about all the components. — 6 M

(OR)

11. (a) Explain Gunn effect using the two valley theory. — 6 M
    (b) Explain VSWR measurement using micro wave bench. — 6 M

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AR13

CODE: 13CS4022 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B.TECH I SEMESTER REGULAR EXAMINATIONS, NOVEMBER-2016

OPEN SOURCE SOFTWARE

(Computer Science & Engineering)

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

PART-A

ANSWER ALL QUESTIONS **[1 x 10 = 10 M]**

1. a) What is the meaning of Open Source?
   b) What is user mode in linux?
   c) What is BLOB?
   d) How many TRIGGERS are allowed in MySql table?
   e) What are rules for naming a PHP variable?
   f) What is Multidimensional array?
   g) What is the output of print str[2:5] if str = 'Hello World!'?
   h) How will you convert a string to a float in python?
   i) Perl is Compiler/Interpreter ?
   j) What are Arrays in perl?

PART-B

Answer one question from each unit **[5x12=60M]**

UNIT-I

2. (a) Why has the open source software become popular? List different open source applications for you to use or build upon in detail. 6M
   (b) What is operating system? Explain the architecture of LINUX. 6M

(OR)

3. (a) Distinguish between Kernel Mode and User Mode. 6M
   (b) What is open sources movement? Discuss about Open source software in detail. 6M

UNIT-II

4. (a) What is metadata in MySQL? How to obtain it and use it? Explain. 6M
   (b) Explain various string manipulation functions in MySQL. 6M

(OR)

5. (a) Explain about sequences in MySQL with examples. 6M
   (b) How do you sort the query results in MySQL. 6M

UNIT-III

6. (a) How will you use PHP to access data from MySQL. 6M
   (b) Write a PHP script to display the current time of day at the server with in a webpage. 6M

(OR)

7. (a) Write a short note on PHP math functions. 6M
   (b) Explain the process of uploading files to the server in PHP. 6M

AR13

CODE: 13CS4022 **SET-2**

UNIT-IV

8.	(a)	Explain different looping techniques in Python.	6M
	(b)	Discuss about packages in Python.	6M
		(OR)	
9.	(a)	Explain in detail about handling exceptions and raising exceptions.	6M
	(b)	Explain about input and output formatting in Python.	6M

UNIT-V

10.	(a)	What are the main features of PERL? Explain in detail.	6M
	(b)	Explain the data manipulation functionalities provided by Perl.	6M
		(OR)	
11.	(a)	Discuss about the components of PERL.	6M
	(b)	Write about perl variables with the help of suitable examples.	6M

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AR13

CODE: 13IT4010 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B.TECH I SEM REGULAR EXAMINATIONS, NOVEMBER, 2016

NETWORK SECURITY AND CRYPTOGRAPHY

(INFORMATION TECHNOLOGY)

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

PART-A

ANSWER ALL QUESTIONS **[1 x 10 = 10 M]**

1. a) What are various security services offered by the system.
   b) What is man-in-the middle attack, explain
   c) Define secure hash function with an example
   d) What is a digital signature?
   e) What are key pairs in Diffie-Hellman key exchange algorithm?
   f) Describe the types of header fields used in S/MIME.
   g) Mention the various services offered by IP Security
   h) What is alert protocol in SSL?
   i) What is DOS?
   j) What is denial of service attack?

PART-B

Answer one question from each unit **[5x12=60M]**

UNIT-I

2. a) Discuss a model for Network Security **6M**
   b) Explain about Buffer Overflow and its Injection Techniques **6M**

(OR)

3. a) Explain the security services to be supported by an internetworked system **6M**
   b) Discuss monoalphabetic cipher and Playfair cipher. **6M**

UNIT-II

4. a) Write in detail about public key cryptography **6M**
   b) Explain Diffie-Hellman key exchange algorithm with example. **6M**

(OR)

5. a) Explain DES encryption algorithm **6M**
   b) What are the different approaches of Message Authentication **6M**

UNIT-III

6. a) Explain about cipher block modes of operation in detail **6M**
   b) Write in detail about X.509 certificate authority **6M**

(OR)

7. a) In Kerberos how are services exchanged between two realms **6M**
   b) Explain the services of PGP in detail **6M**

UNIT-IV

8. a) Write in detail about ESP and its operation in tunnel mode and **6M**
   b) With a neat diagram explain SSL protocol stack **6M**

(OR)

9. a) Write in detail about transport layer security **6M**
   b) Explain in detail about SET components **6M**

UNIT-V

10. a) Write short notes on i) Virus ii) Threat iii)Firewall iv) Intruder **8M**
    b) What are trusted systems? Explain. **4M**

(OR)

11. a) Explain firewall design principles. **6M**
    b) Briefly describe types of intruders. **6M**

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