Set No. 1

IV B.Tech I Semester Regular Examinations, November 2012
POWER SYSTEM OPERATION AND CONTROL
(Electrical & Electronics Engineering)

Time: 3 hours   Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks
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1. (a) What is the need of optimal operation of power systems?

   (b) The fuel costs for two plants are given by $C_1 = 0.15\ P_1{}^2 + 30P_1 + 25$, $C_2 = 0.17\ P_2{}^2 + 28P_2 + 20$ where C is in Rs/Hr and P is in MW. If both units operate at all time and maximum and minimum load on each unit are 100 MW and 20 MW respectively determine the economic operating schedule of the plant for loads of 40 MW, 120 MW. [12+4]

2. A power system consists of two 100 MW units whose input cost data are represented by equations below:
   $C_1 = 0.04\ P_1{}^2 + 22\ P_1 + 800$ Rupees/hour
   $C_2 = 0.045\ P_2{}^2 + 15\ P_2 + 1000$ Rupees/hour
   If total received power $P_R = 150$ Mw. Determine the load sharing between units for most economic operation. [16]

3. Explain hydro-thermal scheduling problem. [16]

4. A 125 MVA turbo alternator operator on full load at 50 Hz. A load of 50 MW is suddenly reduced on the machine. The steam valves to the turbine commence to close after 0.5 sec. due to the time lag in the governor system. Assuming inertia constant H= 6 kW- sec per kVA of generator capacity, calculate the change in frequency that occurs in this time. [16]

5. A Generator in single area load frequency control has the following parameters:
   Total generation capacity = 2500 MW
   Normal operating load =1500 MW
   Inertia constant=5 kW-seconds per kVA; Load damping constant, B=1 %; frequency, f=50 Hz; and Speed regulation, R=2.5 Hz / p.u MW. If there is a 1.5 % increase in the load, find the frequency drop

   (a) without governor control

   (b) with governor control. [8+8]

6. (a) What are the features of the dynamic response of a two area system for step load disturbances?

   (b) What are the considerations in selecting the frequency bias parameters? [8+8]

7. Draw the block diagram of a power system showing the governor, turbine and synchronous generator, indicating their transfer functions. For a step disturbance of ΔP_D, obtain the response of "increment in frequency", making suitable assumptions.

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(a) Without proportional plus integral controller and

(b) With proportional plus integral control. [16]

8. A 3ϕ feeder having a resistance of 3Ω and reactance of 10 Ω supplies a load of 2 MW at 0.85 p.f. lag. The receiving end voltage is maintained at 11 kV by means of static condenser drawing 2.1 MVAr form the line. Calculate the sending end voltage and power factor. What is the regulation and efficiency of the feeder? [16]

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Code No: M0223/R07

$\boxed{\textbf{Set No. 2}}$

IV B.Tech I Semester Regular Examinations, November 2012
POWER SYSTEM OPERATION AND CONTROL
(Electrical & Electronics Engineering)

Time: 3 hours   Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks
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1. A power system consists of two 100 MW units whose input cost data are represented
   by equations below $C_1 = 0.04\ P_1{}^2 + 22P_1 + 800$ Rs/hr
   $C_2 = 0.045\ P_2{}^2 + 15P_2 + 1000$ Rs/hr
   If total received power $P_R = 150$ MW. Determine

   (a) The load sharing between units for most economic operation

   (b) The corresponding costs of operations.   [8+8]

2. (a) Discuss the general problem of economic operation of large interconnected
       areas.

   (b) What are the factors that can be taken in to consideration for scheduling of
       generators in a plant.   [8+8]

3. Discuss the combined hydro- electric and steam station operation.   [16]

4. A 80 MVA synchronous generator operates on full load at a frequency of 50Hz. The
   load is suddenly reduced to 40 MW. Due to time lag in the governor system, the
   steam valve begins to close after 0.3 secs. Determine the change in frequency that
   occurs in this time. H=4 KW-s/KVAof generator capacity.   [16]

5. An isolated generator and its control have the following parameters:
   Generator inertia constant = 5 second
   Governor time constant $\tau_g = 0.25$ seconds
   Turbine time constant $\tau_T = 0.6$ seconds
   Governor speed regulation = 0.05 p.u
   Load damping constant B = 0.8
   The turbine rated output is 200 MW at 50 Hz. The load suddenly increases by 50
   MW. Find the steady state frequency deviation. Plot the frequency deviation as a
   function of time.   [16]

6. Two control areas connected by a tie line have the following characteristics.

Area 1	Area 2
R=0.01 pu	R=0.02 pu
D=0.8 pu	D=1.0 pu
Base MVA=2000	Base MVA=500

   A load change of 100 MW (0.2 pu) occurs in area 2. What is the new steady
   state frequency and what is the change in the tie flow? Assume both areas were at
   nominal frequency (60 Hz) to begin.   [16]

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7. Explain the effect of integral gain on the performance of load frequency control in two area load frequency control. [16]

8. (a) A single-phase motor connected to a 230 V, 50 Hz supply takes 30 A at a p.f of 0.7 lag. A capacitor is shunted across the motor terminals to improve the p.f to 0.9 lag. Determine the capacitance of the capacitor to be shunted across the motor terminals.

   (b) Explain the specifications of load compensation. [8+8]

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$\boxed{\textbf{Set No. 3}}$

IV B.Tech I Semester Regular Examinations, November 2012
POWER SYSTEM OPERATION AND CONTROL
(Electrical & Electronics Engineering)

Time: 3 hours
Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks
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1. Describe in detail, with suitable examples, the methods of optimum scheduling of Generation of power from a thermal station. [16]

2. 100 MW, 150 MW and 280 MW are the ratings of three units located in a thermal power station. Their respective incremental costs are given by the following equations:
   dc1/dp1 = Rs(0.15p1 + 12);
   dc3/dp3 = Rs(0.21p3 + 13)
   dc2/dp2 = Rs(0.05p2 + 14)
   Where P_1, P_2 and P_3 are the loads in MW. Determine the economical load allocation between the three units, when the total load on the station is 300 MW.
   [16]

3. Determine the daily water used by hydro plant and daily operating cost of thermal plant with the load connected for total 24 hrs from the given data.
   The load connected, P_D = 400MW
   Generation of thermal plant, P_{GT} = 200MW
   Generation of hydro plant, P_{GH} = 300MW. [16]

4. Explain in detail general configuration of excitation system? [16]

5. Show that the steady change in frequency in load frequency control of an isolated power can be reduced to zero if the change in controlling force applied to the speed changer is equal to the change in load demand. [16]

6. Two control areas of 1000MW and 2000MW capacities are interconnected by a tie line. The speed regulations of the two areas respectively are 4 Hz / Pu MW and 2.5 Hz / Pu MW. Consider 2% change in load occurs for 2% change in frequency in each area. Find steady state change in frequency and tie-line power of 10MW change in load occurs in both areas. [16]

7. Obtain the dynamic response of load frequency controller with integral control action in two area load frequency control system. [16]

8. Three supply points A, B and C are connected to a common bus bar D as depicted in figure 8. Supply point A is maintained at a nominal voltage of 400 kV and is connected to D through 400/132kV transformer and a 132 kV line of reactance 50 ohms. Supply point B is nominally at 132kV and is connected to D through a 132 kV line of 50ohms reactance. supply point C is nominally at 400kV and is connected to D by a 400/132 kV transformer and a 132 kV line of 100ohms

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reactance. If at a particular load, the line voltage at D falls below its nominal value by 5 kV, calculate the value of the reactive volt-ampere injection required at D to re-establish the original voltage. [16]
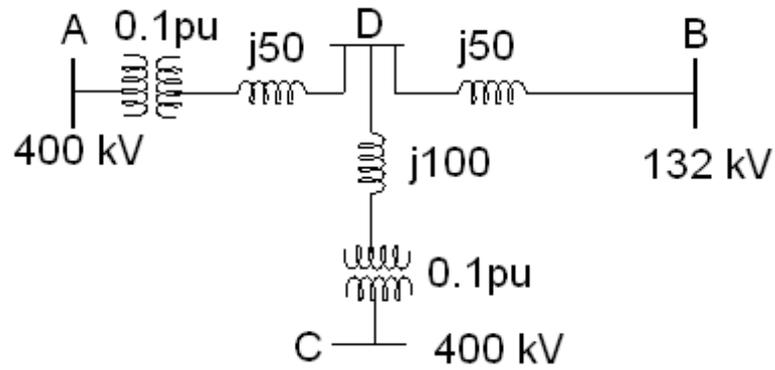

Figure 8

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Set No. 4

IV B.Tech I Semester Regular Examinations, November 2012
POWER SYSTEM OPERATION AND CONTROL
(Electrical & Electronics Engineering)

Time: 3 hours   Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks
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1. Derive optimum generation allocation of thermal plant when line losses neglected and write an algorithm. [8+8]

2. (a) Discuss the general problem of economic operation of large interconnected areas.
   (b) What are the factors that can be taken in to consideration for scheduling of generators in a plant. [8+8]

3. Write algorithm for Mathematical Formulation for Hydro thermal scheduling. [16]

4. Draw the schematic diagram showing the speed changer setting, Governor and steam admission valve and indicate how steam input is regulated with the change in load. Derive the T.F. of the above system. [16]

5. Discuss in detail the dynamic response of load frequency control of an isolated power system with a neat block diagram. [16]

6. (a) What are the advantages of inter connected operation of power systems? Explain.
   (b) Two areas of a power system network are interconnected by a tie-line, whose capacity is 500 MW, operating at a power angle of 35^0. If each area has a capacity of 5000 MW and the equal speed regulation of 3 Hz/Pu MW, determine the frequency of oscillation of the power for step change in load. Assume that both areas have the same inertia constants of H = 4 sec. [8+8]

7. (a) Explain economic dispatch control problem in detail.
   (b) Explain how the frequency error in the load frequency control problem is reduced to zero. [8+8]

8. Two 11 0.4 kV, 3-phase transformers A and B are connected to in parallel on HV and LV sides. The HV side is supplied at 11 kV and the LV side supplies a total load current of 180 A at 0.8 p.f. power factor lagging (relative to the voltage on HV side). Transformer A has a rating of 50 kVA and pu impedance 0.015+j0.04; Transformer B has a rating of 75 kVA and pu impedance 0.026+j0.07 and is fitted with $\pm 2\frac{1}{2}$ % and ± 5 % tapping on its HV winding. If the transformer B is set to 0 % tapping, find the current carried by each transformer. Determine the tapping to minimize the over load-load of the transformers and currents in each when this tapping is in use. [16]

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Set No. 1

IV B.Tech I Semester Regular Examinations, November 2012
INSTRUMENTATION AND CONTROL SYSTEMS
(Common to Mechanical Engineering and Automobile Engineering)

Time: 3 hours   Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks
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1. Explain the dynamic response characteristics of first order instruments to step, ramp and sinusoidal inputs. [16]

2. (a) Explain the construction and working of vapour pressure thermometer.

   (b) By means of neat sketches, explain the working vanishing filament pyrometer. [6+10]

3. (a) Explain how sensitivity can be increased by using inclined tube manometer. Describe its construction .theory, advantages and limitations.

   (b) Explain the basic principle of waking of a bellow type pressure gauge. [12+4]

4. (a) Give details of the Hook type level indicator and capacitive level indicator.

   (b) Describe the working of a cryogenic fuel level indicator. What are its advantages and limitations? [8+8]

5. What is a seismic type velocity transducer? Explain its construction with the help of a neat diagram. How can it be used for measurement of acceleration in vibration measurements? Explain. [16]

6. (a) Explian the method of measuring force using strain gauge.

   (b) Why bridge circuit is necessary for a strain gauge? Explain how the bridge circuit is used with a strain gauge. [8+8]

7. (a) What are the various devices to measure force? Explain the constructional details of multi lever type.

   (b) With neat sketch explain the working principle of Strain gauge load cell. [10+6]

8. (a) Briefly explain the different types of control systems.

   (b) Describe the working of one automatic control system used in practice. Outline functional elements of that system. [6+10]

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Set No. 2

INSTRUMENTATION AND CONTROL SYSTEMS
(Common to Mechanical Engineering and Automobile Engineering)
Time: 3 hours   Max Marks: 80
Answer any FIVE Questions
All Questions carry equal marks
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1. Show that mercury in glass thermometer is a first order instrument. How can be the time constant value reduced and sensitivity value increased for the thermometer?
[16]

2. (a) Explain by means of neat sketches different arrangements for lead wire compensation in R.T.D.

   (b) What are thermisters? How are they different from R.T.D.? Explain the working of thermister thermometer. [8+8]

3. (a) Explain the working principle of Ionization gauge.

   (b) Exaplin the working principle of Knudsen gauge. [8+8]

4. (a) Explain how Doppler effect is used for measurement of flow velocities in ultrasonic flow meters.

   (b) Explain the working principle of Bubbler gauge. [8+8]

5. (a) Name different electrical non-contact type tachometers. Explain with neat diagram, working of an inductive pick up tachometer.

   (b) What are the advantages and disadvantages of piezoelectric type accelerometer ? [10+6]

6. (a) What is gauge rosette? [2+6+8]

   (b) An electric resistance strain gauge of 300 Ω resistance and gauge factor 2 is bonded to a specimen of steel. Calculate the change in resistance of the gauge when a tensile stress of $75MN/m^2$ is applied on the specimen.

   (c) Explain the two arm and four arm conditions used for strain measurement.

7. (a) Explain how Spring balances can be used for measurement of force. Describe their working ,advantages and limitations.

   (b) Define the Psychometric terms:
      (i) Relative humidity   (ii) Dew point temperature
      (iii) Wet bulb temperature. [10+6]

8. (a) Define a process control system. Sketch the schematics of a shower bath which operates by a manual closed loop control arrangement .Identify the functions of each part of the system and explain how control is achieved.

   (b) What is a servo mechanism? Explain [10+6]

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Set No. 3

IV B.Tech I Semester Regular Examinations, November 2012
INSTRUMENTATION AND CONTROL SYSTEMS
(Common to Mechanical Engineering and Automobile Engineering)

Time: 3 hours　　　　　　　　　　　　　　　　　　　　Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks
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1. (a) Differentiate between error, inaccuracy and precession by means of examples.

   (b) What is transfer function? Find the transfer function for a spring mass damper system for which input is force and output is displacement.　　[6+10]

2. (a) Explain the construction and working of vapour pressure thermometer.

   (b) By means of neat sketches, explain the working vanishing filament pyrometer.
   　　　　　　　　　　　　　　　　　　　　　　　　　　　　[6+10]

3. (a) Name a few applications of pressure measurement.

   (b) What is the difference between atmospheric pressure and absolute pressure?

   (c) Illustrate, pressure classification with suitable examples.　　[2+4+10]

4. (a) Describe the working principle of Sight glass method.

   (b) Describe the construction of working of an annular tube used for flow measurements. Describe its advantages and disadvantages.　　[6+10]

5. Describe the following:

   (a) Working principle of Centrifugal speed tachometer

   (b) Working principle of Vibration reed tachometer

   (c) Revolution counter.　　　　　　　　　　　　　　　　　[6+6+4]

6. (a) What is the purpose of providing baking for bonded strain gauges?

   (b) Explain how dynamic strains can be measured with the help of a ballast circuit. Derive an expression for the sensitivity of a circuit and obtain the condition for maximum sensitivity.　　　　　　　　　　　　　[4+12]

7. (a) Explain with a diagram a pendulum scale of multi lever type.

   (b) Explain the method of measuring of force using a pneumatic load cell.　[8+8]

8. (a) Describe with neat sketch the open loop speed control system.

   (b) Illustrate with example, explain Closed loop temperature control system. [8+8]

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Set No. 4

IV B.Tech I Semester Regular Examinations, November 2012
INSTRUMENTATION AND CONTROL SYSTEMS
(Common to Mechanical Engineering and Automobile Engineering)
Time: 3 hours   Max Marks: 80
Answer any FIVE Questions
All Questions carry equal marks
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1. (a) What are the functions and applications of measurement systems

   (b) Three resistors of resistances $100 \pm 0.2\,\Omega$, $150 \pm 0.1\,\Omega$ and $200 \pm 0.6\,\Omega$ are connected in series. What is the uncertainity in total resistance? Also calculate the uncertainity in total resistance if the resistors are connected in parallel.

   [6+10]

2. (a) Differentiate between rare metal thermocouples and base metal thermocouples.

   (b) Design a measurement system for displacement measurement using LDR (Light dependent resistor) as sensor. [6+10]

3. (a) Explain how an elastic diaphragm gauge is used to measure pressure with the help of a relevant sketch.

   (b) List the limitations of elastic diaphragm gauge.

   (c) Discuss the merits and demerits of elastic sensing elements. [8+4+4]

4. (a) Describe construction and working of Turbine flow meters. Explain how the output is obtained in digital form for both flow rate and total flow.

   (b) Describe the working principle of Gamma ray liquid level indicator. [10+6]

5. (a) Define shock and vibrations.

   (b) How seismic instruments used for measuring acceleration? Explain in detail.

   (c) What are the advantages of piezoelectric type accelerometer? [4+8+4]

6. (a) Describe the properties of materials used for strain gauges.

   (b) Draw a simple strain gauge element and mark active and inactive direction.

   (c) Explain the two arm and four arm conditions used for strain measurement.

   [4+4+8]

7. (a) Explain with a diagram a pendulum scale of multi lever type.

   (b) Explain the method of measuring of force using a pneumatic load cell. [8+8]

8. (a) Sketch and explain position control using servo motor.

   (b) Sketch and explain open loop and closed loop temperature control system with block diagrams.

   (c) Briefly explain about positive feedback and negative feed back. [6+6+4]

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Code No: M0422 **R07** Set No. 1

IV B.Tech. I Semester Regular Examinations, November, 2012
Radar Systems
(Electronics and Communication Engineering)
Time: 3 Hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks
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1. a) Define maximum unambiguous range and give procedure to measure it. [8]
   b) i) What should be the pulse repetition frequency of a radar in order to achieve a maximum unambiguous range of 60 nmi?
   ii) How long does it take for the radar signal to travel out and back when the target is at the maximum unambiguous range?
   iii) What is the duty cycle of this radar? [8]

2. a) Describe clearly prediction of range performance. [8]
   b) A radar mounted on an automobile is to be used to determining the distance to a vehicle travelling directly in front of it. The radar operate at a frequency of 9375 MHz (X band) with pulse width of 10 ns. The maximum range is to be 500 ft.
   i) What is the pulse repetition frequency that corresponds to a range of 500 ft.
   ii) Find the average power required to detect a 10 m^2 radar cross section vehicle at a range of 500 ft., if the minimum detectable signal is 5 x 10^{-13} W. [8]

3. a) What is Doppler effect? How do you measure radar range using CW radar. [8]
   b) With a transmit frequency of 5GHz, calculate the Doppler frequency seen by a stationary radar when the target radial velocity is 100 Km/hr. (62.5mph) [8]

4. a) With a neat sketch explain the function of FM-CW radar. [10]
   b) Determine the operating frequency if the target is moving with acceleration as same as acceleration of gravity and received signal band width is 50GHz. [6]

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5. Write short notes on the following.
   a) Delay line canceller b) Limitations to MTI Performance [8+8]

6. Discuss different radar tracking methods. [16]

7. Write about how does matched filter receiver can be designed and give any two applications. [16]

8. Write short notes on the following.
   a) Phased array antennas
   b) Display types [8+8]

IV B.Tech. I Semester Regular Examinations, November, 2012

Radar Systems

(Electronics and Communication Engineering)

Time: 3 Hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks
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1. a) Explain the operation of a pulse radar with block diagram. [8]
   b) A VHF radar at 220MHz has a maximum unambiguous range of 180nmi
   i) What is its first blind speed (in knots).
   ii) Repeat, but for an L-band radar at 1250MHz. [8]

2. a) Explain why integration of pulses is needed while operating a radar. [8]
   b) Determine the significance of radar cross section for a given target. [8]

3. a) Write the application and limitations of continuous wave (CW) radar. [8]
   b) Explain about Doppler effect and how it helps in the working of CW
   radar with block diagram. [8]

4. Write short notes on
   a) FM- CW altimeter
   b) Multiple Frequency CW radar [8+8]

5. a) Explain the filter characteristics of MTI radar. [8]
   b) Write short notes on the following.
   i) Antennas of radar   ii) Blind speeds [4+4]

6. a) Write short notes on sequential lobing. [6]
   b) Write briefly about MTI improvement factor [6]
   c) Write about transversal filter [4]

7. Derive the impulse response of a matched filter using in radar receiver. [16]

8. a) Why does a parabolic surface make a good reflector antenna. [6]
   b) Write about phased array antennas in detail. [10]

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R07

IV B.Tech. I Semester Regular Examinations, November, 2012

Radar Systems

(Electronics and Communication Engineering)

Time: 3 Hours   **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks
****

1. a) Derive basic radar equation and explain each parameter significance.   [8]
    b) What is peak power of radar who's average transmitter power is 200W.
       pulse width of 1µs and a pulse repetition frequency of 1000Hz.   [8]

2. a) Define the following.
       i) Minimum detectable signal.   [4]
       ii) Receiver noise.   [4]
    b) A radar has a bandwidth b = 50 KHz and average time between false alarms of
       10 mins.
       i) What is probability of false alarm
       ii) What is the pulse width that results in a minimum range of 15nmi.   [8]

3. a) How do you provide isolation between transmitter and receiver. Discuss various
       aspects.   [8]
    b) Discuss applications of CW radar.   [8]

4. With a neat sketch explain the operations and applications of FM-CW altimeter. [16]

5. How do you narrate the principle concept and approach for different applications
    using MTI radar   [16]

6. Write in brief about the following.
    a) Sequential Lobing   [8]
    b) Acquisition   [8]

7. Write short notes on
    a) Matched filter receiver
    b) Correlation detection

8. What are the different aspects of the following displays explain clearly.   [4+4+4+4]
    a) A "Scope"   b) C "Scope"
    c) PPI "Scope'   d) L "Scope"

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IV B.Tech. I Semester Regular Examinations, November, 2012

Radar Systems

(Electronics and Communication Engineering)

Time: 3 Hours   Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks
****

1. a) What are the different bands of radar frequencies and their applications.   [8]
   b) Why can't the altitude line in a high PRF pulse Doppler radar be eliminated
      by range gating rather than by filtering.   [8]

2. a) Explain how system losses will effect the radar performance.   [8]
   b) A VHF radar at 220MHz has a maximum unambiguous range of 150nmi
      i) What is its first blind speed (in knots).
      ii) Repeat, but for an L-band radar at 1250MHz.   [8]

3. a) What is the effect of receiver bandwidth on the maximum range of a well
      designed radar, assuming the average power remains constant. Give explanation.   [8]
   b) A radar at a frequency of 1.35 GHz has an antenna of a width D=32 ft., a
      maximum unambiguous range of 220nmi and an antenna scan time
      (time to make 1 rotation of the antenna) of 10 sec. What is the integration of loss and
      integration improvement factor when the probability of the detection is 0.9 and
      probability of false alarm is 10^{-4}.   [8]

4. a) Explain the differences between CW radar and multiple frequency CW radar.   [6]
   b) Explain the working of approaching targets FMCW radar with neat waveforms.   [10]

5. a) Explain about non-coherent MTI radar.   [6]
   b) Write short notes about   [10]
      i) Area of MTI
      ii) Adaptive MTI

6. a) List the limitations of tracking accuracy.   [8]
   b) Compare different types of tracking techniques.   [8]

7. a) Write briefly about the efficiency of non matched filters   [10]
   b) Write short notes on cross correlation receiver   [6]

8. a) Write short notes on beam steering.   [6]
   b) Explain how scanning is performed with a pencil beam source up on the   [10]
      phased array antenna design.

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R07

IV B.Tech. I Semester Regular Examinations, November, 2012
NETWORK PROGRAMMING
(Common to Computer Science & Engineering and Information Technology)

Time: 3 Hours   Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks
****

1 a) Compare the services provided by TCP and UDP protocols.

   b) List out several standard services provided by TCP/IP. Give a brief summary of the protocol usage of various common internet applications

2 Explain about various elementary TCP socket functions.

3 What is I/O Multiplexing? Explain different types of Synchronous and asynchronous I/O models.

4 a) Give the IPv4 socket address structure and explain the significance of each field
   b) Explain how multiple clients are handled by a concurrent server.

5 Write short note on
   a) UDP echo server function
   b) TCP socket option

6 a) Explain about gethost by Name function with example.
   b) Role of resolver with neat diagram.

7 a) What is file locking? Explain different types of file locking?
   b) Briefly explain various methods of Inter process communication?

8 Explain in detail the various issues needed to be considered to make the use of RPC transparent to the application

IV B.Tech. I Semester Regular Examinations, November, 2012
NETWORK PROGRAMMING
(Common to Computer Science & Engineering and Information Technology)
Time: 3 Hours　　　　　　　　　　　　　　　　　　　　Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks
****

1　a) Describe the OSI reference model and Unix Standards.
　b) What are the limitations on the size of the IP datagram? Also explain how they effect the data transmitted by an application.

2　Describe the syntax and purpose of the each of the following:
　i) Listen　　　ii) Connect　　iii) fork　　iv) excc

3　a) Explain with a neat diagram signal driven I/O model.
　b) What are the differences in functionality between the *poll* and *select* functions?

4　Describe the getaddr info function as applicable to IPV6. Write briefly about IPV4 socket options.

5　a) Write the function to echo lines on a datagram socket and explain
　b) Write briefly about lost data gram.

6　What are the four types of network-related information that an application might want to look up? Also mention the keyed lookup functions provided by them.

7　What are pipes? Explain their limitations. Explain how pipes are created and used in IPC with examples.

8　a) Explain about pseudo – terminals and also terminal modes.
　b) Explain about 4.3BSD remote login client and server side with neat diagram

Code No: N0521 **R07** Set No. 3

IV B.Tech. I Semester Regular Examinations, November, 2012
NETWORK PROGRAMMING
(Common to Computer Science & Engineering and Information Technology)
Time: 3 Hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks
****

1 a) Explain with a diagram how TCP establishes connections using a three-way handshake.
   b) Explain about Buffer sizes and limitations of TCP and UDP protocols.

2 Explain with diagrams how the socket address structures are passed from process to kernel and kernel to process

3 a) Explain the TCP Echo Server functions?
   b) Explain with diagrams the following I/O models provided by Unix:
           i) I/O multiplexing model.
            ii) Signal-Driven I/O model.

4 a) List the differences between pselect( ) and poll( ) functions. Write briefly about shutdown function.
   b) List the various socket options available for IPV6.

5 Write a program to echo message using UDP.

6 Explain about
   a) DNS
   b) uname function

7 a) What are the advantages of message queues? Explain the APIs for system V message queues.
   b) Write a program to lock a file and record using semaphore.

8 Write about the following
   a) Terminal line discipline
   b) r login

1 of 1

IV B.Tech. I Semester Regular Examinations, November, 2012
NETWORK PROGRAMMING
(Common to Computer Science & Engineering and Information Technology)
Time: 3 Hours   Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks
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1   Describe the TCP/IP reference model and Unix Standards.

2   List the order in which the following functions should likely be called in a TCP server:
    accept (), bind(), close(), socket(), read(). Explain in detail each system call.

3   a) Explain briefly the byte order conversion functions.
    b) Write a sample code to describe the getsockopt () and setsockopt () functions.

4   a) Explain protocol independent socket options.
    b) Explain any two types of I/O models in UNIX?

5   a) Discuss the effect of UDP not having any flow control.
    b) Explain with a sample code how a connected UDP socket can be used to determine the
       outgoing interface

6   Explain the role of a resolver with a neat diagram that depicts the typical arrangement of
     applications, resolvers and name servers

7   a) What is a pipe? How FIFO is's different from Pipes? Explain with suitable example.
    b) Compare the IPC functionality provided by pipes and message queues.

8   Describe the Transparency issues of RPC with example.