# AR16

**CODE No: 16MPE1008** **SET-2**

**ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI**
**(AUTONOMOUS)**
**I M.Tech. I Semester Regular & Supplementary Examinations, December, 2018**

**NONCONVENTIONAL ENERGY SOURCES AND APPLICATIONS**
**(Power Electronic and Drives)**

**Time: 3 Hours** **Max Marks: 60**

**Answer any FIVE Questions**
**All questions carry EQUAL marks**

| | | | |
|---|---|---|---|
| 1 | (a) | What is meant by renewable energy sources? Give its principle and advantages | [6M] |
| | (b) | Define solar constant. What are the various reasons for variation in solar radiation reaching the earth than received at the outside of the atmosphere? | [6M] |
| 2 | (a) | What are the principles and characteristics of different types of collectors? | [6M] |
| | (b) | What is the solar photo voltaic power generation what are the main elements of a PV system. | [6M] |
| 3 | (a) | Explain briefly vertical type wind mills with neat sketches. | [6M] |
| | (b) | What is the basic principle of wind energy conversion? Derive the expression for the power developed due to wind. | [6M] |
| 4 | (a) | What is the principle of working of geothermal power plants? Give the applications of geothermal energy? | [6M] |
| | (b) | Give the advantages and disadvantages of geothermal energy over other energy forms | [6M] |
| 5 | (a) | How biomass conversion takes place? Give the difference between biomass and biogas. | [6M] |
| | (b) | What is the basic principle of ocean thermal energy conversion? | [6M] |
| 6 | (a) | Discuss the principle of MHD generation. Derive the expression for the voltage and power output of an MHD generator | [6M] |
| | (b) | Briefly explain high level reservoir wave machine | [6M] |
| 7 | | Explain the operation of open cycle and closed cycle systems of MHD power generation with a neat sketch | [12 M] |
| 8 | | Write short nodes on a) Wind diesel hybrid systems. | [6M] |
| | | b) Wind photo voltaic systems | [6M] |



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# AR16

**CODE: 16MVL1008** **SET-1**

**ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI**
**(AUTONOMOUS)**
**I M.Tech. I Semester Supplementary Examinations, December-2018**

**EMBEDDED AND REAL TIME SYSTEMS**
**(VLSI System Design)**

Time: 3 Hours Max Marks:60

Answer any FIVE questions
All questions carry EQUAL marks

| | | | |
|---|---|---|---|
| 1. | (a) | Define the following<br>i) Microprocessor ii) Microcontroller iii) Single Purpose processor | 6 |
| | (b) | Explain combinational and sequential logic (RT level) single processor design. | 6 |
| 2. | (a) | Explain the development environment of the processors. | 6 |
| | (b) | Give the importance of the following processors in embedded Systems:<br>i) Digital signal processor ii) ASIPs | 6 |
| 3. | (a) | Write about PSM Model. | 6 |
| | (b) | Explain the concept of synchronization among concurrent process with an example. | 6 |
| 4. | (a) | Discuss about Bluetooth. | 6 |
| | (b) | Explain USB data transmission and reception blocks with neat sketch. | 6 |
| 5. | (a) | What is meant by queue? How does a pipe may differ from a queue? | 6 |
| | (b) | Explain the architecture of kernel. | 6 |
| 6. | (a) | Write shot note on Handheld OS | 6 |
| | (b) | Explain how timers useful in embedded operating systems. | 6 |
| 7. | (a) | Explain the different scheduling methods used to control Task State Transition. | 6 |
| | (b) | Describe concurrent process model. | 6 |
| 8. | (a) | Write the need for communication interface. Write the data format used in UART. | 6 |
| | (b) | Write the features of Windows CE. | 6 |



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# AR16

**CODE: 16MCS1006** **SET-2**

**ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI**
**(AUTONOMOUS)**
**I M.Tech. I Semester Regular & Supplementary Examinations, December, 2018**
**ADVANCED COMPUTER ARCHITECTURE**
**(Computer Science & Engineering)**

Time: 3 Hours Max Marks:60

Answer any FIVE questions
All questions carry EQUAL marks

| | | | |
|---|---|---|---|
| 1. | (a) | What are the different elements of modern Computer? Explain briefly. | 6M |
| | (b) | What are factors that influence the performance of a processor? | 6M |
| 2. | (a) | What are different cache performance techniques that can be used to improve hit time and band width? | 7M |
| | (b) | How can a pipelined cache access to increase cache band width? | 5M |
| 3. | (a) | What is multi process cache coherence? | 4M |
| | (b) | Differentiate between Instructions set Architecture vs. Computer Architecture. | 8M |
| 4. | | What are Collision free Scheduling problems and discuss in detail. | 12M |
| 5. | (a) | Explain about Vector access memory schemes. | 6M |
| | (b) | Differentiate between multi processors and multi vector computers. | 6M |
| 6. | | Describe about clocking and timing control mechanisms of linear pipeline processors. | 12M |
| 7. | (a) | Describe the ways of improving cache performance. | 6M |
| | (b) | Write characteristics of RISC Architecture | 6M |
| 8. | | Write short notes for the following<br>a) Snoopy Protocol<br>b) Cache coherence<br>c) Vector processing principles | 4M<br>4M<br>4M |



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# AR16

**Code No: 16MSE1008** **SET-1**

**ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI**
**(AUTONOMOUS)**
**I M.Tech. I Semester Regular & Supplementary Examinations, December, 2018**

## ADVANCED CONCRETE TECHNOLOGY

**(Structural Engineering)**

**Time : 3 hours** **Max Marks : 60**

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

| | | |
|---|---|---|
| 1. | Discuss about classification of aggregates used in concrete? | 12M |
| 2. | Explain different methods of Non-Destructive testing? | 12M |
| 3. | What is repair? What are the various stages of repairs? | 12M |
| 4. | Explain the beam Shear Strengthening Techniques? | 12M |
| 5. | What are the factors influencing the properties of Fibre Reinforced Concrete? | 12M |
| 6. | How it will effect of Super Plasticizers on Fresh and Hardened Concrete? | 12M |
| 7. | Explain the methods of corrosion Protection? | 12M |
| 8. | (a). Explain various types of Fibres? | 4M |
| | (b).Explain Properties of light weight and high performance concretes? | 8M |



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# AR16

**CODE: 16MTE1009** **SET-2**

**ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI**
**(AUTONOMOUS)**
**I M.Tech. I Semester Regular & Supplementary Examinations, December, 2018**

**NON CONVENTIONAL ENERGY RESOURCES**
**(Thermal Engineering)**

Time: 3 Hours Max Marks:60

Answer any FIVE questions
All questions carry EQUAL marks

| | | | |
|---|---|---|---|
| 1. | (a) | What are the reasons for variation in solar radiation reaching the earth than received at the outside of the atmosphere? | 8M |
| | (b) | Calculate the angle made by beam radiation with the normal to a flat collector on December 1 at 9.00AM., Solar time for a location at $28^0$35' N. The collector is tilted at an angle of latitude plus $10^0$, with the horizontal and is pointing due south. | 4M |
| 2. | (a) | Explain active space heating system. | 6M |
| | (b) | Write short notes on solar electric power generation. | 6M |
| 3. | (a) | Explain central receiver systems. | 6M |
| | (b) | Explain solar pond with neat sketch. | 6M |
| 4. | (a) | Explain about hot dry rock resources | 6M |
| | (b) | Discuss about the applications of geothermal energy | 6M |
| 5. | (a) | Explain thermo nuclear function reactors based on deuterium cycle. | 6M |
| | (b) | Write short note on Molten carbonate fuel cell. | 6M |
| 6. | (a) | Explain design and principle of operation of a fuel cell. | 7M |
| | (b) | Explain liquid metal MHD system. | 5M |
| 7. | (a) | Explain wind energy conversion system components. | 7M |
| | (b) | Explain the analysis of aerodynamic forces acting on the blade. | 5M |
| 8. | (a) | Explain horizontal axis and vertical axis wind mills. . | 6M |
| | (b) | Explain advantages and limitations of tidal power generation. | 6M |



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# AR16

**CODE: 16MDE1004** **SET-1**

**ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI**
**(AUTONOMOUS)**
**I M.Tech. I Semester Supplementary Examinations, December, 2018**
**RADAR SIGNAL PROCESSING**
**(Digital Electronics and Communication Systems)**

Time: 3 Hours Max Marks: 60

Answer any FIVE questions
All questions carry EQUAL marks

1. (a) Derive the Impulse Response of Bi-static Radar Matched filter receiver?
   (b) Explain correlation detection and cross-correlation receiver?

2. (a) Explain Noise Model and Signal-to-Noise Ratio?
   (b) Write Short notes on Coherent Scattering, Variation with Angle and Variation with Range in Spatial Modelling?

3. (a) Briefly explain the domains and criteria for sampling radar signals?
   (b) Explain sampling in slow time dimension?

4. (a) Discuss the Waveform Matched Filter?
   (b) Define Ambiguity Function and what are the properties of Ambiguity Function?

5. (a) Explain MTI filtering and detection process?
   (b) Explain the Discrete-Time Fourier Transform processing of a Moving Target?

6. (a) Explain the Distortion effects on LMF Signals?
   (b) What are the Resolution properties of Frequency Coded Pulses?

7. (a) Explain Stretch Processing?
   (b) Explain how the Side Lobes can be controlled for FM Waveforms?

8. (a) Derive the radar range equation?
   (b) Explain the principle and characteristics of a matched filter?



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