Code No: RT22015

R13

SET - 1

II B. Tech II Semester Supplementary Examinations, Nov/Dec - 2016
CONCRETE TECHNNOLOGY
(Civil Engineering)

Time: 3 hours   Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)
2. Answer **ALL** the questions in **Part-A**
3. Answer any **THREE** Questions from **Part-B**

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PART –A   [22M]

1. a) Write about Hydration of cement?
    b) What in meant by Compaction?
    c) What is NDT?
    d) Explain about Modulus of elasticity?
    e) Write about Gel space ratio
    f) What is Shotcrete?

PART –B   [3×16=48M]

2.   Bring out a detailed discussion on Alkali Aggregate reaction? Discuss the factors
      promoting and methods to control.

3. a) Explain workability of concrete?
    b) Explain the Vee-bee method of determining workability with neat sketches

4. a) Explain with neat diagram non-destructive testing of concrete using Rebound
       Hommer Method.
    b) What are the techniques of measuring pulse velocity through concrete and factors
       affecting the measurement of pulse velocity?

5. a) Explain dynamic modulus of elasticity.
    b) Explain procedure for determining dynamic modulus of elasticity using
        Ultrasonic pulse velocity equipment

6.   Design mix proportions with the following data using IS code method.
      Characteristic compressive strength of concrete 30 Mpa. 20mm Maximum size of
      round aggregate. Moderate degree of workability. Specific gravity of cement 3.15
      specific gravity of coarse and fine aggregates 2.65. Zone III sand. Good quality
      control.

7. a) Explain salient features of cellular concretes.
    b) Explain relation between strength and density of high pressure steam cured aerated
       concrete

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R13

SET - 1

II B. Tech II Semester Supplementary Examinations, Nov/Dec - 2016
POWER SYSTEMS - I
(Electrical and Electronics Engineering)

Time: 3 hours   Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. Answer **ALL** the question in **Part-A**
3. Answer any **THREE** Questions from **Part-B**

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PART –A

1.	a)	What are the characteristics required for a good Ash handling plant in a thermal Power station.	(4M)
	b)	Define the working principle of a nuclear power station	(4M)
	c)	What do meant by Ring or loop distribution system	(4M)
	d)	What is meant by switching Substation?	(4M)
	e)	How do classify the cables used for underground service	(3M)
	f)	Define the term Plant capacity factor	(3M)

PART –B

2.	a)	List the points that were considered for the selection of site in a thermal power station.	(8M)
	b)	Give the comparison between Fire tube and Water tube boilers	(8M)
3.	a)	Explain with a neat layout diagram, the working of a Nuclear Power Station	(12M)
	b)	Describe the internal radiation hazards of nuclear power stations	(4M)
4.	a)	List the different factors that were effecting Distribution system losses	(8M)
	b)	Calculate the voltage at a distance of 250m of a 350m long distributor uniformly loaded at the rate of 0.8A/m. The distributor is fed at one end at 250V. The resistance of the distributor (go and return) per meter is 0.00017Ω. Also find the power loss in the distributor.	(8M)
5.	a)	What are the considerations for the selection of site for an Outdoor substation?	(8M)
	b)	Compare between Air –Insulated and Gas – insulated Substations	(8M)
6.	a)	Derive the necessary equation for finding the capacitance of a single core cable	(8M)
	b)	Find the most economical size of a single core cable working on a 132 KV, 3 – Phase system, if dielectric stress of 5KV/mm can be allowed.	(8M)
7.		Write short notes on the following:	(16M)
		a) Integrated load duration curves	
		b) Three part Tariff Method	
		c) Constructional aspects of Gas Insulated sub stations	

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II B. Tech II Semester Supplementary Examinations, Nov/Dec - 2016
FLUID MECHANICS AND HYDRAULIC MACHINERY
(Com. to ME, AME)

Time: 3 hours
Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
  2. Answer **ALL** the question in **Part-A**
  3. Answer any **THREE** Questions from **Part-B**

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PART-A

1. a) Define the terms surface tension and capillarity.
    b) What is flow-net? Is the flow-net analysis applicable to rotational flow? If not, why?
    c) What is a boundary layer? Why does it increase with distance from the upstream edge?
    d) How are the model testing of the centrifugal pumps carried out?
    e) Explain the concept of water hammer.   (4M+4M+5M+5M+4M)

PART-B

2. a) Briefly explain the conditions for stability of a floating body and submerged body.

    b) A mercury column is used to measure the atmospheric pressure. The height of column above the mercury well surface is 762 mm. The tube is 3 mm in dia. The contact angle is 140°. Determine the true pressure in mm of mercury if surface tension is 0.51 N/m. The space above the column may be considered as vacuum.   (6M+10M)

3. a) Derive the equation of continuity in differential form.

    b) The rate of flow of water through a horizontal pipe is 0.3 m^3/sec. The diameter of the pipe is suddenly enlarged from 25 cm to 50 cm. The pressure intensity in the smaller pipe is 1.4 kgf/cm^2. Determine loss of head due to sudden enlargement, pressure intensity in the large pipe and power lost due to enlargement.   (8M+8M)

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4. a) Define energy thickness. Derive an expression for the energy thickness.

    b) Water is flowing over a thin smooth plate of length 5m and width 2.7m at a velocity of 1.2 m/sec. If the boundary layer flow changes from laminar to turbulent at a Reynolds number 5×10^5. Find:

    i) The distance from leading edge up to which boundary layer is laminar and

    ii) Thickness of the boundary layer at the transition point.   (8M+8M)

5. a) Derive the expression for work done and efficiency of jet striking centrally on a moving curved vane. Also find the condition for maximum efficiency.

    b) A 75 mm diameter jet having a velocity of 30 m/s strikes a flat plate, the normal of which is inclined at 45^0 to the axis of the jet. Find the normal pressure on the plate,

    i) When the plate is stationary

    ii) When the plate is moving with a velocity of 15 m/s in the direction of the jet, away from the jet. Also determine the power and efficiency of the jet when the plate is moving.

                                                                                      (6M+10M)

6. a) What is manometric efficiency of a centrifugal pump? Define with the help of a sketch. Differentiate it from volumetric efficiency and mechanical efficiency.

    b) A single acting reciprocating pump has a plunger of diameter 0.3m and stroke of length 0.4m. If the speed of the pump is 60 rpm and coefficient of discharge is 0.97, determine the percentage slip and actual discharge of the pump.   (8M+8M)

7. a) An Impulse turbine has to maintain the same efficiency under different working conditions. By what percentage shall the discharge increase if the head changes from 50 m to 75 m.

    b) Explain the working, advantages, limitations and applications of oscillators.   (6M+10M)

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R13

SET - 1

II B. Tech II Semester Supplementary Examinations, Nov/Dec - 2016
MANAGEMENT SCIENCE
(Electronics and Communications Engineering)

Time: 3 hours   Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)
2. Answer **ALL** the question in **Part-A**
3. Answer any **THREE** Questions from **Part-B**

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PART –A

1.	a)	Explain different leadership styles.	(4M)
	b)	Differentiate between PERT and CPM.	(4M)
	c)	What is ranking method?	(3M)
	d)	Write the elements of corporate planning process.	(4M)
	e)	Write short note on importance of ethics in business and management?	(4M)
	f)	Explain the basic concepts of MIS.	(3M)

PART –B

2.	What are the various types of organization structures? Explain them with their merits and demerits.	(16M)
3.	Define EOQ. What are the factors that determine EOQ?	(16M)
4.	Explain the concept of job analysis. Discuss various methods of wage payments.	(16M)
5.	Explain the different steps for Formulation of Strategic?	(16M)
6. a)	Discuss various ethical issues in marketing management.	(8M)
b)	Write a short note on ethics in finance.	(8M)
7.	What is Enterprise Resource Planning (ERP)? Explain the process of ERP?	(16M)

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II B. Tech II Semester Supplementary Examinations, Nov/Dec - 2016
COMPUTER ORGANIZATION
(Com. to CSE, IT, ECC)

Time: 3 hours   Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. Answer **ALL** the question in **Part-A**
3. Answer any **THREE** Questions from **Part-B**

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PART –A

1. a) Convert $(101.11011)_2$ into Decimal, Octal, Hexadecimal   (4M)
    b) What are the basic differences between a branch instruction, a call subroutine   (4M)
        instruction and program interrupt
    c) For a RISC machine, the effective value of S is 1.25 and the average value of N is   (4M)
        200. If the clock rate is 500MHz, calculate the total program execution time
    d) Explain the hardware implementation for Booth algorithm   (4M)
    e) Explain the principle of virtual memory   (3M)
    f) What is the need of I/O interface module   (3M)

PART –B

2. a) With the help of a block diagram, explain the process of addition/subtraction using (8M)
        two's complement number
    b) Describe about the Fixed point representation of numbers with an example   (8M)

3. a) Draw the block diagram of arithmetic logic shift unit and explain its operations   (8M)
    b) Explain the instruction cycle with an example   (8M)

4. a) What do you mean by Addressing modes? Explain the following addressing   (10M)
        modes:
        i) Index Addressing mode   ii) Immediate Addressing mode
        iii) Relative Addressing mode   iv) Direct Addressing mode
    b) Compare the hard wired control unit and micro programmed control unit   (6M)

5. a) Show the step by step multiplication process using Booth algorithm when the   (10M)
        following binary numbers are multiplied (+15) * (-13). Assume 5-bit registers that
        hold signed numbers and draw the flow chart for the corresponding example
    b) Draw the flow chart for division algorithm   (6M)

6. a) Compare and contrast between Asynchronous DRAM and Synchronous DRAM.   (8M)
    b) What is cache memory? Explain the different mapping functions   (8M)

7. a) What do you mean by inter process arbitration? Explain how it is implemented in   (8M)
        multiprocessor architecture
    b) Explain the method of DMA transfer. How does a DMA controller improve the   (8M)
        performance of a computer

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II B. Tech II Semester Supplementary Examinations, Nov/Dec - 2016
POWER SYSTEMS - I
(Electrical and Electronics Engineering)

Time: 3 hours　　　　　　　　　　　　　　　　　　　　　　　　　　Max. Marks: 75

Answer any **FIVE** Questions
All Questions carry **Equal** Marks
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1. Draw the block diagram of Thermal power station and state the classification of (15M)
   boilers used in Thermal power stations.

2. a) What are the nuclear fuels? Classify the nuclear reactors. (7M)
   b) Draw the schematic diagram of nuclear power station and discus its operation. (8M)

3. With a schematic diagram, explain the working of a solar power plant. What is (15M)
   importance of this plant in the present energy crisis in the world.

4. A single phase line (ABC) of length 2 Km having resistance and reactance (15M)
   (go and return) as 0.05 and 0.8 ohms/Km. A is the feeding point, B is the mid-point
   of the line taking a load of 100A at 0.8p.f leads and C is the far end taking a load of
   10 A at UPF. The voltage at the 'C' is 230V. Find the voltage at the sending end
   and the phase angle difference between the voltages of two ends. If
   (a) Power factors of the loads are with reference to far end voltage.
   (b) Power factors of the loads are with reference to the voltages at the load points.

5. a) Classify types of substations and explain single line diagram of gas insulated (10M)
   substations.
   b) List out advantages of gas insulated substation (5M)

6. A single core 66 KV cable working on 3-phase system has a conductor diameter of (15M)
   2 cm and a sheath of inside diameter 5.3 cm. If two inter sheaths are introduced in
   such a way that the stress varies between the same maximum and minimum in the
   three layers. Find:
   (i) Positions of intersheaths.　(ii) Voltage on the intersheaths.
   (iii) Maximum and minimum stresses.

7. Maximum demand of a generating station is 100 MW, a load factor us 65%. The (15M)
   plant capacity factor and plant use factor are 50% and 80%, respectively.
   Determine:
   　　a)　　The maximum energy　　　b) Installed capacity of plant
   　　c)　　The reserve capacity of plant d) The maximum energy that could be
   produced daily if the plant is running all the time
   e) The maximum energy that could be produced daily if the plant is running at
   full load (according to the operating schedule) and utilization factor.

8. a) What are the principal factors involve in fixing of a tariff? (7M)
   b) An industrial consumer has maximum demand of 120 kW and maintains a load (8M)
   factor of 80%. The tariff in force is Rs. 60 per kVA of maximum demand plus 8
   paise per unit. If the average p.f. is 0.8 lagging, calculate the total energy consumed
   per annum and the annual bill.

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R10

SET - 1

II B. Tech II Semester Supplementary Examinations, Nov/Dec - 2016
PRODUCTION TECHNOLOGY
(Mechanical Engineering)

Time: 3 hours

Max. Marks: 75

Answer any **FIVE** Questions
All Questions carry **Equal** Marks
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1.	a)	Explain different pattern allowances with neat diagrams.	(8M)
	b)	Explain different factors to be considered while designing the gating system in casting.	(7M)
2.	a)	What is the difference between short and long freezing ranges? How is range determined? Explain with an example.	(8M)
	b)	What is Die casting process? Explain the process and give the advantages and limitations of die casting?	(7M)
3.		Explain different welding defects with neat diagrams.	(15M)
4.	a)	Explain about resistance welding process and give the advantages and limitations.	(8M)
	b)	Explain about laser welding process and give the advantages and limitations.	(7M)
5.	a)	Explain any four rolling mills used with neat sketches.	(8M)
	b)	Write the differences between cold and hot working process.	(7M)
6.	a)	Explain different types of presses used with neat sketches.	(8M)
	b)	Discuss the methods used for the production of pipes and tubes.	(7M)
7.	a)	Explain about forging defects.	(8M)
	b)	Explain about rotary forging process.	(7M)
8.	a)	What are different types of Plastics used? Write its Properties and applications. applications	(8M)
	b)	Describe the various additives with their uses added in plastics?	(7M)

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II B. Tech II Semester Supplementary Examinations, Nov - 2016
ELECTRO MAGNETIC WAVES AND TRANSMISSION LINES
(Com. to ECE, EIE)

Time: 3 hours   Max. Marks: 75

Answer any **FIVE** Questions
All Questions carry **Equal** Marks
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1. a) Derive the relationship between electric field and electric potential. (8M)
   b) Point Charges Q_1 = 1 nC, Q_2 = -2 nC, Q_3 = 3 nC and Q_4 = -4 nC are positioned one at a time and in that order at (0, 0, 0), (1, 0, 0), (0, 0, -1) and (0, 0, 1) respectively. Calculate the energy in the system after each charge is positioned. (7M)

2. a) Explain the concept of magnetic scalar and vector potential concepts. (8M)
   b) A circular loop located on x^2+y^2 = 9, z = 0 carries a direct current of 10 A along $\mathbf{a_\varphi}$. Determine **H** at (0, 0, 4) and (0, 0, -4). (7M)

3. a) What is the inconsistency of Ampere's circuit law? Explain how Maxwell modified it. (8M)
   b) In free space, **E** = 20 cos (ωt – 50x) $\mathbf{a_y}$ V/m. Calculate (i) $\mathbf{J_d}$ (ii) **H** and (iii) ω. (7M)

4. a) What is meant by polarization? Explain different types of polarization. (8M)
   b) The magnetic field intensity in free space is H = 25 cos (βz + 40,000t) $\mathbf{a_y}$ A/m. (7M)
      Find (i) the phase constant
           (ii) The wavelength
           (iii) the velocity of propagation
           (iv) The corresponding **E** field.

5. a) State and prove poynting theorem. (8M)
   b) Explain about Brewster angle and total internal reflection. (7M)

6. Discuss about TM modes in parallel plane waveguides. (15M)

7. a) List out different types of transmission lines and write its applications. (8M)
   b) A distortionless line at 150 MHz has Z_0 = 75 Ω,, α = 0.06 Np/m and u = 2.8 x 10^8 m/s. Calculate the line parameters R, G, C and L. (7M)

8. a) Explain the concept of UHF lines as circuit elements. (8M)
   b) Write the application of smith chart. (7M)

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