Code No. 3210

FACULTY OF ENGINEERING

B.E. 4/4 (Civil) I - Semester (Main) Examination, December 2016

Subject : Water Resource Engineering - II

Time : 3 Hours **Max. Marks: 75**

Note: Answer all questions from Part-A and answer any five questions from Part-B.

PART – A (25 Marks)

1 What is trap efficiency? (2)
2 What is middle third rule? (2)
3 Define Phreatic line. (2)
4 Write a note on energy dissipator. (2)
5 Define primary power and secondary power. (2)
6 The compressive stress of a concrete dam is 2200 kN/m^2 and specific gravity of dam material is 2 :4. Compute maximum limiting height of dam. (3)
7 Write a note on elementary profile of gravity dam. (3)
8 Spill way is a safety valve for a dam Justify. (3)
9 State any two applications of hydraulic jump. (3)
10 Classify the hydro power plants under various considerations. (3)

PART – B (50 Marks)

11 (a) What is meant by reservoir? Describe briefly the procedure of computing the storage capacity of a Reservoir. (5)
(b) Explain the factors governing the selection of site for a Reservoir. (5)

12 Check the stability of a 100m high concrete gravity dam trapezoidal in cross section has upstream face vertical, crest width 6m base width 75m and freeboard 4m. Considering self weight of dam, water pressure and full uplift. Find the principal and shear stress at toe and heel of the dam. The specific weight of concrete is 2 .4 t/m^3 coefficient of friction 0.7 and shear strength of concrete 14kgf/cm^2. (10)

13 (a) Explain briefly the criteria for safe design of a dam. (5)
(b) Explain with a neat sketch, the component parts and functions of Reck fill dams. (5)

14 (a) Write the various classification of spillways under different considerations for selection of each type. (5)
(b) Explain Ogee spillway with a neat sketch. (5)

15 (a) What are surge tanks? Explain the functions of surge tanks. (5)
(b) What is draft tube? List the types of draft tubes and purpose of it. (5)

16 (a) Explain various types of earth dams. (5)
(b) Describe roller bucket type of energy dissipater with a sketch. (5)

17 Write short notes on any **two** of the following: (2x5)
(a) Galleries is gravity dam
(b) Jump height curve and tail water rating curve
(c) Methods to control sedimentation of reservoirs

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Code No. 3220

FACULTY OF ENGINEERING

B.E. 4/4 (EEE) I – Semester (Main) Examination, Nov. / Dec. 2016

Subject : Electrical Machine Design

Time : 3 hours **Max. Marks : 75**

Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.

PART – A (25 Marks)

1		Does the copper exhibit super conductivity? Explain.	3
2		What is the gap contraction factor in case of slots?	2
3		Explain the relation between real and apparent flux density.	3
4		Define heating time constant.	2
5		What are the properties of a cooling medium to be selected for heavy duty machines?	3
6		Explain each term in the output equation of a 3-phase transformer.	2
7		On what factors does electrical loading of a machine depend?	3
8		What are the advantages of digital computers?	2
9		Why the optimization is required for any machine design?	3
10		Give at least two applications of insulating materials.	2

PART – B (50 Marks)

11	a)	Explain briefly about the suitability of a given insulating material for a particular application. Site at least four different materials.	5
	b)	Distinguish soft and hard magnetic materials.	5
12	a)	Give the procedural steps to determine the required AT for air gap of an electrical machine.	5
	b)	A magnet coil has a resistance of 0.02 ohm per turn. Show that the total ampere-turns will be 3200 for an applied voltage of 100 v. If not justify the answer.	5
13	a)	What are the various cooling methods adopted in the maintenance of heavy duty electrical machinery?	5
	b)	If one hour rating of a machine is √3 times the continuous rating and if steady temperature rise for one hour rating is twice that on normal load, find the ratio of iron to copper loss at full load.	5
14	a)	Give the significance of electrical loading and magnetic loading in case of rotating machines.	5
	b)	Explain how the armature of a d.c. machine is designed.	5
15	a)	Derive an expression for the output of 3-phase core type transformer.	5
	b)	Calculate the core and window areas of 500 KVA, 50 Hz, 1-phase, core type power transformer. The following data may be assumed : Ratio of weight of iron to weight of copper = 3 ; Ratio of length of mean turn of copper to length of mean flux path = 0.5 ; max. flux density = 1.25T; Current density = 2.2 A/mm^2 ; Density of copper = $8.9*10^3$ Kg/m^3 ; Density of Iron = $7.8*10^3$ Kg/m^3 ; copper surface factor = 0.1.	5
16	a)	Discuss shortly about the estimation of air gap length in case of rotating machines.	5
	b)	Explain the method to determine the reluctance of rectangular slots.	5
17		Give a brief treatise on the following :	
	a)	Analysis method of CAD	5
	b)	Optimization method applicable to CAD	5

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Code No. 3237

FACULTY OF ENGINEERING

B.E. 4/4 (ECE) I – Semester (Main) Examination, December 2016

Subject : Industrial Administration and Financial Management

Time : 3 hours **Max. Marks : 75**

Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.

PART – A (10 x 2.5 = 25 Marks)

1 State the functions of the management.
2 Define the term Plant layout.
3 Highlight the advantages of work study.
4 Compare job evaluation and merit rating.
5 Differentiate variable and attribute.
6 What are the principles of S.Q.C.?
7 State the importance of float in project management.
8 What are the costs associated with inventory?
9 What are the assumptions in break even analysis?
10 Explain the nature of Financial Management.

PART – B (5 x 10 = 50 Marks)

11 a) Explain the various factors affecting the location of plant.
b) What is partnership deed? Mention types of partners and compare partnership with sole proprietorship.

12 a) Explain the principle of motion economy related to human body.
b) Explain who handed process chart with suitable example.

13 a) Explain any two wage payment plans.
b) Compare line organizations structure with line and staff organization structure.

14 a) Explain the importance of quality circle.
b) The following table gives the result of inspection of 50 items per day for 20 days. Construct the fraction defective chart and give inference about the process.

Day	1	2	3	4	5	6	7	8	9	10
No. of Defectives	4	0	2	2	5	2	3	1	2	3
Day	11	12	13	14	15	16	17	18	19	20
No. of Defectives	2	0	3	3	2	4	5	1	0	4

..2

15 a) Find the optimum assignment for minimum total cost for the following :

	Machines			
Jobs	P	Q	R	S
A	15	13	14	17
B	11	12	15	13
C	13	12	10	11
D	15	17	14	16

b) A particular item has a demand of 9000 units per year. The cost of one procurement is Rs.100 and the holding cost per unit is Rs.2.4 per year. The replacement is instantaneous and no shortages are allowed. Determine 1. Economic lot size 2. No of orders per year 3. Time between order 4. Total cost per year if the cost of one unit is Rs.10.

16 a) Explain how do you calculate selling price of a product with suitable example.
b) Explain sinking fund and sum of year's digit method of depreciation.

17 Write short notes on the following :
a) Materials purchase b) Acceptance sampling c) Financial Leverage

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Code No. 3245

FACULTY OF ENGINEERING

B.E. 4/4 (M/P/AE) I – Semester (Main) Examination, December 2016

Subject : Operations Research

Time : 3 hours **Max. Marks : 75**

Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.

PART – A (25 Marks)

1 State the assumptions of LPP. 2

2 Examine the nature of following LPP 3

Max. $Z = 100x_1 + 50x_2$; STC : $4x_1 + 6x_2 \le 24$; $x_1 \le 4$; $x_2 \le 4/3$; $x_1 , x_2 \ge 0$

3 Examine the significance of duality. 2

4 How do you select key row and key column in dual simplex problem? 2

5 Find the value of following assignment problem. 3

	W	X	Y
A	5	10	15
B	6	12	6
C	11	7	7

6 Why VAM is popular in solving a transportation problem? Apply NWCR to following TP and write the schedule. 4

	P	Q	R	Supply
A	5	3	2	60
B	4	2	1	40
Demand	20	30	50	

7 Distinguish minimax and maximin principle with Dominance principle in game theory. 3

8 Give examples for gradual failure and retrogressive failure. 2

9 Define sequencing, sequencing order. 2

10 What do you mean by : FIFO, LIFO and SIRO in queuing theory. 2

PART – B (5 x 10 = 50 Marks)

11 Solve the LPP by simplex method.

Maximize $z = 5x_1 + 3x_2 + 7x_3$

Subject to conditions

$$x_1 + x_2 + 2x_3 \le 26$$
$$3x_1 + 2x_2 + x_3 \le 26$$
$$x_1 + x_2 + x_3 \le 18$$
$$x_1 , x_2, x_3 \ge 0$$

..2

12 Solve the following TP by VAM

		Destinations				
		D_1	D_2	D_3	D_4	Supply
	S_1	1	2	1	4	30
Sources	S_2	3	3	2	1	50
	S_3	4	2	5	9	30
Demand		20	40	30	10	

13 Solve by Dual simplex method.
Min. $z = 2x_1 + x_2$; STC : $3x_1 + x_2 \geq 3$; $4x_1 + 3x_2 \geq 6$; $x_1 + 2x_2 \geq 3$; $x_1, x_2 \geq 0$

14 For the matrix shown below, find the least cost route for the traveling salesman problem.

	To City					
From City	A	B	C	D	E	F
A	∞	12	7	6	5	5
B	9	∞	13	5	13	10
C	6	13	∞	7	10	8
D	4	9	10	∞	6	9
E	5	13	7	6	∞	4
F	5	11	4	6	5	∞

15 Find the optimum strategy for player A and B and also find the value of the game.

		Player-A				
		I	II	III	IV	V
Player-A	I	6	4	8	0	15
	II	6	8	4	8	25
	III	8	4	8	0	9
	IV	0	8	0	16	6

16 A truck is priced at Rs.60,000. And running costs are estimated at Rs.6000 for each of the first 4 years, increasing by Rs.2000 per year in the fifth and subsequent year. If money is worth 10% per year, when the truck be replaced? Assuming the scrap is negligible.

17 a) Find the optimum sequence and minimum elapsed time for the following Sequencing problem.

	A	b	c	d	e	f	g	H
Machine-1	5	4	22	16	15	11	9	4
Machine-2	6	10	12	8	20	7	2	21

b) A self store employs one cashier at its counter. Nine customers are arriving on an average for every 5 min. While the cashier can serve 10 customers in 5 minutes. Assuming Poisson distribution for arrival rate and exponential distribution for service time. Find i) Average number of customers in the system and queue. ii) Average time customers spend in the system and queue.

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Code No. 3271

FACULTY OF ENGINEERING

B.E. 4/4 (CSE) I – Semester (Main) Examination, December 2016

Subject : Principles and Applications of Embedded Systems

Time : 3 hours **Max. Marks : 75**

Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.

PART – A (25 Marks)

1	Define Embedded system. List down applications of it.	2
2	Use ARM instructions to write a programs for Y = m * x + c.	3
3	What is Co-processor? Give any two examples.	3
4	Write the uses of multilevel caches for a high performance computing systems.	3
5	Compare Message queue, Mail box and Pipe.	3
6	Relate the modules task scheduler and dispatcher.	3
7	What is Multirate embedded computing system? List its advantages.	2
8	Define the words race condition and interrupt Latency.	2
9	What is locator map? What are the uses of it?	2
10	Differentiate Cross-compiler and cross assembler.	2

PART – B (50 Marks)

11	a) Discuss the key characteristics of embedded system applications.	5
	b) Use embedded system design process to describe the requirements and specification phase of GPS moving map.	5
12	Explain an interrupts driven I/O interfacing techniques for copying characters from input to output with example.	10
13	a) Illustrate task scheduling in round robin based RTOS architecture with example program.	7
	b) Explain Interrupt Service Routine (ISR) in RTOS.	3
14	Describe the following real time scheduling algorithms with example. a) Rate monotomic scheduling b) Earliest-deadline-first scheduling	10
15	What is the hard real-time scheduling consideration? Explain various methods to save memory and power in RTOS.	10
16	a) Describe platform level performance analysis for advanced processors.	6
	b) Write short note on memory management.	4
17	a) Describe the specification and protocol of CAN bus.	5
	b) What are the goals of a testing process? Explain the test system process.	5

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Code No. 3281

FACULTY OF INFORMATICS

B.E. 4/4 (IT) I-Semester (Main) Examination, Nov. / Dec. 2016

Subject : Intellectual Property Rights (Elective – II)

Time : 3 hours **Max. Marks : 75**

Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.

PART – A (25 Marks)

1	Write short notes on WTO.	3
2	Mention different kinds of IPR.	2
3	What are moral rights?	3
4	What is right of translation?	3
5	State the duties of a patentee.	3
6	Define temporary injunction.	3
7	Define copyright in design.	2
8	What is a right in personam?	2
9	Define an international convention.	2
10	State the purpose and functions of a trade mark.	2

PART – B (50 Marks)

11 Briefly discuss the history of IPR in India highlighting the patent offices and their jurisdiction.

12 Explain the rights and limitations of a registered proprietor of a trademark.

13 What is traditional knowledge? How is it different from other forms of Intellectual property?

14 What is the object of registration of design? What are the designs not registrable under the act?

15 What is the Madrid agreement? State the main features of this agreement.

16 Discuss the law relation to revocation and surrender of patents.

17 Copy right protects the expression and not idea – Elaborate.

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Code No. 3282

FACULTY OF INFORMATICS

B.E. 4/4 (IT) I - Semester (Main) Examination, November / December 2016

Subject : Wireless and Mobile Communications
(Elective – II)

Time : 3 Hours **Max. Marks: 75**

Note: Answer all questions from Part-A and answer any five questions from Part-B.

PART – A (25 Marks)

1	Define Brewster angle.	(2)
2	List out the features of 2G, 3G cellular networks.	(2)
3	Write the differences between wireless and fixed telephone networks.	(3)
4	Differentiate DSSS and FHSS.	(3)
5	Explain two outdoor propagation model.	(3)
6	Differentiate between wireless and fixed networks.	(2)
7	Explain GRPS.	(2)
8	Compare TDMA, FDMA techniques.	(3)
9	What is the usage of WLL?	(2)
10	Explain what is mobile IP. What are the problems with mobile IP?	(3)

PART – B (50 Marks)

11	(a) Describe improvement the capacity and coverage techniques in cellular system.	(6)
	(b) Explain the various Channel assignment strategies.	(4)
12	(a) Frequency Reuse Techniques.	(5)
	(b) Handoff Strategies.	(5)
13	Explain Constant Envelop Modulation Techniques.	(10)
14	(a) Explain any three indoor propagation models.	(6)
	(b) Explain knife edge diffraction.	(4)
15	Explain the architecture of GSM in detail and channel types in it.	(10)
16	What is TCP? Explain the different types of TCP.	(10)
17	Write short notes on the following:	
	(a) Trunking and GoS	(4)
	(b) DHCP	(3)
	(c) MSK	

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Code No. 3283

FACULTY OF INFORMATICS

B.E. 4/4 (IT) I - Semester (Main) Examination, November / December 2016

Subject : Ad-hoc and Sensor Networks (Elective – II)

Time : 3 Hours **Max. Marks: 75**

Note: Answer all questions from Part-A and answer any five questions from Part-B.

PART – A (25 Marks)

1	What kind of multiple access technology is suitable in (i) Military Adhoc environment (ii) A home adhoc network environment.	(2)
2	What constitutes a Hybrid wireless Network?	(2)
3	What is the functionality of Zigbee technology?	(2)
4	Differentiate between practive and reactive routing protocols.	(2)
5	Why conventional wired Network Internet Protocol (IP) doesn't perform well in Adhoc Networks?	(3)
6	What are the advantages of multipath routing?	(3)
7	What is resource-consumption attack?	(3)
8	Explain how delay jitter and bandwidth effects the QOS in Adhoc wireless Networks.	(3)
9	What are the basic components of a sensor network?	(3)
10	What is overhearing in WSN? Explain.	(2)

PART – B (50 Marks)

11 Describe the design issues of routing protocols for Adhoc wireless Networks. (10)

12 Explain the process of route establishment and route maintenance in wireless Routing protocol (WRP) with the help of an example. (10)

13 (a) What is location based routing ? Explain. (6)
(b) What are the advantages and disadvantages of CGSR routing scheme? (4)

14 (a) Describe the key issues involved in QOS routing in adhoc networks. (5)
(b) Explain the route optimization phase of Bandwidth efficient multicast routing protocol. (5)

15 Describe the layer-wise classroom of existing QOS solutions in Adhoc wireless Networks. (10)

16 Describe the schedule based MAC protocols for wireless sensor Networks. (10)

17 What is a wireless sensor Network? Describe the sensor Network Architectural elements. Give examples of WSN applications. (10)

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Code No. 3284

FACULTY OF INFORMATICS

B.E. 4/4 (IT) I - Semester (Main) Examination, November / December 2016

Subject : Distributed Systems (Elective – II)

Time : 3 Hours **Max. Marks: 75**

Note: Answer all questions from Part-A and answer any five questions from Part-B.

PART – A (25 Marks)

1 Define a scalable system. (2)
2 Explain what is meant by transparency. Give examples of different types of transparency. (3)
3 Describe about the basic RPC operations. (3)
4 What is horizontal distribution in design of multi-tiered client – server architectures? (2)
5 How are synchronous and asynchronous transmissions different for data streams? (3)
6 Discuss about the implementation of name space. (3)
7 What is sateful server? (2)
8 What is open distributed system? (2)
9 What are the typical characteristics of multi-media data? (2)
10 Write short notes on security in DCOM. (3)

PART – B (50 Marks)

11 Explain in detail the client-server architecture with the help of a neat diagram. (10)

12 Explain the architecture of CORBA and its services in detail. (10)

13 (a) Define Name resolution. (5)
(b) Explain about iterative name resolution mechanism. (5)

14 Compare the characteristics of a typical multimedia streams. (10)

15 (a) Compare and contrast CORBA and DCOM. (5)
(b) Distinguish between persistent and transient communication. (5)

16 (a) What are Globe local objects? Explain their types. (5)
(b) Explain QOS management in multi-media systems. (5)

17 Write short notes on the following: (5x2)
(a) GLOBE
(b) Fault Taulerance
(c) Software Agents
(d) Object Servers
(e) RPC

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