Code No. 3290

FACULTY OF ENGINEERING

B.E. 4/4 (Civil) II-Semester (Main) Examination, May 2017

Subject : Construction Management and Administration

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 List out the major functions of organization. 2
2 Discuss the importance of construction planning. 2
3 Enumerate the limitations of bar chart. 2
4 Highlight any few conditions of contracts. 2
5 State the causes of accidents on a construction site. 2
6 Define the terms : objective function, slack variable and constraints. 3
7 Differentiate between variation of direct and indirect cost. 3
8 Explain the important rules in developing a network for any construction job. 3
9 State the differentiable significance of BOT and BOOT. 3
10 What is an work order and when is it issued? 3

PART – B (50 Marks)

11 a) State the purpose, merits and demerits of a functional organization. 5
b) Differentiate between CPM and PERT. 5

12 Develop a network for a project comprising ten events with the following predecessor relationship. Calculate the duration of the project highlighting the critical path, earliest start and finish times, latest start and finish times and total float. 10

Events	1	2	3	4	5	6	7	8	9	10
Immediate Predecessor	-	1	2	2	2	3,5	3,4	3,7	7	3,6,8,9
Duration		6	8	2	4	10	1	3	5	7

13 Determine the optimum cost and optimum time for the relevant data shown below. 10

Activity	Normal		Crash	
	Time (weeks)	Cost (Rs.)	Time (weeks)	Cost (Rs.)
1 – 2	3	1200	2	1600
1 – 3	6	1800	3	2400
2 – 4	2	2000	1	2300
3 – 4	4	1600	2	2100
4 – 5	5	3000	4	3500

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14 a) State the codal requirements and important safety measures in any demolition work. 5

b) Discuss the important points to be incorporated in a tender document. 5

15 a) Solve the following LPP using graphical method. 5

Minimize $z = 12x_1 + 20x_2$

Subject to $6x_1 + 8x_2 \geq 100$

$7x_1 + 12x_2 \geq 120$

$x_1, x_2 \geq 0$

b) Discuss the stepwise procedure for solving a LPP using simplex method. 5

16 a) Describe the five main provisions of the contact labour Act, 1970. 6

b) What is a work break down structure? Explain. 4

17 Write short notes on the following :

a) Detailed project report 4

b) Economics of large scale production 3

c) Time Estimates 3

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Code No. 3302

FACULTY OF ENGINEERING

B.E. 4/4 (EEE/EIE) II - Semester (Main) Examination, May 2017

Subject : Industrial Administration and Financial Management

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 State the types of Organization Structure.
2 What are the factors affection plant location?
3 State the objectives of method study.
4 Briefly write about work sampling.
5 What are various wage payment plans?
6 What is inspection? What are various objectives of inspection?
7 What are the objectives of SQC?
8 What are various types of manufacture?
9 Mention some differences between PERT and CPM.
10 What is Time Value of money? Explain briefly.

PART – B (50 Marks)

11 (a) Differentiate between Process layout and Product layout with the help of a neat sketch. (6)
(b) Describe the Functions of management in detail. (4)

12 (a) Describe the Procedure for method study. (5)
(b) Explain the characteristics of a good wage system. (5)

13 (a) Describe the control charts and their advantages. (6)
(b) Differentiate job shop type and Bach type production. (4)

14 (a) Describe the principles of PPC and its functions. (5)
(b) What is quality circle? Describe the advantages of quality circles. (5)

15 (a) Draw the network diagram for an industrial project with which you are familiar. (6)
(b) What are the duties of purchase manager? (4)

16 (a) List out the assumptions in EOQ. (3)
(b) State and explain various elements of cost. (7)

17 Write short notes on the following:
(a) Differences between CPM and PERT (5)
(b) Break-even analysis chart with a neat sketch (5)

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Code No. 3320

FACULTY OF ENGINEERING

B.E. 4/4 (ECE) II - Semester (Main) Examination May 2017

Subject: Radar and Satellite Communication

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) Give principle of Radar and define range to target. [3]
2) Give at least four applications of Radar. [2]
3) Write briefly about Radar Cross section of sphere. [2]
4) Explain the operation of three types of radar displays. [3]
5) Describe non coherent MTI. [3]
6) Describe Kepler's laws of planetary motion. [3]
7) Differentiate geo-synchronous and geo-stationary orbits. [2]
8) Describe briefly spacecraft antennas. [3]
9) Is uplink frequency is higher than downlink frequency? If so why? [2]
10) Describe briefly different orbital perturbations. [2]

PART – B(50 Marks)

11) (a) Derive simple Radar equation.
(b) Give block diagram of Radar and explain its operation. [5+5]

12) (a) What is probability of false alarm and probability of detection?
(b) What is meant by minimum detectable signal in radar? Derive the expression for receiver noise and minimum detectable signal. [5+5]

13) (a) Obtain an expression for Doppler frequency and Compute the Doppler frequency measured by the Air born radar with following specifications: V_{radar} =250m/sec, λ=0.03m, Line of sight target approaching with 175 m/sec.
(b) Explain how Doppler direction is identified with FMCW radar and derive an expression for range and Doppler measurement. [5+5]

14) (a) What is blind speed in MTI Radar? In MTI radar the pulse repetition frequency is 200 Hz and the carrier transmission frequency is 100 MHz. Find its first, blind speed.
(b) Compare the performance characteristics of FDMA, TDMA and CDMA. [5+5]

15) (a) What are spacecraft subsystems?
(b) Describe different types of Transponders used in the satellite. [4+6]

16) (a) Derive an expression for power received in a satellite link including all losses.
(b) Derive an expression for C/N ratio in terms of the figure of merit of an earth station. [4+6]

17) Explain the design of satellite down and uplink with an example. [10]

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Code No. 3333

FACULTY OF ENGINEERING

B.E. 4/4 (M/P) II-Semester (Main) Examination, May 2017

Subject : Production and Operations Management

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 plant layout.
2 Differentiate between stopwatch time study and work sampling.
3 Classify components of time series.
4 What the forecast value of the future period if the value of smoothing constant is zero?
5 Define master production schedule.
6 List out various ERP tools.
7 Define and classify inventories.
8 Differentiate between EOQ model and economic production model.
9 What is Gantt chart?
10 What is cost slope of an activity?

PART – B (50 Marks)

11 a) List out factors affecting the selection of a plant location (in general).
b) Explain in brief symbols used in method study.

12 Discuss in detail various quantitative forecasting methods.

13 Explain in detail MRP system by defining all its inputs and outputs.

14 Demand for an inventory is estimated at 75,000 per year with ordering cost as Rs.50 per order. Holding cost is expected to be 20% of purchase cost. The supplier sells this inventory at Rs.30 per unit. The company works for 240 days in a year.
Determine i) EOQ
ii) Total cost
iii) Cycle time
iv) No. of orders per year

15 Determine critical path for the project.

Activities	1-2	2-3	2-4	2-5	3-4	4-5	5-6
t_o	4	5	3	2	5	4	4
t_m	6	7	6	4	10	8	6
t_p	8	9	9	6	5	12	8

16 Determine forecast for the following periods by method of least squares. Also determine forecast for the period 2016.

Time	2009	10	11	12	13	14	15
Actual demand	18	22	28	12	14	12	13

17 Write short notes :
a) Break even chart
b) Fore cast errors
c) Differences between PERT and CPM

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Code No. 3354

FACULTY OF ENGINEERING

B.E. 4/4 (AE) I - Semester (Main & Backlog) Examination, May 2017

Subject : Quality Control and Reliability Engineering

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 Quality?
2. List the causes of variation in the process?
3. What are the benefits of quality control to the organization?
4. Explain characteristics of Variable Charts?
5. Explain process capability index of the process?
6. When do you feel of in process control?
7. Explain Producer's risk and Consumer risk in decision making?
8. Define Mean time to failure (MTTF) and Mean time between failure (MTBF)?
9. Sketch product durability curve?
10. Define AOQ?

PART – B (50 Marks)

11 Explain the theory of process control charts – X, R, S charts. 10

12(a) Explain Attribute Control Charts? 4

(b) Ten castings were inspected in order to locate defects in them. Every casting was found to contain number of defects in them, which are given below. It is required to plot a C- chart and draw the conclusions? 6

Casting No:	1	2	3	4	5	6	7	8	9	10
No: of defects	2	4	1	5	5	6	3	4	0	7

13 (a) Explain Single sampling plan, its advantages and limitations? 3

(b) A company has decided to use a single sampling with n=25, and c=2, to calculate the incoming shipments. Suppose that AQL=0.01 and LTPD=0.06, Compute the Producer's risk and Consumer's risk by constructing OC curve? 7

14 Explain in detail "Derating", "Burn-in-Tests", "Worst case deign", and "Human reliability" aspects of Reliability Improvement techniques? 10

15 Explain in detail various Quality costs? 10

16 (a) Explain Availability? 3

(b) It is given that the Robot, Turning, Milling, and Grinding operations are performed one after the other i.e. all are on series. Reliability of components is 0.99, 0.98. 0.99, 0.96 respectively.

(i) Calculate the system reliability? 7

(ii) If two Grinders (parallel to each other) are available then calculate the system reliability?

17 Explain with neat sketch "Information Flow during Product analysis? 10

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Code No. 3369

FACULTY OF ENGINEERING

B.E. 4/4 (CSE) II-Semester (Main & Backlog) Examination, May 2017

Subject : Data Mining

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 List the issues to be addressed in Data Mining. 3

2 Name the following attributes type 2

i) Military rank ii) Student Hall Ticket Number

iii) Age iv) Grade of a student

3 Define a Data warehouse and Data mart. 2

4 List various OLAP servers. 3

5 Define Anti-monotone property. Give an example. 2

6 Compute Accuracy, Error rate and Precision for the following confusion matrix. 3

Classes	yes	no	
yes	90	210	300
no	140	9560	9700
	230	9770	10000

7 Draw a neat diagram to depict classification. 2

8 Cite the pseudocode for K-Nearest neighbour classification. 3

9 Differentiate supervised and unsupervised learning. 2

10 Define an outlier. List the types of outliers. 3

PART – B (50 Marks)

11 a) Explain Data Reduction techniques in detail with examples. 5

b) Compute cosine similarity for the following vectors 5

A = (0, 0, 2, 0, 0, 3, 5, 0, 0, 0)

B = (2, 0, 3, 0, 0, 0, 3, 0, 0, 3)

12 a) Describe Multidimensional data models with neat diagrams. 6

b) Explain Data generalization by AOI. 4

13 a) Compute frequent item sets and strong association rules by using FP-Growth algorithm for the following example where min_sup=40% and min_cof=50%. 8

TID	Items
T100	I1, I3, I4
T200	I2, I3, I5
T300	I1, I2, I3, I5
T400	I2, I5

b) Describe the methods to find multi level association rules.

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14 a) Explain Naïve Bayesian classification and the class label for X = { age = 31-40, income = high, student = no} 8

RID	Age	Income	Student	Credit_rating	Buys computer
1	<=30	High	No	Fair	No
2	<=30	High	No	Excellent	No
3	31-40	High	No	Fair	Yes
4	>40	Medium	No	Fair	Yes
5	>40	Low	Yes	Fair	Yes
6	>40	Low	Yes	Excellent	No
7	31-40	Low	Yes	Excellent	Yes
8	<=30	Medium	No	Fair	No
9	<=30	Low	Yes	Fair	Yes
10	>40	Medium	Yes	Fair	Yes
11	<=30	Medium	Yes	Excellent	Yes
12	31-40	Medium	No	Excellent	Yes
13	31-40	High	Yes	Fair	Yes
14	>40	Medium	No	Excellent	No

b) Describe the methods for tree pruning. 2

15 a) Explain DBSCAN algorithm with an example. 6
b) Describe the categorization of clustering methods. 4

16 a) Explain classification by back propagation. 8
b) Explain cluster evaluation methods. 2

17 Write any **Two** of the following : 5+5
a) Kind of data on which data mining can be performed
b) Outlier analysis and detection methods
c) Apriori algorithm

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Code No. 3381

FACULTY OF INFORMATICS

B.E. 4/4 (I.T) II - Semester (Main) Examination May 2017

Subject: Embedded Systems

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. Give 8051 microcontroller Architecture. (3)
2. Define Microprocessor, Microcontroller and Embedded Systems. (2)
3. Differentiate between MOVX and MOVC instructions. (3)
4. Write the functions of Rotate and Swap instructions in 8051. (2)
5. Write the differences between Message Queues, Mailboxes and Pipes. (3)
6. What is semaphore? Differentiate Counting Semaphore and Binary semaphore. (2)
7. What is Debugging? Write the Goals of Testing process. (3)
8. Differentiate between Cross Compiler and Cross Assembler. . (2)
9. What do you understand by the terms Big Endian and Little Endian? Explain with an Example. (3)
10. What is Instruction Level Parallelism? (2)

PART-B (50 Marks)

11. (a) Explain the Design process of Embedded Systems. (5)
    (b) How the serial data communication is performed in 8051? Explain the various modes of operation and SFR's used for serial data communication. (5)

12. (a) Write short notes on JUMP and CALL instructions with example for each. (5)
    (b) Write an ALP to convert Packed BCD number into Unpacked BCD number. (5)

13. (a) Describe interfacing of 8051 with keyboard. (5)
    (b) Explain the interrupt routines handled procedure in RTOS. (5)

14. (a) Describe the hard real time scheduling considerations . (5)
    (b) Explain about Debugging techniques in Embedded Environment. (5)

15. (a) Explain Memory Management in ARM and SHARC Processor. (5)
    (b) Explain I^2C bus protocol in detail with neat diagram. (5)

16. (a) Describe the SFRs that handle the interrupts in 8051 Microcontroller. . (5)
    (b) Explain the sequence of events involved when an interrupt occurs in 8051. (5)

17. Write short notes on the following:
    (a) Bit and Byte Logical instructions of 8051. (5)
    (b) Features of µ -Cos operating system (5)

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