

Total No. of Printed Pages:02

SUBJECT CODE NO:- H-465
FACULTY OF ENGINEERING AND TECHNOLOGY
B.E. (CSE)
Elective-I Cloud Computing
(REVISED)

[Time: Three Hours]

[Max.Marks: 80]

Please check whether you have got the right question paper.

- N.B
1. Question No. 1 & 6 are compulsory.
 2. Attempt any two questions from each Section from remaining questions.

Section A

- Q.1 Write short notes on any two:- 10
- a) Desktop Virtualization.
 - b) Differentiate between SOAP and REST
 - c) Cluster computing.
- Q.2 a) Define cloud computing. List and brief on Deployment and delivery Models. 08
- b) Explain in detail about BPaas. 07
- Q.3 a) Depict Mainframe Architecture in detail. 07
- b) Define web-service. Explain in detail REST Ful web-service. 08
- Q.4 a) Explain in detail about IAAS. Mention out the advantages and disadvantages of IAAS. 08
- b) Brief on Amazon EC2 Service with a neat diagram. 07
- Q.5 a) What is Virtualization? Brief on full and para Virtualization along with benefits and pit falls of virtualization. 08
- b) Mention and brief on key essential characteristics of cloud computing. 07

Section B

- Q.6 Write short notes on any two:- 10
- a) Mention various key privacy concerns
 - b) Hive
 - c) Push services
- Q.7 a) Define Hadoop. Explain in detail Hadoop Architecture with a neat diagram. 08
- b) Explain in detail about H Base Architecture. 07

- Q.8 a) Explain Infrastructure security at Network level in detail. 08
- b) Brief on security Management in cloud. 07
- Q.9 a) Derive the parallel efficiency of Map-Reduce. 08
- b) Define privacy. Mention and brief on various security aspects of PII data in cloud. 07
- Q.10 a) Explain in detail about Mobile Interoperability to access mobile web-services. 08
- b) Brief on MEMS and location awareness services of smart phones. 07

Total No. of Printed Pages:2

SUBJECT CODE NO:- H-149
FACULTY OF ENGINEERING AND TECHNOLOGY
B.E. (CSE/IT)
Mobile Computing (CSE/IT)
(REVISED)

[Time: Three Hours]**[Max.Marks: 80]**

Please check whether you have got the right question paper.

- N.B
- 1) Q.No.1 from section A and Q.No.6 from section B are compulsory.
 - 2) Attempt any two questions from the remaining questions of each section
 - 3) Assume Suitable data wherever necessary.

Section- A

- | | | |
|-----|---|----------|
| Q.1 | Solve any two.
a) Explain TDMA.
b) Explain inter BS handoff.
c) Explain mobile computing fundamental challenges. | 10 |
| Q.2 | a) Explain in detail architecture of GSM network.
b) Explain signal propagation in details. | 08
07 |
| Q.3 | a) Explain slotted ALOHA
b) Explain hidden and exposed, near and far terminals. | 07
08 |
| Q.4 | a) Explain in detail 4G
b) Explain frequency hopping spread spectrum. | 07
08 |
| Q.5 | a) Explain hard and soft handover.
b) Explain GPRS. | 07
08 |

Section-B

- | | | |
|-----|---|----|
| Q.6 | Solve any two.
a) Explain IP snooping.
b) Explain XML.
c) Explain agent advertisement message. | 10 |
|-----|---|----|

- Q.7 a) Explain IP tunneling. 08
b) Explain CDPD architecture in detail. 07

- Q.8 a) Explain phone.com extensions. 08
b) Explain function of lang library in WML script. 07

- Q.9 a) Write a program to receive end user input in WML. 07
b) Explain events in WML script with example. 08

- Q.10 a) Explain header of IPv6 . 08
b) Explain mobile IP package delivery in detail. To and from mobile node. 07

Total No. of Printed Pages:01

SUBJECT CODE NO:- H-119
FACULTY OF ENGINEERING AND TECHNOLOGY
B.E. (CSE/IT)
Computer System Security and Laws (CSE/IT)
(REVISED)

[Time: Three Hours]

[Max. Marks: 80]

Please check whether you have got the right question paper.

N.B

- 1) Q.1 and Q.6 are compulsory.
- 2) Solve any two questions from Q.2 to Q.5 and Q.7 to Q.10.

Section A

- | | | |
|-----|---|---------------------|
| Q.1 | Write need for security. What are the key principles of security? | 10 |
| Q.2 | <ol style="list-style-type: none"> a) Explain Advanced Encryption standard. b) What is access control? How different is it from availability. | <p>08</p> <p>07</p> |
| Q.3 | <ol style="list-style-type: none"> a) Differentiate between passive and active attacks. b) Explain biometric authentication. | <p>08</p> <p>07</p> |
| Q.4 | <ol style="list-style-type: none"> a) Explain Secure Hash Algorithm (SHA)? Why is SHA more secure than MD 5? b) If $p=5$, $q=11$, $e=3$, $M=9$ perform encryption and decryption using RSA algorithm. | <p>08</p> <p>07</p> |
| Q.5 | <ol style="list-style-type: none"> a) Explain 'Kerberos' Authentication protocol. b) Differentiate between role based and rule based authentication. | <p>10</p> <p>05</p> |

Section B

- | | | |
|------|---|---------------------|
| Q.6 | Explain E-mail security in detail. | 10 |
| Q.7 | <ol style="list-style-type: none"> a) How is SHTTP different from SSL? b) Explain different alert codes of TLS protocol. | <p>08</p> <p>07</p> |
| Q.8 | <ol style="list-style-type: none"> a) Explain how security is addressed in IEEE 802.11 b) Explain various stages of incident response. | <p>08</p> <p>07</p> |
| Q.9 | <ol style="list-style-type: none"> a) Explain IT ACT 2000. Also mention silent features of this act. b) Explain Incident response policy plan and procedures. | <p>08</p> <p>07</p> |
| Q.10 | <ol style="list-style-type: none"> a) What is cyber forensics? Explain procedure of cyber forensics. b) Explain nmap and wireshark tools. | <p>08</p> <p>07</p> |

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SUBJECT CODE NO:- H-246
FACULTY OF ENGINEERING AND TECHNOLOGY
B.E. (CSE)
Elective-II Hadoop Technology
(REVISED)

[Time: Three Hours]

[Max.Marks: 80]

Please check whether you have got the right question paper.

- N.B
- 1) Question No. 1 & Question No. 6 are compulsory.
 - 2) Solve three questions from each section.

Section A

- | | | |
|-----|--|----------|
| Q.1 | Write short notes on any two:- | 10 |
| | <ol style="list-style-type: none"> a) Big data b) Pig c) Hive | |
| Q.2 | <ol style="list-style-type: none"> a) Explain various expressions used in pig Latin with suitable examples. b) Explain different functions in pig Latin in detail. | 08
07 |
| Q.3 | <ol style="list-style-type: none"> a) Write on the Major Components of hadoop framework. b) Write in detail all the phases of Map-Reduce by considering an Example. | 08
07 |
| Q.4 | <ol style="list-style-type: none"> a) Brief on the DDL operations used in Hive tool by considering an Example. b) What is metastore? Explain any two DML operations in Hive. | 08
07 |
| Q.5 | <ol style="list-style-type: none"> a) Mention out the steps to configure Hadoop in Single-node setup. b) List and Brief on some NOSQL databases. | 08
07 |

Section B

- | | | |
|-----|---|----------|
| Q.6 | Write short notes on any two:- | 10 |
| | <ol style="list-style-type: none"> a) HBase b) Sqoop c) Zookeeper | |
| Q.7 | <ol style="list-style-type: none"> a) Explain the concept of free form of Query import of the sqoop. b) Explain the concept of Incremental importing of Mutable data into hadoop cluster. | 08
07 |

- Q.8 a) Explain the Schema design in HBase along with the concept of data model. 08
- b) Explain Map Reduce integration with HBase. 07
- Q.9 a) How YARN technology outperforms Map-Reduce processing of Big-Data on Hadoop cluster. 08
- b) Explain in detail how to manage workflows in the hadoop cluster. 07
- Q.10 a) Explain different components of HBase. 08
- b) Explain in detail how hadoop will run on Microsoft Windows Azure. 07

Total No. of Printed Pages:2

SUBJECT CODE NO:- H-244
FACULTY OF ENGINEERING AND TECHNOLOGY
B.E. (CSE)
Elective-II Network Infrastructure Management
(REVISED)

[Time: Three Hours]

[Max.Marks: 80]

Please check whether you have got the right question paper.

N.B

1. Q.no.1 and Q.no.6 are compulsory
2. Attempt any two from remaining question from each section

Section A

- | | | |
|-----|--|----------|
| Q.1 | Solve any two | 10 |
| | <ul style="list-style-type: none"> a) How to configure for SAN b) Which techniques are used to avoid routing and switching loop c) How to create a subnet | |
| Q.2 | <ul style="list-style-type: none"> a) Explain CISCO protocol b) Architecture of SAN | 07
08 |
| Q.3 | <ul style="list-style-type: none"> a) Explain working concept of switch b) What is difference between static IP and Dynamic IP routing | 07
08 |
| Q.4 | <ul style="list-style-type: none"> a) Which software component are used in SAN b) How we Integrate SAN and NAS | 07
08 |
| Q.5 | Write short note on any three | 15 |
| | <ul style="list-style-type: none"> a) RIP b) Subnet mask c) Virtual LAN d) STP | |

Section B

- | | | |
|-----|--|----------|
| Q.6 | Solve any two | 10 |
| | <ul style="list-style-type: none"> a) What is performance management b) NAT based Architecture c) Which are practical issues of SNMP | |
| Q.7 | <ul style="list-style-type: none"> a) What is security management b) What is configuration management? Explain the two subsystem at configuration management | 07
08 |

- Q.8 a) Flat based SLB versus NAT based SLB 07
b) Explain global server load balancing and firewall load balancing. 08
- Q.9 a) What is simple network management protocol 07
b) What is the role of SMI and MIB in network management 08
- Q.10 Write short note on any three 15
a) What is fault management
b) MIB
c) RMON (Remote network monitoring)
d) NAT Based SLB

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SUBJECT CODE NO: H-240
FACULTY OF ENGINEERING AND TECHNOLOGY
B.E. (CSE/IT)
Elective-II Green IT
(REVISED)

[Time: Three Hours]

[Max.Marks:80]

Please check whether you have got the right question paper.

N.B

- i) Question No.1 and 6 are compulsory.
- ii) Attempt any two questions remaining from each section.
- iii) Figures right indicate full marks.
- iv) Assume Suitable data if necessary.

SECTION A

- | | | |
|-----|---|----|
| Q.1 | a) Write a short note on OCED Green IT framework. | 05 |
| | b) Write a short note on i) Hierarchical storage management. | 05 |
| Q.2 | a) Explain environmental impact of IT. | 08 |
| | b) Explain processor power states in detail. | 07 |
| Q.3 | a) Write a short note on : i) SOA ii) Virtualization | 08 |
| | b) Explain term computational efficiency in software energy efficiency technique. | 07 |
| Q.4 | a) Explain life cycle of device or hardware. | 08 |
| | b) Explain term context awareness in software energy efficiency technique. | 07 |
| Q.5 | a) Explain packaging & transportation phase in device or hardware life cycle. | 05 |
| | b) Explain in detail software energy efficiency techniques. | 10 |

SECTION B

- | | | |
|------|--|----|
| Q.6 | a) Explain routing protocol AODV cost in detail. | 05 |
| | b) Explain the term green IT trends. | 05 |
| Q.7 | a) List data centre IT infrastructure components? Explain any one component in detail. | 08 |
| | b) Explain a seven step approach to explain Green IT strategy. | 07 |
| Q.8 | a) What is Cloud Computing & explain the characteristics of cloud computing. | 08 |
| | b) Explain objectives of green computing. | 07 |
| Q.9 | a) List & explain business value dimensions for enterprise greening. | 08 |
| | b) Explain Cloud Computing deployment models. | 07 |
| Q.10 | a) Describe in detail objectives of green network protocols. | 08 |
| | b) Write a short note on : Green Enterprise | 07 |

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SUBJECT CODE NO:- H-306
FACULTY OF ENGINEERING AND TECHNOLOGY
B.E. (CSE/IT)
Data Warehousing & Data Mining (CSE/IT)
(REVISED)

[Time: Three Hours]

[Max. Marks: 80]

Please check whether you have got the right question paper.

- N.B
1. Q.1 and Q.6 are compulsory.
 2. Solve any two from question 2,3,4,5 and any two from question 7, 8,9,10.

Section A

- Q.1
- a) Differentiate between OLTP and OLAP. 04
 - b) Describe possible integration method of data mining system with database system. 03
 - c) What is KDD process? Explain all steps. 03
- Q.2
- a) Describe in brief any two schemas that are used for multidimensional data model. Draw the necessary diagrams. 07
 - b) Consider the following data values. 12000, 15000, 38000, 60000,75000 and apply min-max normalization Z-score normalization and decimal scaling normalization. 08
- Q.3
- a) Explain various Numerosity reduction and data compression techniques used in data reduction. 07
 - b) Define Range, Quartiles, Interquartile range, boxplot and outlier give one example for each. 08
- Q.4
- a) Consider the following data values. 28, 25, 30, 40,35,60,70. Find mean, median, mode, range variance and standard deviation. 07
 - b) Why pre-processing is needed in data mining? Explain data cleaning steps. 08
- Q.5
- a) Calculate correlation coefficient and covariance of numeric data given in following table. 08

Time point	All Electronics	Hitech
t ₁	6	20
t ₂	5	10
t ₃	4	14
t ₄	3	5
t ₅	2	5

- b) Explain all the data mining functionalities in detail. 07

Section B

- Q.6
- a) Define support, confidence and minimum support count. 03
 - b) What is classification? Explain the types of classification. 03
 - c) Define and formulate 04
 - i. Information gain.
 - ii. Gini index.

Q.7 a) Consider the following database with 5 transactions. Take minimum support count as 2. Find all frequent item set using apriori algorithm. Generate association rules by taking minimum confidence as 70%. 10

b) What are the different types of data on which cluster analysis is to be used? Explain any two data types in details. 05

Q.8 a) Cluster the following data items in two cluster (using K=3) using K-medoid algorithm. 10,2,3,5,6,7,9,12,14,4. 08

b) Explain the business intelligent framework with diagram. 07

Q.9 a) Classify the following tuple using Naive Bayes classifier. X=(‘swarup’ 8,50000, ‘M.E’, ?) 10

The training dataset is as follows.

Name	Experience	Salary	Qualification	Post
Manish	6	70000	M.E	Associate
Nisha	5	30000	B.E	Assistant
Asha	6	40000	B.E	Assistant
Ratu	4	50000	M.E	Assistant
Shruti	5	35000	B.E	Assistant
Rushi	7	80000	M.E	Associate

b) What is business Intelligent? Explain major tools and techniques of BI. 05

Q.10 a) Explain the method of generating rules from decision tree. 07

b) Explain various types of clustering in detail. 08

Total No. of Printed Pages:2

SUBJECT CODE NO:- H-185
FACULTY OF ENGINEERING AND TECHNOLOGY
B.E. (CSE)
Soft Computing
(REVISED)

[Time: Three Hours]

[Max.Marks: 80]

Please check whether you have got the right question paper.

N.B

- I) Q.No.1 from section A and Q.No.6 from section B are compulsory.
- II) Attempt any two questions from remaining question of each section.
- III) Assume suitable data if necessary and solve it clearly.

Section A

- | | | |
|-----|--|----------|
| Q.1 | a) Explain the various types of soft computing techniques.
b) Explain perception model. | 05
05 |
| Q.2 | a) Explain supervised learning and unsupervised learning.
b) Explain functional units of ANN for pattern recognition. | 07
08 |
| Q.3 | a) Explain architecture of FFNN.
b) Explain pattern association by FFNN. | 07
08 |
| Q.4 | a) Explain Hopfield network.
b) Explain associative memory. | 07
08 |
| Q.5 | a) Explain auto association and hetero association
b) Explain back propagation learning algorithm. | 08
07 |

Section B

- | | | |
|-----|---|----------|
| Q.6 | a) Explain self-organization map.
b) Explain learning vector quantization | 05
05 |
| Q.7 | a) Explain crisp relations
b) Explain fuzzification and defuzzification to crisp sets. | 07
08 |
| Q.8 | a) Explain generalized learning laws.
b) Explain applications of fuzzy control. | 07
08 |

- Q.9 a) Explain operations in fuzzy relational data models 07
- b) Explain fuzzy relations 08

- Q.10 a) Explain working principle of genetic algorithm. 07
- b) Explain fuzzy linear programming with example. 08

Total No. of Printed Pages:2

SUBJECT CODE NO:- H-186
FACULTY OF ENGINEERING AND TECHNOLOGY
B.E. (IT)
Big Data Analytics
(REVISED)

[Time: Three Hours]

[Max.Marks:80]

- N.B Please check whether you have got the right question paper.
 i) Q. No.01 & Q. No.06 are compulsory.
 ii) Attempt any two Questions from each section from Remaining.

Section A

- | | | |
|-----|---|----------|
| Q.1 | Differentiate between following
a) Key Value stores Vs Document Stores.
b) Structured Data Vs Unstructured Data. | 10 |
| Q.2 | a) What is big data? Explain its role in solving business data management problems.
b) Explain Text analytics using NLP method. | 08
07 |
| Q.3 | a) Explain Types of Structured analysis for big data.
b) Explain different sources of unstructured data with suitable example. | 08
07 |
| Q.4 | a) Explain the following types of virtualization: Server virtualization & Application Virtualization.
b) Explain the layers of Big Data Stack. | 08
07 |
| Q.5 | Solve any three
(a) Big Data analysis & Extraction techniques
(b) Hypervisor in virtualization
(c) NoSQL
(d) Graph Databases. | 15 |

Section B

- | | | |
|-----|---|----------|
| Q.6 | Write a short Note on following
a) Hive QL
b) Unix tools for Data Analysis. | 10 |
| Q.7 | a) Write a Map Reduce program to count frequency of words from given text file.
b) Explain HDFS Architecture with following components: Name Node, Data Node and Block | 08
07 |
| Q.8 | a) Explain the following terms:
Hbase and zookeeper.
b) What is distcp in HDFS Clusters. | 08
07 |

- Q.9 a) What is pig? Explain with and suitable programming example. 08
- b) What is hadoop file system? Explain hadoop file system interfaces with example. 07
- Q.10 a) Explain following HIVE concepts in detail: Hive services, Tables, Querying data. 08
- b) Write a case study on Hadoop usage of Last Fm. 07

Total No. of Printed Pages:2

SUBJECT CODE NO: H-375
FACULTY OF ENGINEERING AND TECHNOLOGY
B.E. (CSE)
Principles of Compiler Design
(REVISED)

[Time: Three Hours]

[Max.Marks:80]

Please check whether you have got the right question paper.

N.B

- i. Question no. 1 & 6 are compulsory.
- ii. Attempt any other two questions from each section.
- iii. Assume suitable data if necessary.
- iv. Figures to the right indicate full marks.

Section A

- | | | |
|-----|---|----|
| Q.1 | a) Explain tokens, patterns & lexemes with an suitable examples. | 05 |
| | b) What is handle pruning in bottom up parsing's. | 05 |
| Q.2 | a) Write & explain with suitable example. The algorithm for NFA to DFA conversion. | 07 |
| | b) Explain role of lexical analyzer in detail. Also explain lexical analysis versus parsing. | 08 |
| Q.3 | a) Explain error recovery in YACC in detail. | 08 |
| | b) Write the algorithm to compute FIRST & FOLLOW position for a non-terminal explain suitable example. | 07 |
| Q.4 | a) Explain LEX program structure. Write a LEX program to determine the tokens: letters, digits, white space & numbers. | 08 |
| | b) Explain specification of tokens. | 07 |
| Q.5 | a) Consider the grammar given below
$E \rightarrow E + T/T$
$T \rightarrow T * F/F$
$F \rightarrow (E) / id$
Construct LR parsing table for above grammar. Gives the moves of LR parses on $id * id + id$. | 08 |
| | b) Explain automatic parser generator in YACC | 07 |

Section B

- Q.6 a) Explain about syntax trees & parse trees. 05
 b) Write a short note on three address code. 05
- Q.7 a) With suitable example, explain quadruples, triples & indirect triples. 07
 b) Discuss about inherited attributes & synthesized attributes. 08
- Q.8 a) Explain specification of simple type checker in detail? 08
 b) Discuss various issues in design of code generator. 07
- Q.9 a) Explain Loop Jamming, loop folding & loop unrolling. 08
 b) Explain principal sources of optimization. 07
- Q.10 a) Write a short note on register allocation & assignment. 07
 b) Discuss following techniques in optimization of basic blocks. 08
 a. Use of algebraic identities
 b. Dead code elimination

Total No. of Printed Pages:1

SUBJECT CODE NO: H-413
FACULTY OF ENGINEERING AND TECHNOLOGY
B.E. (CSE)
Visual Modeling
(REVISED)

[Time: Three Hours]

[Max.Marks: 80]

Please check whether you have got the right question paper.

- N.B
- i) Q. No. 1 and Q. No. 6 are compulsory
 - ii) Attempt any two questions from the remaining questions of each section
 - iii) Assume suitable data whenever necessary

Section A

- Q.1 Solve any two 10
- a) Explain, why software is inherently complex?
 - b) Explain concurrent, distributed, real-time design methods
 - c) Explain with neat diagram algorithmic & object oriented decomposition
- Q.2 07
- a) Describe “Modeling is the designing of software application before coding”.
 - b) Explain software design concept, structuring criteria, design strategy, design method 08
- Q.3 07
- a) Draw and explain use case description diagrams for appointment
 - b) Explain notation, features and importance of class diagram 08
- Q.4 07
- a) Draw and explain sequence diagram for make appointment
 - b) Explain elements, syntax, steps to build communication diagram 08
- Q.5 07
- a) Draw & explain deployment diagram for environment control system
 - b) Draw & explain activity diagram for ATM. 08

Section B

- Q.6 Solve any two 10
- a) How do we organize the catalog?
 - b) What is design pattern?
 - c) How do we describe design pattern?
- Q.7 07
- a) Explain singleton design pattern in detail
 - b) Explain prototype design pattern in detail 08
- Q.8 07
- a) Explain consequences and implementation of strategy design pattern
 - b) Explain consequences and implementation proxy design pattern 08
- Q.9 07
- a) Explain creational design pattern
 - b) Explain behavioral design pattern 08
- Q.10 07
- a) Explain decorator design pattern in detail
 - b) Explain observer design pattern in detail 08

Total No. of Printed Pages:2

SUBJECT CODE NO:- H-340
FACULTY OF ENGINEERING AND TECHNOLOGY
B.E. (CSE)
Parallel & Distributed Computing
(REVISED)

[Time: Three Hours]

[Max.Marks: 80]

Please check whether you have got the right question paper.

- N.B
- 1) Question No.1 and 6 are compulsory.
 - 2) Attempt Any Two questions from each section.
 - 3) Figures right indicates full marks.
 - 4) Assume Suitable data if necessary.

Section A

- | | | |
|-----|---|----|
| Q.1 | a) Explain applications of parallel computing. | 05 |
| | b) What is difference between CPU & GPU? | 05 |
| Q.2 | a) Explain the terms memory latency & bandwidth. | 08 |
| | b) Explain concept of data parallelism in detail. | 07 |
| Q.3 | a) Explain directives in OpenMP programming models. | 08 |
| | b) Explain the term principles of message passing. | 07 |
| Q.4 | a) Explain following terms: | 08 |
| | i. Task. | |
| | ii. Decomposition. | |
| | b) Explain CUDA memory types in detail. | 07 |
| Q.5 | a) Which factors are considered in memory system performance? | 07 |
| | b) Explain following terms: | 08 |
| | i. Task interaction graph. | |
| | ii. Processes & Mapping. | |

Section B

- | | | |
|-----|---|----|
| Q.6 | a) What is DSM? Explain general architecture of DSM system. | 05 |
| | b) Write down steps to run Hadoop. | 05 |
| Q.7 | a) Explain interleaving model in detail. | 07 |
| | b) Explain structure of MapReduce program. | 08 |
| Q.8 | a) Explain consistency models in details. | 08 |
| | b) What is distributed computing? Explain any one model of distributed computation. | 07 |

- Q.9 a) What is Hadoop? Explain building blocks of Hadoop. 08
- b) Explain different kind clocks. 07

- Q.10 a) Explain advantages of DSM in detail. 08
- b) Write & explain simple MapReduce program. 07

Total No. of Printed Pages:2

SUBJECT CODE NO: H-243
FACULTY OF ENGINEERING AND TECHNOLOGY
B.E. (CSE/IT/ETC)
Elective-II Cross- Platform Application Development
(REVISED)

[Time: Three Hours]

[Max.Marks:80]

- N.B Please check whether you have got the right question paper.
- i. Question No.1 and 6 compulsory.
 - ii. Attempt any two questions from each section.
 - iii. Figures right indicates full marks.
 - iv. Assume suitable data if necessary.

Section A

- | | | |
|-----|--|----|
| Q.1 | a) Explain Xamarin. Forms solution architecture. | 05 |
| | b) Explain slider control in detail. | 05 |
| Q.2 | a) Explain AbsoluteLayout & GridLayout in detail. | 08 |
| | b) Describe platform specific UI solution architecture. | 07 |
| Q.3 | a) Write a code to customizing list row in Xamarin. | 08 |
| | b) Write a Xamarin code to demonstrate the use of different controls. | 07 |
| Q.4 | a) Explain entry view & image view in detail. | 07 |
| | b) What is data binding & explain binding to data models? | 08 |
| Q.5 | a) What is cross platform application development & list & explain different cross platform application development tools. | 08 |
| | b) Explain Navigation drawer using Master Detail Page. | 07 |

Section B

- | | | |
|-----|--|----|
| Q.6 | a) Write steps to create and use custom renderers. | 05 |
| | b) Write a short note on Microsoft Azure. | 05 |

- Q.7 a) Explain android Custom Renderers in detail. 07
 b) Explain overall architecture of Dependency Service with neat diagram. 08
- Q.8 a) Describe in detail Renderer base classes. 07
 b) Explain the term MVVM in detail. 08
- Q.9 a) Write & explain steps of using SQLite Database. 07
 b) Write a short note on: 08
 i) Plugins
 ii) Themes
- Q.10 a) Gives in brief INotify Property Changed. 08
 b) How gestures are used in mobile application development. 07