2.5.1

Mechanism of internal assessment is transparent and robust in terms of frequency and mode

Jawaharlal Nehru Technological University Anantapur

(Established by Govt. of A.P., Act. No. 30 of 2008)

Ananthapuramu–515 002 (A.P) India

Academic Regulations (R19) for B. Tech (Regular-Full time)

(Effective for the students admitted into I year from the Academic Year **2019-2020** onwards)

and

Academic Regulations (R19) for B.Tech (Lateral Entry Scheme)

(Effective for the students getting admitted into II year through Lateral Entry Scheme from the Academic Year **2020-2021** onwards)

1. Award of B.Tech. Degree

A student will be declared eligible for the award of the B.Tech. degree if he/she fulfils the following academic regulations:

i) Pursues a course of study for not less than four academic years and not more than eight academic years. However, for the students availing Gap year facility this period shall be extended by two years at the most and these two years would not be counted in the maximum period permitted for graduation.

ii) Registers for 160 credits and secures all 160 credits.

iii) A student will be eligible to get Under Graduate degree with Honours or one Minor Engineering, if he/she completes an additional 20 credits.

iv) A student will be permitted to register either for Honours degree or one Minor Engineering but not both.

2. Students, who fail to fulfil all the academic requirements for the award of the degree within eight academic years from the year of their admission, shall forfeit their seat in B.Tech. course and their admission stands cancelled.

3. Programs offered by the University:

The following programs are offered at present as specializations for the B. Tech. course for non-autonomous, constituent & affiliated colleges from 2019-2020.

S. No.	Name of the Program	Program Code
1.	Civil Engineering	01
2.	Electrical and Electronics Engineering	02
3.	Mechanical Engineering	03
4.	Electronics and Communication Engineering	04
5.	Computer Science and Engineering	05
6.	Electronics and Instrumentation Engineering	10
7.	Information Technology	12
8.	Food Technology	27

and any other course as approved by the authorities of the University from time to time.

4. About Program related terms:

i. *Credit:* A unit by which the course work is measured. It determines the number of hours of instructions required per week. One credit is equivalent to one hour of teaching (Lecture/Tutorial) or two hours of practical work/field work per week.

ii. *Academic Year:* Two consecutive (one odd + one even) semesters constitute one academic year.

iii. *Choice Based Credit System (CBCS):* The CBCS provides choice for students to select from the prescribed courses.

iv. Each course is assigned certain number of credits based on following criterion:

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	Semester	
	Periods / Week	Credits
	02	02
	03	03
Theory (Lecture/Tutorial)	04	04
	02	01
Practical	03	1.5
	04	02
Project stage - I	04	02
Project stage – II	14	07

5. Weights for Course Evaluation:

5.1 Course Pattern:

- The entire course of study is for four academic years. Semester pattern shall be followed in all the academic years
- A student eligible to appear for the end examination in a subject, but absent or has failed in the end examination may appear for that subject at the next supplementary examination when offered.
- When a student is detained due to lack of credits/shortage of attendance he/she may be re-admitted when the semester is offered after fulfilment of academic regulations. In such case, he/she shall be in the academic regulations into which he/she is readmitted.

5.2 Evaluation Process:

The performance of a student in each semester shall be evaluated subject wise with a maximum of 100 marks for theory and 100 marks for practical subject. Project stage-I, Socially relevant project and Internship shall be evaluated for 50 marks each & Project stage-II shall be evaluated for 200 marks whereas mandatory courses with no credits shall be evaluated for 30 mid semester marks.

i. For theory subjects the distribution shall be 30 marks for mid semester Evaluation and 70 marks for the End-Examination.
ii. For practical subjects the distribution shall be 30 marks for mid semester Evaluation and 70 marks for the End- Examination.
iii. If any subject is having both theory and practical components, they will be evaluated separately as theory subject and practical subject. However, they will be given same subject code with an extension of 'T' for theory subject and 'P' for practical subject.

5.3 Mid Semester Examination Evaluation:

i. For theory subjects, during the semester, there shall be two midterm examinations. Each midterm examination shall be evaluated for 30 marks of which 10 marks for objective paper (20 minutes duration), 15 marks for subjective paper (90 minutes duration) and 5 marks for assignment.

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Objective paper shall be set for maximum of 20 bits for 10 marks. Subjective paper shall contain 3 either or type questions (totally six questions from 1 to 6) of which student has to answer one from each either or type question. Each question carries 5 marks.

*Note 1: The subjective paper shall contain 6 questions of equal weightage of 5 marks. Any fraction (0.5 & above) shall be rounded off to the next higher mark.

*Note 2: The Objective paper shall be conducted online by the University on the day of subjective paper test.

*Note 3: The assignment shall contains 5 questions of equal weightage of 1 mark each.

If the student is absent for the mid semester examination, no re-exam shall be conducted and mid semester marks for that examination shall be considered as zero.

First midterm examination shall be conducted for I, II units of syllabus with one either or type question from each unit and third either or type question from both the units. The second midterm examination shall be conducted for III, IV and V units with one either or type question from each unit.

Final mid semester marks shall be arrived at by considering the marks secured by the student in both the mid examinations with 80% weightage given to the better mid exam and 20% to the other.

For Example:

Marks obtained in first mid : 25
Marks obtained in second mid : 20
Final mid semester Marks: $(25 \times 0.8) + (20 \times 0.2) = 24$

If the student is absent for any one midterm examination, the final mid semester marks shall be arrived at by considering 80% weightage to the marks secured by the student in the appeared examination and zero to the other. For Example:

Marks obtained in first mid : Absent
Marks obtained in second mid : 25
Final mid semester Marks: $(25 \times 0.8) + (0 \times 0.2) = 20$

5.4 End Examination Evaluation:

i. End examination of theory subjects shall have the following pattern:

a. There shall be 6 questions and all questions are compulsory.
b. Question I shall contain 10 compulsory short answer questions for a total of 20 marks such that each question carries 2 marks. There shall be 2 short answer questions from each unit.
c. In each of the questions from 2 to 6, there shall be either/or type questions of 10 marks each. Student shall answer any one of them.
d. The questions from 2 to 6 shall be set by covering one unit of the syllabus for each question.

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ANANTHAPURAMU–515 002 (A.P) INDIA

Academic Regulations (R15) for
B. Tech (Regular-Full time)
(Effective for the students admitted into I year from the Academic Year 2015-2016 onwards)

1. Award of B.Tech. Degree
A student will be declared eligible for the award of the B.Tech. degree if he/she fulfils the following academic regulations:

i. Pursues a course of study for not less than four academic years and in not more than eight academic years. However, for the students availing Gap year facility this period shall be extended by two years at the most and these two years would not be counted in the maximum time permitted for graduation.

ii. Registers for 176 credits and secures all 176 credits.

2. Students, who fail to fulfill all the academic requirements for the award of the degree within eight academic years from the year of their admission, shall forfeit their seat in B.Tech. course and their admission stands cancelled.

3. Courses of study
The following courses of study are offered at present as specializations for the B. Tech. course for non-autonomous, constituent & affiliated colleges from 2015-16

S.No.	Name of the Branch	Branch Code
1.	Civil Engineering	01
2.	Electrical and Electronics Engineering	02
3.	Mechanical Engineering	03
4.	Electronics and Communication Engineering	04
5.	Computer Science and Engineering	05
6.	Electronics and Instrumentation Engineering	10
7.	Information Technology	12

and any other course as approved by the authorities of the University from time to time.

4. Credits:

i. *Credit:* A unit by which the course work is measured. It determines the number of hours of instructions required per week. One credit is equivalent to one hour of teaching (Lecture) or two hours of practical work/field work per week.

ii. *Academic Year:* Two consecutive (one odd + one even) semesters constitute one academic year.

iii. *Choice Based Credit System (CBCS):* The CBCS provides choice for students to select from the prescribed courses.

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iv. Each course is assigned certain number of credits based on following

	Semester	
	Periods / Week	Credits
Theory	03	03
Practical	04	02
Comprehensive Viva-Voce	--	02
Technical Seminar	--	02
Project Work	20/24	10/12

5. Distribution and Weightage of Marks

5.1 The performance of a student in each semester shall be evaluated subject wise with a maximum of 100 marks for theory and 100 marks for practical subject. In addition, Comprehensive Viva-Voce & Technical Seminar will be evaluated for 50 marks each and Project work shall be evaluated for 200 marks whereas audit courses shall be evaluated for a maximum of 30 internal marks.

i. For theory subjects the distribution shall be 30 marks for Internal Evaluation and 70 marks for the End-Examination.

ii. For practical subjects the distribution shall be 30 marks for Internal Evaluation and 70 marks for the End-Examination.

5.2. Internal Examinations:

i. For theory subjects, during the semester, there shall be two midterm examinations. Each midterm examination consists of objective paper for 10 marks and subjective paper for 20 marks with duration of 1hour 50 minutes (20 minutes for objective and 90 minutes for subjective paper).

Objective paper shall be set for maximum of 20 bits for 10 marks. Subjective paper shall contain 5 questions of which student has to answer 3 questions evaluated* for 20 marks.

*Note 1: The subjective paper shall contain 5 questions of equal weightage of 10 marks and the marks obtained for 3 questions shall be condensed to 20 marks, any fraction (0.5 & above) shall be rounded off to the next higher mark.

*Note 2: The midterm examination shall be conducted first by distribution of the Objective paper, simultaneously marking the attendance, after 20 minutes the answered objective paper shall be collected back. The student is not allowed to leave the examination hall. Then the descriptive question paper and the answer booklet shall be distributed. After 90 minutes the answered booklets are collected back.

If the student is absent for the internal examination, no re-exam shall be conducted and internal marks for that examination shall be considered as zero.

First midterm examination shall be conducted for I, II units of syllabus and second midterm examination shall be conducted for III, IV and V units.

Final Internal marks shall be arrived at by considering the marks secured by the student in both the mid examinations with 80% weightage to the better mid exam and 20% to the other.

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For eg:

        Marks obtained in first mid   : 25
        Marks obtained in second mid : 20
        Final Internal Marks: $(25 \times 0.8) + (20 \times 0.2) = 24$

If the student is absent for any one midterm examination, the final internal marks shall be arrived at by considering 80% weightage to the marks secured by the student in the appeared examination and zero to the other. For eg:

        Marks obtained in first mid   : Absent
        Marks obtained in second mid : 25
        Final Internal Marks: $(25 \times 0.8) + (0 \times 0.2) = 20$

5.3.   End Examinations:

i. End examination of theory subjects shall have the following pattern:
   a.   There shall be 6 questions and all questions are compulsory.
   b.   Question I shall contain 10 compulsory short answer questions for a total of 20 marks such that each question carries 2 marks. There shall be 2 short answer questions from each unit.
   c.   In each of the questions from 2 to 6, there shall be either/or type questions of 10 marks each. Student shall answer any one of them.
   d.   Each of these questions from 2 to 6 shall cover one unit of the syllabus.

ii. End examination of theory subjects consisting of two parts of different subjects, for eg: Electrical & Mechanical Technology, shall have the following pattern:
   a. Question paper shall be in two parts viz., Part A and Part B with equal Weightage.
   b. In each part, there shall be 3 either-or type questions for 12, 12 and 11 marks.
   Note: The answers for Part A and Part B shall be written in two separate answer books.

5.4.   For practical subjects there shall be a continuous evaluation during the semester for 30 sessional marks and end examination shall be for 70 marks. Day-to-day work in the laboratory shall be evaluated for 30 marks by the concerned laboratory teacher based on the regularity/record/ viva. The end examination shall be conducted by the concerned laboratory teacher and senior expert in the same subject of the department.

In a practical subject consisting of two parts (Eg: Electrical & Mechanical Lab), the end examination shall be conducted for 35 marks in each part. Internal examination shall be evaluated as above for 30 marks in each part and final internal marks shall be arrived by considering the average of marks obtained in two parts.

5.5.   There shall be an audit pass course in Social Values & Ethics and Advanced English Language Communication skills lab with no credits. There shall be no external examination. However, attendance in the audit course shall be considered while calculating aggregate attendance and student shall be declared pass in the audit course only when he/she secures 40% or more in the internal examinations. In case if student fails, re-exam shall be conducted for failed candidates every six months/semester at a mutual convenient date of college/student satisfying the conditions mentioned in item 1 & 2 of the regulations.

5.6.   For the subject having design and/or drawing, such as Engineering Drawing, the distribution shall be 30 marks for internal evaluation and 70 marks for end examination.

Day-to-day work shall be evaluated for 15 marks by the concerned subject teacher based on the reports/submissions prepared in the class. And there shall be two midterm examinations in a

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semester for duration of 2 hours each for 15 marks with weightage of 80% to better mid marks and 20% for the other. The subjective paper shall contain 5 questions of equal weightage of 10 marks and the marks obtained for 3 questions shall be condensed to 15 marks, any fraction (0.5 & above) shall be rounded off to the next higher mark. There shall be no objective paper in internal examination. The sum of day to day evaluation and the internal test marks will be the final sessional marks for the subject.

In the end examination pattern for Engineering Drawing there shall be 5 questions, either/or type, of 14 marks each. There shall be no objective type questions in the end examination. However, the end examination pattern for other subjects related to design/drawing is mentioned along with the syllabus.

5.7 There shall be two comprehensive online examinations conducted by the respective colleges, one at the end of II year and the other at the end of III year, with 100 objective questions for 100 marks on the subjects studied in the respective semesters. For each subject at least eight questions are to be framed. The Principals of the respective colleges are given the responsibility of preparing question bank/question paper and conducting the online examination maintaining confidentiality. A student shall acquire 1 credit assigned to each of the comprehensive online examination when he/she secures 40% or more marks. In case, if a student fails in comprehensive online examination, he/she shall reappear/re-register by following a similar procedure adopted for the lab examinations.

5.8 Laboratory marks and the sessional marks awarded by the college are not final. They are subject to scrutiny and scaling by the University wherever necessary. In such cases, the sessional and laboratory marks awarded by the college will be referred to a committee. The committee will arrive at a scaling factor and the marks will be scaled as per the scaling factor. The recommendations of the Committee are final and binding.

5.9 The laboratory records and internal test papers shall be preserved for a minimum of 2 years in the respective institutions as per the University norms and shall be produced to the Committees of the University as and when the same are asked for.

5.10. There shall be a Discipline Centric Elective Course through **Massive Open Online Course (MOOC)** in III year I semester and in IV year II semester. Where in the student shall register the course (Minimum of 40 hours) offered by authorized institutions/Agencies, through online with the approval of Head of the Department. The Head of the Department shall appoint one mentor for each of the MOOC subjects offered and the mentor appointed shall conduct the internal examinations following the guidelines given in 5.2. Further, the University shall conduct the external examination for the MOOC subject in line with other regular subjects (5.3) based on the syllabi of the respective subject provided in the curriculum. MOOCs courses may be studied either in MOOCs manner or in conventional manner.

5.11. There shall be an Open Elective/**Choice Based Credit Course (CBCC)** in III year II semester, where in the students have to choose an elective offered by various departments including his/her own department.

5.12. **Minor in a discipline** (Minor degree/programme) concept is introduced in the curriculum for all conventional B. Tech programmes in which it offers a major. The main objective of Minor in a discipline is to provide additional learning opportunities for academically motivated students and it is an optional feature of the B. Tech. programme. In order to earn a Minor in a discipline a student has to earn 20 extra credits by studying four theory subjects and a minor discipline project.

a. Students who have a CGPA 8.5 (for SC/ST students CGPA 8.0) or above (up to II year-I semester) and without any backlog subjects will be permitted to register for Minor discipline programme. An SGPA and CGPA of 8.0 has to be maintained in the subsequent semesters without any backlog

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subjects in order to keep the Minor discipline registration active else Minor discipline registration will be cancelled.

b. Students aspiring for a Minor must register from **third** year **first** semester onwards and must opt for a Minor in a discipline other than the discipline he/she is registered in. However, Minor discipline registrations are not allowed in the **Fourth** year.

c. Students are not allowed to register and pursue more than two subjects in any semester. Students may register for minor discipline project from **third** year **first** semester onwards and may complete the same before **fourth** year **second** semester.

d. Each department enlisted a set of subjects from its curriculum which are core for the discipline without any prerequisites. The Evaluation pattern of theory subjects and minor discipline project work will be similar to the regular programme evaluation. The minor discipline project shall be evaluated by the committee consisting of Head of the Department along with the two senior faculty members of the department.

e. Students are not allowed to pursue minor discipline programme subjects under Self study and/or MOOCs manner.

f. Student may enlist their choices of Minor discipline programmes in order of preference, to which they wish to join. It will not be permissible to alter the choices after the application has been submitted. However, students are allowed to opt for only one Minor discipline programme in the order of preference given by the student.

g. Minimum strength for offering Minor in a discipline is considered as One-Fifth (i.e., 20% of the class) of the class size and Maximum size would be Four-Fifth of Class size (i.e., 80% of the class).

h. Completion of a Minor discipline programme requires no addition of time to the regular Four year Bachelors' programme. That is, Minor discipline programme should be completed by the end of final year B. Tech. program along with the major discipline.

i. The Concerned Principal of the college will arrange separate course/class work and time table of the various Minor programmes. Attendance regulations for these Minor discipline programmes will be as per regular courses.

j. Reservations shall be followed as per state government of Andhra Pradesh i.e., State-wide Universities Presidential Order 371 Article D in consonance to Section 95 of the A.P. Reorganization Act, 2014 for admissions to Minor discipline programmes.

k. A Student registered for Minor in a discipline and pass in all subjects that constitute the requirement for the Minor discipline programme. No class/division (i.e., second class, fist class and distinction etc.) shall be awarded for Minor discipline programme.

l. This Minor in a discipline will be mentioned in the degree certificate as Bachelor of Technology in XXX with Minor in YYY. For example, Bachelor of Technology in **Computer Science & Engineering** with Minor in **Electronics & Communication Engineering**. The fact will also be reflected in the transcripts, along with the list of courses and a project taken for Minor programme with CGPA mentioned separately.

5.13. A mini project on **Water Resource Engineering** is introduced for 2 credits in the B. Tech Civil Engineering curriculum. It is introduced at the end of III Year II semester i.e., during summer vacation for at least 15 days period on topics of Water Resource Engineering. Topics can be found in the Civil Engineering curriculum. This shall be evaluated at the beginning of IV Year by a committee consisting of Head of Civil Engineering Department along with two senior faculty members of the department.

5.14. There shall be a **Technical Seminar** presentation in IV year II Semester. For the seminar, the student shall collect the information on a specialized topic and prepare a technical report, showing his/her understanding about the topic and submit to the department before presentation. The report and the presentation shall be evaluated by the departmental committee consisting of Head of the Department, seminar supervisor and a senior faculty member. The seminar shall be evaluated for 50 marks. A student shall acquire 2 credits assigned to the seminar when he/she secures 40% or more marks for the total of 50 marks. In case, if a student fails in seminar he/she shall reappear as and

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IV-I GCC Mid-1 Question Bank

FIRSTUNIT

QUESTIONSSTART

IllustrateScalable computing over the Internet in brief.

NEXTQUESTION

Write about Multi-core CPUs and Multithreading Technologies.

NEXTQUESTION

i)Explain about Virtual Machines and Virtualization Middleware.
ii)Describe in brief about Data Center Virtualization for Cloud Computing.

NEXTQUESTION

Discuss Service Oriented Architecture (SOA) in detail.

NEXTQUESTION

Explain about Grid architecture and Standards.

NEXTQUESTION

a)Summarize about GPU Computing to Exascale and Beyond.
b)Discuss Cloud Computing Over Internet in brief

ENDOFQUESTIONS
SECONDUNIT
QUESTIONSSTART

Explain in detail about Open Grid Service Architecture (OGSA).

NEXTQUESTION

Describe the following in brief:
a) Motivations of OGSA   b)Security Model of OGSA

NEXTQUESTION

Rephrase OGSA services in detail.

NEXTQUESTION

Summarize the Functionality Requirements of OGSA.

NEXTQUESTION

Elaborate about the Practical View of OGSA/OGSI

1

a)Illustrate Data Intensive Grid Service Models in brief.
b)Detailed View of OGSA/OGSI in brief

ENDOFQUESTIONS
COMMONFIRSTSECOND
QUESTIONSSTART

a) Define Distributed Computing with examples.
b) Differentiate between distributed and parallel computing.
c) Enlist the OGSA grid service interfaces.
d) Discuss PaaS?
e) Define Peer-to-Peer Network?

NEXTQUESTION

a) List and write computing paradigm distinctions.
b) List and explain about different types of degree of parallelism.
c) Differentiate between Grid and Cloud computing.
d) Write about Data Replication.
e) Discuss OGSA Frame Work in brief?

NEXTQUESTION

a) Outline about Clusters of Cooperative computers.
b) List System Models for Distributed Computing?
c) Explain in short about computational grid, data grid
d) List the basic functionality requirements of grid service.
e) What are the security requirements of grid service?

NEXTQUESTION

a) Explain Cluster Computing?
b) List and outline about the layers in Grid Architecture.
c) Write a note on Cloud Computing?
d) List the System Properties Requirements of OGSA.
e) Discuss IaaS?

ENDOFQUESTIONS

B.K

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2

UNIT – I

1. MPP stands for _____.   [A]
   A.Massively Parallel Processors   B.Moving Parallel Processors
   C.Multiple Parallel ProcessorsD.Masked Parallel Processors

2. _____ and _____ are the characteristics of cloud computing.   [C]
   A.Reliability and integrity   B. Integrity and confidentiality
   C.Rapid elasticity and load balancing   D.Availability and integrity.

3. _____ has network of computers, sensors and human-centric devices.   [A]
   A.IoT   B.SOAC.Cloud Computing   D. Distributed computing

4. SOA stands for _____.   [B]
   A.Software Oriented Architecture   B. Service Oriented Architecture
   C.Simple Object Architecture   D. Software Oriented Architecture

5. Grid layered architecture has _____ layers.   [D]
   A.3   B. 6   C. 4 D.5

6. OGSA stands for_____.

7. _____ grids are used toperform processing of large computational problems.
                                         [C]
   A.Scavenging Grid   B.Data Grid   C. Computational GridD.Network Grid

8. The _____ grids are meant to provide high speed and reliable communication with high
   performance using data catching mechanisms.   [D]
   A. Scavenging Grid   B. Data Grid   C. Computational Grid   D. Network Grid

9. _____ grids provide storage space for grid applications.   [B]
   A. Scavenging Grid   B. Data Grid   C. Computational Grid   D. Network Grid

10. The following _____ grids have provision to find and use machine cycles from idle servers
    and desktop computers for resource-intensive tasks   [A]
    A. Scavenging Grid   B. Data Grid   C. Computational Grid   D. Network Grid

11. _____ and _____ are the two different paradigms mostly used on the internet. [D]
    A. HPC and HTT   B.MPP and HPC   C.HTC and MPP   D.HPC and HTC

12. The _____ can be formed only with the help of middleware that makes clusters appears like a
    single machine to the user.   [A]
    A.SSI   B.SSN   C.ISS   D.None of the above.

13. Expand GPU _____.

14. _____ layer of Grid Architectureis responsible for providing shareable resources like network
    bandwidth, CPU time, memories scientific instruments etc.,   [D]
    A.Connectivity LayerB.Resource Layer   C.Collective Layer   D.Fabric Layer

15. _____ layer of Grid Architectureis responsiblefor all global resource management and
    interaction with collections of resources. [C]
    A. Connectivity Layer   B. Resource Layer   C. Collective Layer D. Fabric Layer

1

16. The _____ layerof Grid Architecture specifies core communication and authentication protocols for easy and secure access to grid resources by users.   [A]
    A. Connectivity Layer   B. Resource Layer   C. Collective Layer   D. Fabric Layer

17. This _____ layer of Grid Architectureis responsible for providing protocols for resource publication, discovery, negotiation, allocation, reservation, monitoring and control of compute resources.   [B]
    A. Connectivity Layer   B. Resource Layer   C. Collective Layer D. Fabric Layer

18. Expand WSDL _____ .

19. _____ is a system in which hardware or software components located at networked computers communicate and coordinate their actions by message passing techniques in order to achieve a common goal.
    A. Network System   B.Internet   C.Intranet   D.Distributed system   [D]

20. _____ is applied to building grids, clouds, grids of clouds, clouds of grids and clouds of clouds.   [A]
    A.SOA   B.SOAP   C.GPA   D.REST.

21. Examples of SOA are _____   [B]
    a) Network   B. Web Services   C.Ethernet   D. B&C.

22. In SOA, the system is _____ in to a collection of n/w connected components   [A]
    a) Decomposed   B. Integrated   C. Clustered   D. Distributed.

23. The web service is independent of the underlying _____ mechanism.   [D]
    a) Cluster Computing   B. Grid Computing   C. Hyper Text   D.Transport

24. Expand SOAP   [A]
    A. Simple Object Access Protocol   B. Service Oriented Architecture Protocol
    C. Service Object Access Protocol   D. Simple Operating Architecture Protocol

25. SOAP can be used in combination with a variety of _____ protocols.   [C]
    A. Message   B. Parallel   C. Network   D. None

26. Give an example of cluster-based application.   [C]
    A.Skype   B. Bit-Torrent   C. Google Search Engine   D. China Grid

27. Give an example of p2p network based application   [B]
    A.Microsoft Azure   B. Bit-Torrent   C. Google Search Engine   D. China Grid

28. Give an example application of Cloud   [C]
    A.Google App Engine   B. Bit-Torrent   C. Google Search Engine   D. Skype

29. SAN stands for _____
30.
31. _____ is a pool of virtualized computer resources which can be accessed by uses by Internet or intranet.   [C]
    A.Grid   B. Cluster   C. Cloud   D. P2P

UNIT – II

1. OGSA and OGSI standards were developed by _____   [B]
   A.Globus foundation   B. Global Grid Forum
   C. Open Grid foundation   D. Global standard forum

2. The OGSA defines the _____ and _____ between different components of Grid.[A]
   A.Interactions and Interoperability   B.Interactions and Capability
   C.Availability and Reliability   D.Capability and Interoperability

3. _____ and _____ are the primary requirements of OGSA.[B]
   A. Security and Availability   B.Functionality and Resource management.
   C.Availability and Reliability   D.Availability and Resource management

4. OGSA functional Requirements model has _____ no. of parts.   [D]
   A.Three   B.Two   C.Five   D.Four

5. Which of the following is not a OGSA service?   [C]
   A.Infrastructure Services   B.Data Management Services
   C.Externalization service   D.Resource Management Services

6. GGF stands for (Global Grid Forum)_____.

7. The following model is not suitable for large grids because of poor performance and unreliability.
   A.Hierarchical Model   B. Federation/Mesh model   [D]
   C. Hybrid Model   D. Monadic Model

8. In which model, the data sources are distributed hierarchically across the network like trees.
   A.Hierarchical Model   B. Federation/Mesh model   [A]
   C. Hybrid Model   D. Monadic Model

9. Which of the below model data access is centralized and managed by the owner of that data although its shared among multiple clients.
   A.Hierarchical Model   B. Federation   [D]
   C. Hybrid Model   D. Monadic Model

10. The _____ model is a combination of the hierarchical and mesh model with the best features of both in an efficient manner.
    A.Hierarchical Model   B. Federation/Mesh model   [C]
    C. Hybrid Model   D. Monadic Model

11. Which of the following is not a System Properties Requirements?   [D]
    A. Fault tolerance   C. Disaster recovery
    B. Legacy application management   D. Discovery and brokering.

12. The _____ is used in registering services on grid.   [C]
    A.OGSA   B.OGSI   C.WSDL   D.None of the given.

13. The combination of _____ & _____ are used to locate the specific service instance over the grid infrastructure.   [B]
    A. OGSA, OGSI   B. GSH, GSR   C. OGSA, GSH   D. GSR, OGSI.

14. All the services provided by OGSA are categorized into _____ main services.   [D]
    A. Four   B.Three   C.Two D. Seven

15. A web service is a software system identified by a _____.   [A]
    A. URL   B. JAX   C. XML   D. RMI

16. OGSA hosting environment is for how to define the _____ specification   [D]
    A. Protocols   B. Transportation   C. Congestion   D. Grid Service

3

17. Common distributed logging is the one of the _____ basic services.　　[B]
　A. SOAP　　　　B. OGSI　　　　　　　C. SOA　　　　　　D. None

18. OGSA define resource models and profiles with _____ solution　　[B]
　A. Communication　　B. Interoperable　　C. Interacting　　D. Clustering

19. The OGSA was built on _____ basic software technologies:　　[C]
　A. OGSI andTomcat Server　　　　C. Globus Toolkit and Web Services
　B. Globus ToolKit and Google Docs　　D. Google Docs and Azure Cloud

20. _____ is a globally unique name that distinguishes a specific grid service instance from all others.　　[C]
　A. GSR　　　B.GSS　　　C.GSH　　　　　D.SLA

21. Which of the following represents a network-wide pointer to a specific grid service instance, whichmakes that instance accessible to remote client applications.　　[C]
　A. GSH　　　B.GSS　　　C.GSR　　　　　D.SLA

22. In OGSA Security Model, We must be able to detect intrusions or stop viruses from spreading by implementing _____　　[D]
　A. Secure conversations　　　　B. Single logon, Access control
　C. Auditing for non-repudiation.　　D. All the above

23. In OGSA Security Model, At the security policy Management level, we will apply _____
　A. Service or end-point policy, resource mapping rules　C. Authorized access of critical resources
　B. privacy protection.　　　　　　　　　　　D. All the above　　[D]

24. load Balancing Functionality Requirement belongs to which of the following:
　A. Basic Requirements　　　　B. System Property Requirement　　[D]
　C. Security Requirements　　　D.Resource Management Requirement

25. Support for failover, load redistribution, and other techniques is referred as _____
　A. Disaster recovery　　　B. Self-healing capabilities　　[C]
　C. Fault tolerance　　　　D. Legacy application management

26. Significant manualeffort should not be required to monitor, diagnose, and repair faults is referred as _____　　[B]
　A. Disaster recovery　　　　B. Self-healing capabilities
　C. Administration　　　　　D. Agreement-based interaction

27. Authentication, Authorization, Encryption belongs to which of the following:
　A. Basic Requirements　　　　B. System Property Requirement　　[C]
　C. Security Requirements　　　D.Resource Management Requirement

28. Same data is scattered and stored in multiple grid locations is termed as _____
　A. Unified Name Space　　　B. Replication　　[B]
　C. Data Access Model　　　D. Reliability

29. _____ transfer opens multiple data streams for passing subdivided segments of a file simultaneously.
　A. striped data　　　B. Parallel data　　[B]
　C. Multiple Data　　　D. Single Data

30. In which of the following, a data object is partitioned into a number of sections, and each section is placed in an individual site in a data grid.
　A. striped data transfer　　　B. Manual Data Transfer　　[A]
　C. parallel data transfer　　　D. Traditional Data Transfer

4

B. K Principal

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

DIGITAL SYSTEM DESIGN

Q.No	Question	CO No	K level	M
UNIT-1				
1.a	Construct the basic CMOS inverter circuit and explain its operation with characteristic curve.	1	K3	5
1.b	Construct the 2- input CMOS NAND/**NOR** gate circuit and explain its operation with function table.	1	K3	5
2.a	Construct CMOS OR-AND-INVERT/**AND-OR-INVERT** gate and explain its operation with function table.	1	K3	7
2.b	Construct the TTL open collector circuit.	1	K3	3
3.a	Explain the operation of CMOS three state buffer.	1	K3	5
3.b	Construct the 2-input ECL10K NOR gate circuit and function table.	1	K3	5
4.a	Explain the interfacing of low voltage CMOS logic with TTL logic family, with suitable diagrams.	1	K3	7
4.b	Construct two input TTL NOR gate.	1	K3	3
5.a	Construct a two input TTL NAND gate and explain the operation with the help of function table.	1	K3	5
5.b	Illustrate the CMOS, TTL and ECL logic families with reference to logic levels, DC noise margin, Propagation delay and fan out.	1	K3	5
6	Explain the principle of a Emitter-Coupled Logic (ECL/CML) through Basic ECL inverter/buffer circuit with input HIGH and LOW and What are the advantages and disadvantages of ECL?	1	K3	10
UNIT – II				
1.a	Explain the VHDL program file structure and also explain the same with the syntax of a VHDL Entity declaration and Architecture definition.	2	K3	5
1.b	Explain the difference in program structure of VHDL and any other procedural language and give an example.	2	K3	5
2.a	Explain the Design Flow of VHDL.	2	K3	5
2.b	Write the syntax of a VHDL function definition and write a VHDL function for converting STD_LOGIC_VECTOR to INTEGER.	2	K3	5
3.a	Explain the use of packages. Give the syntax and structure of package in VHDL and explain with an example.	2	K3	5
3.b	Write the syntax and structure of procedures in VHDL and explain with an example.	2	K3	5
4.a	Write the syntax of a VHDL component declaration and by making use of component declaration develop VHDL program for a prime-number detector. (OR)	2	K3	5

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

4.b	Write the syntax of a VHDL process statement and develop a process-based dataflow VHDL architecture for the prime-number detector. **(OR)** Develop VHDL program for the prime-number detector of 4-bit input using behavioural modelling and explain the flow using logic circuit.	2	K3	5
5	Explain data flow design elements of VHDL and develop VHDL program for 4 input prime number detector.	2	K3	10
6	Explain with example the syntax and function of the following VHDL statements : I) IF, ELSE and ELSE IF statements. II) CASE statement. III) LOOP statement.	2	K3	10

UNIT-III

1.a	Explain the logic symbol, truth table, logic diagram of a commercially available MSI 74x138 3-to-8 binary decoder and model the same using data flow-style VHDL program.	3	K5	5
1.b	Design 4 to 16 decoder by Using two 74x138 decoder ICs.	3	K5	5
2.a	Design a 10 to 4 Encoder with inputs 1 out of 10 code and output's in BCD and Develop the dataflow style VHDL program.	3	K5	5
2.b	Explain 74x148 priority encoder with its truth table and Develop a vhdl program.	3	K5	5
3.a	Design a Full Adder/ Full Subtractor using logic gates and Develop VHDL data flow program for the implementation of the above functions.	3	K5	5
3.b	Explain three state devices.		K5	5
4.a	Explain the logic symbol for 74x151 multiplexer and develop VHDL program.	3	K5	5
4.b	Explain the logic symbol, truth table of a commercially available MSI 74x157 2-input, 4-bit multiplexer and model the same using behavioral-style VHDL program.	3	K5	5

UNIT-IV

1.a	Explain IC 74X 163 with the help of functional table in free running mode and Develop VHDL program for a 74x163 like 4-bit binary counter.	4	K5	5
1.b	Design Decade counter using IC 74 X 163.	4	K5	5
2.a	Explain about 74x194 4-bit universal shift register and develop a VHDL module for the same .	4	K5	5
2.b	Design a self correcting 4-bit, Johnson counter using 74 X 194.	4	K5	5
3.a	Design 3 bit LFSR counter using IC 74X194.	4	K5	5
3.b	Design and explain Excess 3 counter .	4	K5	5
4.a	Design a self correcting 4-bit 4 state ring counter with single circulating '0' using IC 74194	4	K5	5

B. K

Principal

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UNIT-V

1	Construct a 16-bit barrel shifter using 74x151 that performs right circular shift operation. Demonstrate the circuit using VHDL program.	5	K3	10
2	Construct the logic circuit and develop VHDL code for a floating point encoder.	5	K3	10
3.a	Develop the internal structure, functional operation and timing of edge-triggered commercially available SSI 74x74 D flip-flop and model the same using behavioral styleVHDL program with preset and clear.	5	K3	5
3.b	Develop a logic circuit to convert a D flip-flop to J-K flip-flop? Write data-flow style VHDL program.	5	K3	5
4.a	Develop a 8-bit serial-in and parallel-out shift register with flip-flops. Explain the operation with the help of timing waveforms.	5	K3	5
4.b	Develop the logic diagram of 74x175 IC and write VHDL code for it .	5	K3	5
5.a	**Explain PLD structures . And also give MSI PLD's.**	5	K3	5
5.b	**Construct a PLA structure to implement functions F1= $\sum(0,1,3,5)$ and F2=$\sum(3,5,7)$.**	5	K3	5

COMMON QUESTIONS FOR I & II UNITS

1.a Which is the fastest logic family? And why?

1.b Explain a schottky transistor.

1.c Write about the unused inputs.

1.d Illustrate the features of VHDL.

1.e Explain the difference between concurrent statements and sequential statements.

2.a Examine the logic family by operation?

2.b Explain the necessity of separate interfacing circuit to connect CMOS gate to TTL gate?

2.c Explain briefly about i) fan in ii) fan out.

2.d Explain about generate and generic.

2.e Explain the importance of time domain in VHDL.

3.a Develop the transition times for CMOS circuits with
(i) Ideal case of zero time switching
(ii) a more realistic approximation
(iii) Actual timing ,showing rise and fall times

3.b Explain the noise margin? Find out the noise margin from actual characteristics of the inverter

3.c Explain the levels and noise margin for 74LS logic family.

3.d Explain the use of library and use clauses with example.

3.e Explain briefly about Data Types.

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

IV B.TECH – I SEM	MICROWAVE ENGINEERING	AY 2019 -20

MID EXAM QUESTION BANK

Q.No	QUESTION	COs	K.Ls	Marks
	UNIT I &II Short Answer Questions			
1 (a)	List the advantages of Microwaves.	CO1	K1	2
(b)	State the relation between Q factor and Coupling Coefficients.	CO1	K2	2
(c)	Define Phase Velocity.	CO1	K1	2
(d)	What is Faraday's rotation?	CO2	K1	2
(e)	Draw the structure and field lines of microstrip line	CO2	K2	2
2 (a)	What is the dominant modes in Rectangular Waveguide?	CO1	K1	2
(b)	Why TEM waves are not propagated through the waveguide?	CO1	K2	2
(c)	What is the coupling factor of directional coupler?	CO2	K2	2
(d)	What is Tee junction? Give examples.	CO2	K1	2
(e)	Draw a 4 - port Circulator.	CO2	K2	2
3 (a)	For a frequency of 6 GHz and plane separation of 3 cm, find the group velocity for dominant mode in a rectangular wave guide.	CO1	K2	2
(b)	If the broader dimension of a rectangular waveguide is 2.2 cm. What is the cut off frequency and wavelength for dominant mode?	CO1	K2	2
(c)	Differentiate waveguide and resonator.	CO1	K2	2
(d)	State Faradays rotation in non reciprocal devices.	CO2	K1	2
(e)	Why H plane T junction called as current junction?	CO2	K2	2
4 (a)	Define Group velocity.	CO1	K1	2
(b)	Define degenerated modes in Rectangular Waveguide.	CO1	K1	2
(c)	For a cavity of dimensions 3cmx2cmx7cm filled with air and made of copper. Find the resonant frequency.	CO1	K2	2
(d)	What is the need of matching networks.	CO2	K2	2
(e)	Mention the purpose of Isolator.	CO2	K1	2
	UNIT - I : Essay Answer Questions			
1 (a)	Derive the wave equations for a TM wave and obtain all field components in a rectangular waveguide.	CO1	K4	4+3
(b)	A rectangular wave guide with dimension of 3x2 cm operates in the TM_{11} mode at 10 GHz. Determine the characteristic wave impedance.	CO1	K3	3
2 (a)	Explain how the Microwave spectrum is categorized into different bands.	CO1	K3	4
(b)	What is the need of Microwave frequency?	CO1	K2	2
(c)	Explain different applications of Microwaves?	CO1	K3	4
3 (a)	Elucidate in detail about Q factor of a cavity resonator with equivalent circuit.	CO1	K4	7
(b)	A rectangular waveguide has dimensions a=4cm, b=3cm, and	CO1	K4	3
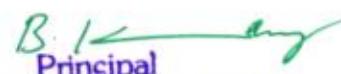
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4.		Explain the following terms with respect to micro strip line			
	(a)	Effective dielectric constant	CO1	K3	4
	(b)	Characteristics impedance	CO1	K3	3
	(c)	Quality factor	CO1	K3	3
5		Determine the expression for fields in TE and TM mode	CO1	K4	10
6 (a)		Derive the relations among λ_0, λ_g, λ_c in a wave guide.		K4	6
	(b)	Explain the concept of attenuation in wave guides.		K3	4

UNIT - II : Essay Answer Questions

1.	Explain the operation of E plane Tee and H plane Tee and write the properties of E plane Tee and H plane Tees.	CO2	K3	8+2
2.	What is a magic Tee junction. Explain its operation. Give its applications.	CO2	K3	2+6+2
3.	What is discontinuity in a wave guide? Explain different types of windows and their equivalent circuits.	CO2	K3	2+8
4.	Explain the principle of operation of an isolator. What is the significance of using isolator in microwave circuits.	CO2	K3	8+2
5.	What is meant by microwave attenuator? Explain the functioning of flap and vane attenuators.	CO2	K3	2+8
6.	What is phase shifter? Describe its principle of operation with neat sketch. Give its applications.	CO2	K3	2+6+2

UNIT III, IV & V Short Answer Questions

1 (a)	Outline the advantages of TWT	CO3	K1	2
(b)	If the input power P_i= 30W and output power P_0=10W. Calculate the attenuation in dB.	CO5	K2	2
(c)	Name some Avalanche transit time devices.	CO4	K1	2
(d)	Define Hull cut off.	CO4	K1	2
(e)	What are the different blocks that frame the microwave test bench?	CO5	K2	2

2 (a)	List the applications of reflex klystron.	CO3	K1	2
(b)	How does the convection current can be expressed in TWT?	CO3	K2	2
(c)	What is frequency pulling and frequency pushing in magnetrons?	CO4	K2	2
(d)	Mention the applications of magic Tee.	CO5	K1	2
(e)	State any three properties of S matrix.	CO5	K2	2

3 (a)	Name the materials used in Gunn Diode.	CO4	K1	2
(b)	What is meant by strapping?	CO3	K1	2
(c)	Write the S matrix for Isolator.	CO5	K2	2
(d)	Difference between baretter and thermistor.	CO5	K2	2
(e)	What is the main purpose of slotted section with line carriage?	CO5	K2	2

UNIT - III : Essay Answer Questions

1.	Describe the necessary theory and working of two cavity klystron amplifier with Applegate diagram.	CO3	K3	10
2.	Derive the expressions for propagation constants in TWT and explain.	CO3	K4	10
3.	Derive the expression for efficiency of Reflex klystron.	CO3	K4	10
4.	Describe the limitations of conventional tubes at microwave	CO3	K3	10

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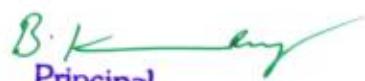
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

UNIT - IV : Essay Answer Questions

1 (a)	Explain how the oscillations are sustained in cavity magnetron with suitable sketches assuming that π – mode oscillations already exist.	CO4	K3	8
(b)	Explain how the same effect is obtained without strapping	CO4	K2	2
2 (a)	Discuss the working principle of Gunn diode as transferred electron device with two valley model, Also draw the structure, equivalent circuit and V-I characteristics of Gunn diode.	CO4	K3	7
(b)	The drift velocity of electron is 3×10^7 cm/s through the active region of length 15μm. Calculate the natural frequency of the Gunn diode and the critical voltage	CO4	K3	3
3 (a)	What is IMPATT diode? Explain the principle of operation.	CO4	K3	2+3
(b)	Derive the manley –Rowe power relations and Explain how those are useful in the prediction of power gain possibility in a parametric amplifier and state its applications.	CO4	K4	5
4 (a)	Derive the expressions for power output and efficiency of TRAPATT diode. Mention its applications and performance characteristics.	CO4	K4	6
(b)	Explain the construction and equivalent circuit details of VARACTOR diode.	CO4	K3	4

UNIT - V : Essay Answer Questions

1.	Discuss in detail the power measurement using microwave devices.	CO5	K3	10
2 (a)	With the help of block diagram, explain the steps involved for the insertion loss and power ratio method of attenuation measurement.	CO5	K3	5
(b)	Give the measurement procedure for Q factor of a resonant cavity and attenuation constant at microwave frequencies.	CO5	K3	5
3 (a)	Draw the block Schematic of a typical microwave bench and explain the functionality of each component.	CO5	K3	5
(b)	Explain the method to measure VSWR and reflection co-efficient.	CO5	K3	5
4 (a)	Derive Scattering matrix of Shunt Tee using S parameter theory.	CO5	K4	5
(b)	Why S Parameters are used at microwave frequencies explain. Give the properties of S parameters and derive S matrix for series Tee using the Properties of S parameters.	CO5	K4	5

B. K⸺

Principal

II B.Tech (I - Sem)
TIME: 90 MIN

BRANCH: ECE
SUBJECT: Electrical Technology

DATE : 09/09/2019 (FN)
MAX. MARKS : 30

****

ANSWER THE FOLLOWING QUESTION

1.   (a) What is the role of commutator in dc generator.

   (b) Define flemings right hand rule.

   (c) Name any two applications of a dc motor.

   (d) Define critical field resistance of a dc shunt generator.

   (e) Derive torque equation of dc motor

ANSWER ANY ONE OF THE FOLLOWING QUESTIONS

2. Explains about Self Excited & Separately Excited Generators.   **CO1, K3**

OR

3. Explain with neat sketches, different types of dc generators based on excitation.   **CO1, K3**

ANSWER ANY ONE OF THE FOLLOWING QUESTIONS

4. (a) Write down the principle operation of DC motor.   **CO2, K3**

   (b) With neat sketches, explain different types of dc motors.   **CO2, K3**
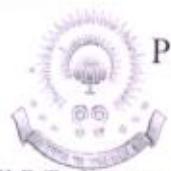
OR

5. (a) Explain how torque developed in the armature of dc motor. Derive the expression for torque.   **CO2, K3**

   (b) A 200v dc shunt motor takes a total current of 100a and runsat750rpm.The   resistance of the armature winding and shunt field winding are 0.1Ω and 40Ω. Calculate (i) Torque Developed By The Motor   (ii) Shaft Torque And (Iii) Output Power.   **CO2, K3**

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II B.Tech (I - Sem)   BRANCH: ECE   DATE : 13/11/2019 (FN)
TIME: 90 MIN   SUBJECT: Switching Theory & Logic Design   MAX. MARKS : 30
****
ANSWER THE FOLLOWING QUESTION

1. a) Draw the logic diagram for full adder.

   b) What is a Multiplexer?

   c) What is content addressable memory?

   d) Explain race around condition

   e) What is static 1 hazard and what is static 0 hazard?

ANSWER THE FOLLOWING QUESTIONS

2.   a) Design a 8:1 MUX using 4:1 MUX.
     b) Design half adder using decoder.CO3, K5

OR

3.   Design and implement 3 bit ripple counter using JK flip flop draw the state diagram &logic diagram for the
          same.   CO4, K5

4. (a) Estimate the following function $F(A,B,C,D)=\sum m(0,1,3,4,7,10,14)$ using   CO3, K5
   (i) 16:1 MUX (ii) 8:1 MUX (iii) 4:1 MUX
   (b) Design a 2-bit comparator.   CO3, K5

OR

5.   a) Design an FPGA and explain in detail   CO5, K5.
     b) Design the logic implementation of a32x4bit &8x4bit ROM using
        suitable decoder.   CO5, K5

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P.B.R. VISVODAYA INSTITUTE OF TECHNOLOGY & SCIENCE

MID EXAM - 1

II B.Tech (I - Sem)　　　　　　　　　BRANCH: ECE　　　　　　　　　　DATE : 07/09/2019 (FN)
TIME: 90 MIN　　　　　SUBJECT: Probability Theory & Stochastic Processes　　　　MAX. MARKS : 30

****

ANSWER THE FOLLOWING QUESTION

1. a) Define discrete sample space with example
   b) Define continuous sample space with example
   c) Define probability distribution function
   d) Define probability density function
   e) Define discrete random variable

ANSWER ANY ONE OF THE FOLLOWING QUESTIONS

2(a) Caluculate and Plot distribution function for the random variable given below and state whether it is a discrete or continuous function.

The random variable X has the discrete variable in the set {-1,-0.5,0.7,1.5,3}. The corresponding probabilities are assumed to be{0.1,0.2,0.1,0.4,0.2}. Plot its distribution function and state whether it is a discrete or continuous function. **CO1, K4**

b) For the continuous probability function $f(x) = K x^2 e^{-x}$ when $x \geq 0$ find the value of K. **CO1, K4**

OR

3 .a) Explain the following functions　　**CO1, K4**
   i) Gaussian distribution　　　　　ii) Binomial distribution
   iii) Rayleigh distribution　　　　　iv) Poisson distribution

b) The diameter of a cable' X' is taken to be a random variable with pdf $f(x) = 6x(1-x), 0 \leq x \leq 1$　**CO1, K4**
   i) Test it is a pdf or not.　　　　　ii) Determine 'b' such that $P(x<b) = P(x>b)$

ANSWER ANY ONE OF THE FOLLOWING QUESTIONS

4. Given the function　　**CO2, K3**

$$f_{x,y}(x,y) = \begin{cases} b(x+y)^2 & : -2 < x < 2 \text{ and } -3 < y < 3 \\ 0 & : \text{elsewhere} \end{cases}$$

i.) Find the constant b such that this is a valid joint density function.

ii.) Determine the marginal density functions $f_x(x)$ and $f_y(y)$.

OR

5. a) Explain about joint distribution function and marginal distribution function. **CO2, K3**

   b) .A Joint probability density function of two random variables x and y is given by　　　$f_{x,y}(x,y) =$

$\frac{5}{16} x^2 y; 0 < y < x < 2$
　　　0; elsewhere

   i.) Find the marginal density functions of x and y.　　　ii.)Are x and y statistically independent?

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MID EXAM - 2

IV B.Tech (I - Sem)
TIME: 20 MIN

BRANCH: ME
SUBJECT: Metrology & Measurements

DATE : 12/11/2016 (AN)
MAX. MARKS : 20 x 1/2 = 10
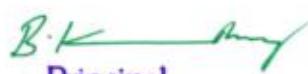
Student Name: _____

Roll No.

Signature of Invigilator: _____

Signature of Evaluator: _____

Marks: /10

****

ANSWER ALL THE QUESTIONS; EACH QUESTION CARRIES HALF MARK

1. The 'best size wire' for measuring the effective diameter of threads is of diameter [   ]
   (a) $\frac{p\,sec\theta}{2}$ (b) $\frac{pcos\theta}{2}$ (c) p sec θ (d) 2p sec θ

2. The alignment test is also called as _____

3. The best size wire for ISO metric thread for measuring pitch diameters of a screw thread in terms of its Pitch p is
   (a) 0.5 p   (b) 0.75 p   (c) 0.5773 p   (d) 0.4227 p   [   ]

4. On triple thread screw
   (a) Lead = pitch (b) lead = 3 pitch (c) lead = 9 pitch (d) lead = 0.5 pitch   [   ]

5. A master gauge is the
   (a) A new gauge   (b) an international reference standard   [   ]
   (c) a standard gauge for checking accuracy   (d) the most accurate gauge

6. The surface roughness on drawing is represented by_____
   (a) Circles (b) squares (c) zig-zag lines (d) triangles   [   ]

7. The temperature indicating instrument in vechicles indicating the temperaure of [   ]
   (a)Jacket cooling water   (b) engine cylinder (c) engine piston   (d) Lubricating oil

8. Mercury is used in liquid filled systems as it gives   [   ]
   (a) Wide range of temperatures
   (b) High sensitivity
   (c) Wide temperature range and approximately linear scale
   (d) Both a and b
   (e) None of the above

9. LVDT is a which type of following transducers   [   ]
   a) Capacitive transducer
   b) Resistive transducer
   c) Inductive transducer
   d) Variable resistive transducer

10. Pick up the appropriate word for A reading obtained from the motion of a pointer on a scale:
    (a) Analog (b) digital (c) display (d) indicator

11. Sphygomanometer is the device used to measure   [   ]
    (a) Body temperature (b) blood pressure (c) heart beat (c) sugar levels

12. Piezo electric crystals produce an emf   [   ]
    (a) When external mechanical force is applied
    (b) When external magnetic field is applied
    (c) When radiant energy stimulates the crystal
    (d) When the junction of two such crystals is heated

13. Decibel is a unit of   [   ]
    (a) Sound pressure level
    (b) Quantity in which the ratio of two numbers is 1.26
    (c) Any quantity which is represented by the natural algorithm of the measured quantity with respect to the reference quantity
    (d) Any quantity which is represented as 10 times the algorithm of the measured quantity with respect to the reference signal

14. To measure radio frequency, the suitable frequency meter is   [   ]

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(a) Weston frequency meter
(b) reed vibrator frequency meter
(c) Heterodyne frequency meter
(d) electrical resonance frequency meter

15. Which of the following additional devices is required to measure pressure with help of LVDT [ ]   (a)
Bellows   (b) bourdon tube   (c) bolometer   (d) rotameter

16. Richter magnitude scale is used to measure   [   ]
    (a) Wind effect   (b) Rainfall measurement   (c) Earth Quake   (d) Cyclone effect

17. Odometer is the device used for the maesurement of   [   ]
18. Audio frequency range lies between   [   ]
    (a) Between 20 KHz and 30 KHz
    (b) Between 16 and 20 KHz
    (c) Around 1000 Hz
    (d) Above 40 KHz

19. The device used to measure above 1000^0C is   [   ]
    (a) Thermopile   (b) Thermometer   (c) Thermocouple   (d) Pyrometer
20. Which of the following material has a negative gauge factor,when used as strain gauge [   ]
    (a) Sliver   (b) Nickel   (c) silicon   (c) tungsten

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II B.Tech (I - Sem)
TIME: 20 MIN

BRANCH: EEE
SUBJECT: Data Structures

DATE : 12/11/2016 (FN)
MAX. MARKS : 20 x 1/2 = 10

Student Name: _____

Signature of Invigilator: _____

Signature of Evaluator: _____

Roll No. [ ][ ][ ][ ][ ][ ][ ][ ][ ][ ]

Marks: / 10

****

ANSWER ALL THE QUESTIONS: EACH QUESTION CARRIES HALF MARK

1. 1Which of the following is an internal sorting technique?　　　　[ ]
   a) Tape Sort　b) 2-way Merge Sort　c) Merge Sort　d) Shell Sort

2. The average-case time complexity of quick sort is _____.　　[ ]
   a) $O(n)$　　b) $O(n^2)$　　c) $O(n \log n)$　d) $O(\log n)$

3. Selection sort first finds the _____ element in the list and put it in the first position.
   a) Middle element　b) Largest element　c) Last element　d) Smallest element　[ ]

4. The average-case time complexity of selection sort is _____.　[ ]
   a) $O(n)$　　b) $O(n^2)$　　c) $O(n \log n)$　d) $O(\log n)$

5.

   The worst-case time complexity of quick sort occurs when elements are in sorted order.　[ ]
   　　a) linear　　b) sorted　　c) set　d) none

6. The worst-case time complexity of shell sort is _____.　　[ ]
   a) $O(n)$　　b) $O(n^{1.5})$　c) $O(n^2)$　　d) $O(n \log n)$

7. If K is the key and D is the size of the hash table, then division hash function equations is H(K) = k % D .[ ]
   a) k=k/d　　b)k=k%d　　c)H(K)=K%D　d) none

8. In binary search process, if Key < K[Mid] then reset High = _____.　[ ]
   a) Mid　　b) Mid – 1　　c) Mid + 1　　d) n

9. No empty location is available to insert an element into the hash table is known as an ____ condition.　　　a)underflow
   b)overflow　c)noflow　d)null　　[ ]

10. Open hashing method used dynamic storage management policy.　　[ ]
    a)static storage　b)dynamic storage　c) binding　d)nopolicy

11. If two or more keys tried to access same location of the hash table are known as a __[ ]
    a)collision　b)repell　　c)probing　d) attract

12. The functional equation used to get an alternative empty location with double hashing is _____
    　　　　[ ]
    a) $f(i) = 1$　b) $f(i) = i^2$　c) $f(i) = i * h^1(key)$　d) Table extension

13. The searching technique that takes $O(1)$ time to find a data item is _____.　[ ]
    a) Linear search　b) Binary search　c) Hashing　d) Tree search

14. Trees with a worst-case height of $O(\log n)$ are called _____ trees.　[ ]
    a) binary tree　b)skew tree　c)height balanced tree　d) none

15. A binary tree in which if all its levels except possibly the last, have the maximum number of nodes and all the nodes at the last level appear as far left as possible known as [ ].
    a) Full binary tree　b) AVL tree　c) Threaded tree　d) Complete binary tree

16. The process of visiting every node of the tree exactly once is known as ____ operation.　[ ]
    a)moving　b)traversing　c)sorting　d)searching

17. Which of the following is an application of graph?　　[ ]
    a) Recursion　b) CPU Scheduling　c) Shortest path　d) Towers of Hanoi

18. A binary tree that contains maximum possible nodes in all levels is known as_____ tree.[ ]

a)tree   b)binarytree   c)full binary tree   d) none

19. A full binary tree of height h contains exactly _____ number of nodes.   [   ]

a) h   b) 2^h c) $2^h - 1$ d) $2^h + 1$

20. The nodes which have same parent are called _____   [   ]

a)parent   b)child   c)siblings   d) root

II B.Tech (I - Sem)	BRANCH: EEE	DATE : 12/11/2016 (FN)
TIME: 90 MIN	SUBJECT: Data Structures	MAX. MARKS : 30

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ANSWER THE FOLLOWING QUESTION

1. List the operations and applications of graph structures
   Define the shell sort and write the time complexity of shell sort?
   Define the merging and write the types of merging?
   Define the bucket hashing?
   Analyze average-case time complexity of linear search?

ANSWER THE FOLLOWING QUESTIONS

2. Explain the different hashing methods?

   OR

3. Explain the collision resolution methods?

4. Explain the operations of binary tree?

   OR

5. (a).explain the straight insertion sort with example?
   (b).explain the list insertion sort with example?
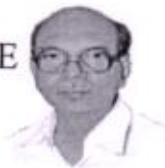
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MID EXAM - 1

III B.Tech (II - Sem)
TIME: 20 MIN

BRANCH: ME
SUBJECT: Operations Research

DATE : 02/03/2020 (FN)
MAX. MARKS : 20 x 1/2 = 10

Student Name: _____,

Roll No. [ ][ ][ ][ ][ ][ ][ ][ ][ ][ ]

Signature of Invigilator: _____,

Signature of Evaluator: _____.

Marks: / 10

****

ANSWER ALL THE QUESTIONS; EACH QUESTION CARRIES HALF MARK

1. In a linear programming problem of maximization type, there are three linearly independent constraints, two of them are ≤ type and one is = type, then how many are total number of variables there in the simplex table   [   ]

    a) 6   b) 5   c) 7   d) can not be said

2. For a maximization problem the objective function coefficient for an artificial variable is

    a) +M b) –M c) zero d) none   [   ]

3. In two phase method the auxiliary objective function value is non zero, then the problem has___ solution.   [   ]

    a)Unique   b) Unbounded c) infeasible   d) multiple

4. . In a linear programming problem of maximization type, there are three linearly independent constraints, two of them are ≤ type and one is = type, Is it possible to find the graphical solution of the problem   [   ]

    a) yes   b) no   c) can not be said d) after certain changes

5. Any basic variable is not containing in basis column and C_j-Z_j value for that column is zero, then the problem has multiple optimal solutions. TRUE/FALSE.

6. Study the following simplex table for a maximization problem,

C_j			12	15	16	0	0	0
C_B	Basis	solution	X_1	X_2	X_3	S_1	S_2	S_3
12	X_1	8	A	P	C	½	d	e
0	S_2	3		Q				
C_j-Z_j			0	-9	-20	-6	0	0

Is it an optimal table?

    a) yes   b) no   c) can not be said d) needs to be one more iteration   [   ]

7. The variable is added to less than are equal to constraint to convert in to equation is called_____ variable.   [   ]

    a) slack b) surplus c) artificial   d) degenerate

8. Name the three phases in scientific method of operations research?

9. Classify the O.R models based on method of solution?

10. Variables which can assume negative, positive or zero value are called unrestricted variables.
                    TRUE/ FALSE.

11. The right hand side constant of a constraint in a primal problem appears in the corresponding dual as   [   ]

    a) a coefficient in the objective function b) a right hand side constant of a constraint c) an input out coefficient d) none of the above

12. How you can convert maximization assignment model in to minimization problem?

13. In a 6×6 assignment problem, the number of allocated basic cells is   [   ]

    a) 6   b) 31 c) 36   d) 11

14. For any primal problem and its dual,   [   ]

    (a) optimal value of objective functions is same (b) primal will have an optimal solution if and only if dual does too   (c) both primal and dual can not be infeasible (d) all of the above

15. When total supply is equal to total demand in a transportation problem,the problem is said to be   [   ]

    (a) balanced (b) unbalanced (c) degenerate (d) none of the above

16. One disadvantage of using north-west corner rule to find initial solution to the transportation problem is   [   ]
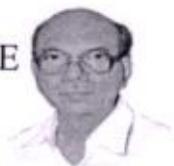
a) it is complicated to use b) it does not take in to account cost of transportation c) it leads to a degenerate initial solution d) all of the above

17. If the total supplies _____ total demand, then an additional column known as _____ added to the transportation table to absorb the same.

18. . Allocation process can't be continued when we get more than one zero in each row and each column.
    TRUE/FALSE.

19. Principle of complementary slackness states that
    [   ]
    a) Primal slack × dual main = 0 b) primal main × dual slack 0 c) both (a) and (b)
    d) none

20. The assignment problem, at the time of applying the Hungarian algorithm must be an unbalanced one.
    TRUE/FALSE.

III B.Tech (II - Sem)
TIME: 20 MIN

BRANCH: ME
SUBJECT: Operations Research

DATE : 02/03/2020 (FN)
MAX. MARKS : 20 x 1/2 = 10

Student Name: _____,

Roll No. [ ][ ][ ][ ][ ][ ][ ][ ][ ][ ]

Signature of Invigilator: _____,

Signature of Evaluator: _____.

Marks: / 10

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ANSWER ALL THE QUESTIONS; EACH QUESTION CARRIES HALF MARK

1. Operations research approach is   [   ]
   a) multi disciplinary b) scientific c) intulitive d) all of the above

2.   In a linear programming problem of maximization type, there are three linearly independent constraints , two of them are $\leq$ type and one is = type, then how many   artificial and slack variables are in the simplex table at any stage   [   ]
   a) 2   b) 3   c) 4   d) none of these

3. Study the following simplex table for a maximization problem,

C_j			12	15	16	0	0	0
C_B	Basis	solution	X_1	X_2	X_3	S_1	S_2	S_3
12	X_1	8	A	P	C	½	d	E
0	S_2	3		Q				
C_j- Z_j			0	-9	-20	-6	0	0

From the second row of the table if we write $Ax_1+Px_2+Cx_3+(1/2)s_1+ds_2+es_3= 8$,, then value of 'A' is
   a) 1   b) 3   c) 2   d) can not be said   [   ]

4. Decision variables are   [   ]
   a) controllable   b) uncontrollable c) parameters   d) none of the above

5. Study the following simplex table for a maximization problem,

C_j			12	15	16	0	0	0
C_B	Basis	solution	X_1	X_2	X_3	S_1	S_2	S_3
12	X_1	8	A	P	C	½	d	E
0	S_2	3		Q				
C_j- Z_j			0	-9	-20	-6	0	0

From the second row of the table if we write $Ax_1+Px_2+Cx_3+(1/2)s_1+ds_2+es_3= 8$,, then value of 'P+C' is
   a) zero   b) 5   c) any negative value d) one positive and other negative [   ]

6.   Define operations research?

7.   . In a linear programming problem of maximization type, there are three linearly   independent constraints , two of them are $\geq$ type and one is = type, then how many are   the basic variables in the simplex table at any stage   [   ]
   a) 2   b) 3   c) 4   d) none of these

8.   The variable is added to equality constraint to avoid mathematical inconvenience is called _____ variable.   [   ]
   a) slack b) surplus c) artificial   d) degenerate

9.   In the optimal table artificial variable is present in the basis column, then the problem has_____ solution.   [   ]
   a) Unique b) Unbounded c) infeasible   d) multiple

10. Study the following simplex table for a maximization problem,

C_j			12	15	16	0	0	0
C_B	Basis	solution	X_1	X_2	X_3	S_1	S_2	S_3
12	X_1	8	A	P	C			
0	S_2	3		Q				
C_j- Z_j			0	-9	-20			

From the second row of the table if we write $Ax_1+Px_2+Cx_3+(1/2)s_1+ds_2+es_3= 8,$, then value of 'P' is

      a) 1   b) 3   c) 2   d) can not be determined   [   ]

11.   The Hungarian method for solving an assignment problem can also be used to solve [ ]

    a) a transportation problem b) a travelling salesman problem c) both (a) and (b) d) none

12.   The initial solution of a transportation problem can be obtained by applying any known method. However, the only condition is that   [   ]

    a) the solution be optimal b) the rim conditions are satisfied c) the solution not be degenerate d) all of the above

13.   Write the assignment for the following

		Jobs		
		1	2	3
	1	4	0	1
m/c	2	3	0	2
	3	4	1	3

14.   If the assignment is in chain then it gives the shortest path from first node 1 to last node 5.

                   TRUE/FALSE.

15.   The occurrence of degeneracy while solving a transportation problem means that [ ]

    a) total supply equals total demand b) the solution so obtained is not feasible c) the few allocations become negative d) none of the above

16.   In transportation problem all cell evaluation values are negative or zero, then it will be optimum. TRUE/FALSE.

17.   If there were n workers and n jobs there would be   [   ]

    a) n! solutions b) (n-1) ! solutions c) $(n!)^n$ solutions d) n solutions

18.   The degeneracy in transportation problem indicates that   [   ]

    (a) Dummy allocation needs to be added (b) the problem has no feasible solution   (c) multiple optimal solution exist   (d) (a) and (b) but not (c)

19.   An assignment problem is considered as a particular case of a transportation problem because

                   [   ]

    a) the number of rows equals columns b) all $x_{ij}=0$ or 1 c) all rim conditions are 1 d) all of the above

20.   The north west corner rule provides a mechanism for obtaining an _____ solution to the transportation problem.

III B.Tech (II - Sem)	BRANCH: ME	DATE : 02/03/2020 (FN)
TIME: 20 MIN	SUBJECT: Operations Research	MAX. MARKS : 20 x 1/2 = 10

Student Name: _____   Roll No. [ ][ ][ ][ ][ ][ ][ ][ ][ ][ ]

Signature of Invigilator: _____

Signature of Evaluator: _____   Marks: / 10

****

ANSWER ALL THE QUESTIONS; EACH QUESTION CARRIES HALF MARK

1. In the key column all the elements are negative or zero then the problem has _____ solution. [   ]

    a) Unique   b) Unbounded   c) infeasible   d) multiple

2. In the ratio column two elements are minimum and equal then the problem is said to be _____.solution.

    a) Unique   b) degenerate   c) infeasible   d) multiple

3. In a linear programming problem of maximization type, there are three linearly independent constraints, two of them are $\leq$ type and one is = type, then how many _____ are non basic variables are in the simplex table at any stage [   ]

    a) 5   b) 3   c) 4   d) can not be said

4. Classify the O.R models based on time reference?

5. Classify the O.R models based on structure?

6. Study the following simplex table for a maximization problem,

C_j			12	15	16	0	0	0
C_B	Basis	solution	X_1	X_2	X_3	S_1	S_2	S_3
12	X_1	8	A	P	C	½	d	E
0	S_2	3		Q				
$C_j - Z_j$			0	-9	-20	-6	0	0

Then maximum value of objective function is

    a) 13   b) -35   c) 96   d) 0   [   ]

7. Study the following simplex table for a maximization problem,

C_j			12	15	16	0	0	0
C_B	Basis	solution	X_1	X_2	X_3	S_1	S_2	S_3
12	X_1	8	A	P	C	½	d	E
0	S_2	3		Q				
$C_j - Z_j$			0	-9	-20	-6	0	0

From the second row of the table if we write $Ax_1 + Px_2 + Cx_3 + (1/2)s_1 + ds_2 + es_3 = 8$,, then value of both d and e are

    a) zero   b) any positive value   c) any negative value   d) can not be said [   ]

8. The variable is subtracted to greater than are equal to constraint to convert in to equation is called _____ variable. [   ]

    a) slack   b) surplus   c) artificial   d) degenerate

9. Classify the O.R models based on purpose?

10. Name the phases in operations research?

11. Name the methods to find initial feasible solution for transportation problem?

12. For any LPP with the same characteristics mirror image problem writing, then the mirror image problem is called _____ problem and original problem is called _____ problem.

13. Write the dual for the following problem.

    Maximize Z= $5x_1 + 6x_2$

    Subjected to $3x_1 + 8x_2 \leq 8$

    $5x_1 + 9x_2 \leq 4$

    $x_1, x_2 \geq 0$

14. If primal LP problem has a finite solution then the dual LP problem should have [   ]

    a) Finite solution   b) infeasible solution   c) unbounded solution   d)

15. An optimal assignment requires that the maximum number of lines that can be drawn through squares with zero opportunity cost be equal to the number of [ ]
    a) rows or columns b) rows and columns c) rows + columns-1 d) none of the above

16. For a sales man who has to visit n cities which of the following are the ways of his tour plan [ ]
    (a) n! (b) (n+1)! (c) (n-1)! (d) n

17. If dual has an unbounded solution , primal has [ ]
    (a) No feasible solution (b) unbounded solution (c) feasible solution (d) none of the above

18. . The solution to a transportation problem with m rows and n columns is feasible, if number of positive allocations are [ ]
    (a) m + n (b) m x n (c) m+n-1 (d) m+n+1

19. Assignment models are solved by _____ method. [ ]
    a) Jhonson's   b) MODI   c) Hungarian d) Least cost

20. What is meant by penalty in best starting solution method for transportation problems?

Code: 15A05301

B.Tech II Year I Semester (R15) Regular & Supplementary Examinations November/December 2019
DATABASE MANAGEMENT SYSTEMS
(Common to CSE & IT)

Time: 3 hours

Max. Marks: 70

PART – A
(Compulsory Question)
*****

1   Answer the following: (10 X 02 = 20 Marks)
  (a) List six major steps that you would take in setting up a database for a particular enterprise.
  (b) What are the main functions of a database administrator?
  (c) Given a relation S(student, subject, marks), write a query to find the top n students by total marks, by using ranking.
  (d) Differentiate between procedural and non-procedural language.
  (e) Given a relational schema r (A, B,C, D), does A →→ BC logically imply A→→ B and A→→C? If yes prove it, else give a counter example.
  (f) Explain why 4NF is a normal form more desirable than BCNF.
  (g) Suppose that there is a database system that never fails. Is a recovery manager required for this system? Justify your answer.
  (h) Database-system implementers have paid much more attention to the ACID properties than have file-system implementers. Why might this be the case?
  (i) List the physical storage media available on the computers you use routinely. Give the speed with which data can be accessed on each medium.
  (j) How does the remapping of bad sectors by disk controllers affect data retrieval rates?

PART – B
(Answer all five units, 5 X 10 = 50 Marks)
UNIT – I
2 (a) Explain the difference between two-tier and three-tier architectures. Which is better suited for Web applications? Why?
  (b) Discuss the relative merits of procedural and nonprocedural languages.
OR
3 (a) Show that, in SQL, < > all is identical to not in.
  (b) Write the following queries in SQL, using the university schema:
    (i) Create a new course "CS-001", titled "Weekly Seminar", with 0 credits.
    (ii) Create a section of this course in Autumn 2009, with sec id of 1.
    (iii) Enrol every student in the Comp. Sci. department in the above section.
    (iv) Delete enrolments in the above section where the student's name is Chavez.
    (v) Delete the course CS-001. What will happen if you run this delete statement without first deleting offerings (sections) of this course?

UNIT – II
4 (a) Write the following queries in relational algebra, using the university schema: (Assume relevant fields in tables)
    (i) Find the titles of courses in the Comp. Sci. department that have 3 credits.
    (ii) Find the IDs of all students who were taught by an instructor named Einstein; make sure there are no duplicates in the result.
    (iii) Find the highest salary of any instructor.
    (iv) Find all instructors earning the highest salary (there may be more than one with the same salary).
    (v) Find the enrolment of each section that was offered in Autumn 2009.
  (b) Describe how the theta-join operation can be extended so that tuples from the left, right, or both relations are not lost from the result of a theta join.
OR

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5 (a) The execution of a trigger can cause another action to be triggered. Most database systems place a limit on how deep the nesting can be. Explain why they might place such a limit.

(b) Suppose there are two relations r and s, such that the foreign key B of r references the primary key A of s. Describe how the trigger mechanism can be used to implement the on delete cascade option, when a tuple is deleted from s.

UNIT – III

6 (a) Explain how functional dependencies can be used to indicate the following:
- A one-to-one relationship set exists between entity sets student and instructor.
- A many-to-one relationship set exists between entity sets student and instructor.

(b) Use Armstrong's axioms to prove the soundness of the pseudo-transitivity rule.

OR

7 (a) Compute the closure of the following set F of functional dependencies for relation schema r (A, B, C, D, E).

A→BC
CD→E
B→D
E→A

List the candidate keys for R.

(b) Lossless-join decomposition implicitly assumes that attributes on the left-hand side of a functional dependency cannot take on null values. What could go wrong on decomposition, if this property is violated?

UNIT – IV

8 (a) Justify the following statement: Concurrent execution of transactions is more important when data must be fetched from (slow) disk or when transactions are long, and is less important when data are in memory and transactions are very short.

(b) Why do we emphasize conflict serializability rather than view serializability? Justify your answer with suitable examples.

OR

9 (a) What is a cascadeless schedule? Why is cascadelessness of schedules desirable? Are there any circumstances under which it would be desirable to allow non-cascadeless schedules? Explain your answer.

(b) Consider a database for a bank where the database system uses snapshot isolation. Describe a particular scenario in which a non-serializable execution occurs that would present a problem for the bank.

UNIT – V

10 (a) Compare and contrast on various file organizations.

(b) In the variable-length record representation, a null bitmap is used to indicate if an attribute has the null value.
(i) For variable length fields, if the value is null, what would be stored in the offset and length fields?
(ii) In some applications, tuples have a very large number of attributes, most of which are null. Can you modify the record representation such that the only overhead for a null attribute is the single bit in the null bitmap?

OR

11 Explain in detail about B+ trees.

*****

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VISVODAYA INSTITUTE OF TECHNOLOGY & SCIENCE
KAVALI-524201, SPSR Nellore Dist. Andhrapradesh.

Code: 15A04302

R15

B.Tech II Year I Semester (R15) Regular & Supplementary Examinations November/December 2019
SWITCHING THEORY & LOGIC DESIGN
(Common to ECE & EIE)

Time: 3 hours

Max. Marks: 70

PART – A
(Compulsory Question)
*****

1 Answer the following: (10 X 02 = 20 Marks)
  (a) Subtract the following hexadecimal numbers: F27-B9E
  (b) What are the universal gates?
  (c) What is the difference between prime implicants and essential prime implicants?
  (d) Why is minimization of switching functions required?
  (e) Realize a half adder using only NAND gates.
  (f) What are the applications of Multiplexers?
  (g) What is meant by race around condition in flip-flops?
  (h) How to convert JK Flip-flop to D Flip-flop?
  (i) What are the types of ROMs?
  (j) What is the basic architecture of PLA?

PART – B
(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

2 (a) Perform the following system conversions
    (i) $(67.24)_8 = (?)_2$
    (ii) $(11100.1001)_2 = (?)_{16}$
    (iii) $(BC1.30)_{16} = (?)_2$
    (iv) $(10111.0111)_2 = (?)_8$
    (v) $(67.67)_8 = (?)_{10}$
  (b) Perform subtraction with the following unsigned decimal numbers by taking 10's complement of the subtrahend: (i) 1200-250. (ii) 1753-8640

OR

3 (a) State and prove Demorgan's theorems.
  (b) Simplify the following Boolean algebraic expressions and draw a block diagram of the circuit for each simplified expression using AND and OR gates:
    (i) AB'C' + A'B'C' + A'BC' + A'B'C.
    (ii) A'BC + AB'C + A'BC + ABC' + AB'C' + A'BC' + A'B'C'.

UNIT – II

4 (a) Using K-map, determine the minimal Product-of-Sums expression for the following minterms:
    m1 + m3 + m5 + m7 + m12 + m13 + m8 + m9
  (b) Minimize the following Boolean functions using K-map.
    F (A,B,C,D) = Σm (1,3,5,8,9,11,15) +d (2,13)

OR

5 (a) Realize OR, AND, NOT gates using only NAND gates.
  (b) Using the tabulation method, obtain the minimal expression for:
    f = Σm (0,1,5,7,8,10,14,15).

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UNIT – III

6   (a)   Explain the operation of 4-bit binary adder-subtractor.
    (b)   Compare encoders and decoders.

OR

7   (a)   Distinguish between combinational and sequential logic circuits.
    (b)   Realize a full subtractor using a 3-line to 8-line decoder.

UNIT – IV

8   (a)   Design MOD-6 asynchronous counter using JK-Flip Flop.
    (b)   Explain the working of 4 bit ring counter.

OR

9   (a)   Design a Mod-5 Synchronous counter using T flip-Flop.
    (b)   Compare synchronous and asynchronous sequential circuits.

UNIT – V

10 (a)   Explain about PAL, PLA and types of ROMs.
    (b)   Implement the following Boolean function using PAL.
          $F(A,B,C,D) = \Sigma m\ (1,2,8,12,13)$

OR

11 (a)   Design a combinational circuit using a PROM. The circuit accepts a 3-bit binary number and generates its equivalent XS-3 code.
    (b)   Compare CPLDs and FPGAs.

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MID EXAMINATION – II

DATE:04/11/2019

IV B.Tech, I-Sem (16 batch) (R15)

Time: 2.00 PM TO 4.00 PM

TIME TABLE

BRANCH	11/11/2019 (AN)	12/11/2019 (AN)	13/11/2019 (AN)	14/11/2019 (AN)	15/11/2019 (AN)	16/11/2019 (AN)
EEE	Utilization of Electrical Energy	Electrical Distribution Systems	Energy Auditing & Demand Side Management	Power System Operation and Control	Power Quality	Digital Signal processing
ME	Management Science	CAD/CAM	Production & Operations Management	Automobile Engineering	Modern Manufacturing Methods	Metrology & Measurement
ECE	Optical Fiber Communication	Embedded Systems	Microwave Engineering	Data Communications & Networks	Radar Systems	Digital Image Processing
CSE	Management Science	Grid & Cloud Computing	Information Security	Mobile Application Development	Software Architecture	Software Project Management

EXAM SECTION INCHARGE

PRINCIPAL

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PBR VISVODAYA INSTITUTE OF TECHNOLOGY & SCIENCE :: KAVALI

MID EXAMINATION – II

DATE: 04/11/2019

III B.Tech, I-Sem. (17 BATCH) (R15)

Time: 9.30 AM TO 11.30 AM

TIME TABLE

BRANCH	11/11/2019 (FN)	12/11/2019 (FN)	13/11/2019 (FN)	14/11/2019 (FN)	15/11/2019 (FN)	16/11/2019 (FN)
EEE	Electrical Machines – III	Linear and Digital IC Analysis	Power Electronics	Electric Power Transmission Systems	Electrical Measurements	Network System Synthesis
ME	Fluid Mechanics & Hydraulic Machines	Thermal Engineering - II	Dynamics of Machinery	Entrepreneurship	Design of Machine Members - I	Machine Tools
ECE	Computer Organization	Antenna & Wave Propagation	Digital Communication System	Linear Integrated Circuits Applications	Digital System Design	Linux Programming & Scripting
CSE	Operating System	Computer Networks	Object Oriented Analysis and Design	Principles of Programming Languages	Software Testing	Introduction to Big Data

EXAM SECTION INCHARGE

OTE:

1. All the students must wear ID Cards.

2. Students will not be allowed into the Examination hall after 9.30 A.M

3. Materials, Cell phones are strictly prohibited into the Examination halls.

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PBR VISVODAYA INSTITUTE OF TECHNOLOGY & SCIENCE :: KAVALI

Date: 04/11/19

MID EXAMINATION – II

Year: II B.Tech, I-Sem (18 BATCH)

Time: 9.30 AM TO 11.30 AM (FN)

TIME TABLE

BRANCH	11/11/19 (FN)	12/11/19 (FN)	13/11/19 (FN)	14/11/19 (FN)	15/11/19 (FN)	16/11/19 (FN)
EEE	Mathematics - III	Electrical Circuits - II	Control System Engineering	Electronics Devices & Circuits	Electrical machines - I	Data Structutres
ME	Mathematics - III	Engineering Mechanics	Mechanics of Solids	Thermodynamics	Management Economics & financial Analysis	Engineering Drawing for Mechanical Engineers
ECE	Electronic Devices and Circuits	Mathematics-III	Switching Theory and Logic Design	Signals and Systems	Probability Theory and Stochastic Process	Electrical Technology
CSE	Discrete Mathematics	Managerial Economics and Financial Analysis	Mathematics-III	Basic Electrical and Electronics Engineering	Digital Logic Design	Database Management Systems

EXAM SECTION INCHARGE

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DATE : 12/12/2019

PBR VISVODAYA INSTITUTE OF TECHNOLOGY & SCIENCE :: KAVALI

I B.Tech I Sem (19 BATCH)   MID EXAMINATION - II   Time: 9.00 AM TO 10.30 AM.

TIME TABLE

BRANCH	20/12/2019 (FN)	21/12/2019 (FN)	23/12/2019 (FN)	24/12/2019 (FN)
EEE	ALGEBRA & CALCULUS	PROBLEM SOLVING & PROGRAMMING	COMMUNICATIVE ENGLISH – I	APPLIED PHYSICS
ME	ALGEBRA & CALCULUS	PROBLEM SOLVING & PROGRAMMING	ENGINEERING CHEMISTRY	****************
ECE	ALGEBRA & CALCULUS	PROBLEM SOLVING & PROGRAMMING	COMMUNICATIVE ENGLISH - I	APPLIED PHYSICS
CSE	ALGEBRA & CALCULUS	PROBLEM SOLVING & PROGRAMMING	CHEMISTRY	****************

Exam Section Incharge

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PBR VISVODAYA INSTITUTE OF TECHNOLOGY & SCIENCE :: KAVALI

I B.Tech II Sem (19 BATCH) MID EXAMINATION - I Time: 9.00 AM TO 10.30 AM.

TIME TABLE

BRANCH	11/3/2020 (FN)	12/3/2020 (FN)	13/3/2020 (FN)	16/3/2020 (FN)	17/3/2020 (FN)
EEE	Basic Electrical & Electronics Engineering	Differential Equations and Vector Calculus	Chemistry	Data Structures	Engineering Graphics
ME	Basic Electrical & Electronics Engineering	Differential Equations and Vector Calculus	Engineering Physics	Data Structures	Communicative English - I
ECE	Network Theory	Differential Equations and Vector Calculus	Chemistry	Data Structures	Engineering Graphics
CSE	Basic Electrical & Electronics Engineering	Probability and Statistics	Applied Physics	Data Structures	Communicative English - I

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II B.Tech II Sem (18 BATCH)   MID EXAMINATION - I   Time: 9.30 AM TO 11.30 AM.

TIME TABLE

BRANCH	2/3/2020 (FN)	3/3/2020 (FN)	4/3/2020 (FN)	5/3/2020 (FN)	6/3/2020 (FN)	7/3/2020 (FN)
EEE	Electrical Machines - II	Analog Electronics Circuits	Electro Magnetic Fields	Mathematics – IV	Electric Power Generating Systems	Managerial Economics & Financial Analysis
ME	Thermal Engineering - I	Manufacturing Technology	Kinematics of Machines	Probability & Statistics	Basic Electrical & Electronics Engineering	Machine Drawing
ECE	Mathematics-IV	Electronic Circuits Analysis	Analog Communication Systems	Electro Magnetic Theory & Transmission Lines	Data Structures	Control System Engineering
CSE	Probability & Statistics	Software Engineering	Computer Organization	Microprocessors & Interfacing	Object Oriented Programming using Java	Formal Languages And Automata Theory

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DATE:24/2/2020

PBR VISVODAYA INSTITUTE OF TECHNOLOGY & SCIENCE :: KAVALI

III B.Tech II Sem (17 BATCH)   MID EXAMINATION - I   Time: 9.30 AM TO 11.30 AM.

TIME TABLE

BRANCH	2/3/2020 (FN)	3/3/2020 (FN)	4/3/2020 (FN)	5/3/2020 (FN)	6/3/2020 (FN)	7/3/2020 (FN)
EEE	Power Semiconductor Drives	Programmable Logic Controllers	Power System Analysis	Management Science	Power System protection	Microprocessors & Microcontrollers
ME	Operations Research	Design of Machine Members - II	Heat Transfer	Finite Element Methods	Mental Forming Process	Non Conventional Sources of Energy
ECE	Digital Signal Processing	Micro Processors & Micro Controllers	Managerial Economics & Financial Analysis	Electronic Measurements & Instrumentation	VLSI Design	Industrial Electronics
CSE	Data Warehousing & Mining	Compiler Design	Design Patterns	Design &Analysis of Algorithms	Web & Internet Technologies	Artificial Intelligence

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DATE:27/1/2020

PBR VISVODAYA INSTITUTE OF TECHNOLOGY & SCIENCE :: KAVALI

IV B.Tech II Sem (16 BATCH)   MID EXAMINATION - I   Time: 9.30 AM TO 11.30 AM.

BRANCH	3/2/2020 (FN)	4/2/2020 (FN)
EEE	INSTRUMENTATION	HVDC TRANSMISSION
ME	INDUSTRIAL ENGINEERING	GAS TURBINS & JET PROPULSION
ECE	Low power VLSI Circuits & Systems	RF Integrated Circuits
CSE	Mobile Computing	Enabling Technologies for Data Science Analytics:IOT

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