

University of Mumbai

Examination 2020 under cluster __ (Lead College: _____)

Examinations Commencing from 23rd December 2020 to 6th January 2021 and from 7th January 2021 to 20th January 2021

Program: _____

Curriculum Scheme: Rev2019/2016/2012 (Keep the required)

Examination: BE Semester VIII (Keep the Required)

Course Code: ILO8028 and Course Name: DBM

Time: 2 hour

Max. Marks: 80

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NOTE to the Question Paper Setter: (To be deleted before submitting the paper to Semester Coordinator)

1. *The question paper will be of total 80 Marks and Two hours duration. Out of which 40 marks will be of 20 MCQs carrying two marks each covering all the modules of the syllabus. Remaining two questions carrying 20 marks each (Total 40 marks) will be of subjective/descriptive in nature of 5 or 10 marks as per the requirement of the subject/course and covering all the modules of the syllabus.*
2. *Referring to setting up MCQs*
 - a. *You need to check the questions and their answers for their correctness. There should not be any ambiguity in the questions and the options. Only one option should be the Correct Answer.*
 - b. *Among 20 MCQs (based on complete syllabus), 8 questions can be under the 'Simple' category, 6 questions can be under the 'Moderate' category, and the remaining 6 questions can be under the 'Difficult' category.*
 - c. *Please do not reveal answer on this Question Paper.*
 - d. *Use another template provided to enter the correct answers.*
3. *Referring to setting up subjective/descriptive questions*
 - a. *Internal options should be provided in the subjective questions i.e. in case of 5 marks question 3 or 6 questions to be asked, out of which students will solve any two or four respectively. In case of 10 marks questions, 2 or 3 questions to be asked out of which students will solve any one or two respectively.*
 - b. *The sub questions in Q2 and Q3 have to be set on multiple modules. The paper setter has to make sure that the maximum syllabus is covered while setting up the questions for Q2 and Q3.*
 - c. *Weightage of the questions has to be decided as per the requirement of the subject. 10 marks questions will only be asked on design orientated subjects or application orientated subjects.*
 - d. *Paper setters shall select any one option, while setting up the questions, suggested in the template for Q2 and Q3*
4. *Please save this file with file name as per the sample format given below:*

File Name: "Date of Examination_Scheme_Program_Semester_Subject Code_QP Set Number"

For example:

QP set number 1 of Engineering Mathematics-I of First Year Semester I for Rev2019 scheme and scheduled on 7/01/2021 has to have the file name as

0701_R19_FE_I_FEC101_QP1

QP set number 1 of first core course of Mechanical Engineering Semester V for Rev2016 scheme and scheduled on 23/12/2020 has to have the file name as

2312_R16_Mech_V_MEC501_QP1

QP set number 3 of Department Level Optional Course of Computer Engineering Semester VI for Rev2012 scheme and scheduled on 3/01/2021 has to have the file name as

0301_R12_Comp_VI_CSDLO6021_QP3

Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	In Network Security CIA stands for:
Option A:	Confidentiality, Integrity and Availability
Option B:	Central Investigation Agency
Option C:	Confidentiality, Intelligence and Accountability
Option D:	Cryptographic Intelligent Algorithm
2.	Which one of the following is not a higher –layer SSL protocol?
Option A:	Alert Protocol
Option B:	Handshake Protocol
Option C:	Alarm Protocol
Option D:	Change Cipher Spec Protocol
3.	A packet filter firewall filters at _____
Option A:	Physical layer
Option B:	Data link layer
Option C:	Network layer or Transport layer
Option D:	Application layer
4.	Mission statement and vision is the part of which Strategic Process.
Option A:	Formulation of Strategy
Option B:	Implementation of Strategy
Option C:	Evaluation of Strategy
Option D:	Internal Analysis Strengths weakness
5.	Which of the following is the first step in strategic planning?
Option A:	set objectives and goals
Option B:	develop the business portfolio
Option C:	define the company mission
Option D:	plan marketing strategies
6.	To fulfill the need of customer , the ability to change the product is called as
Option A:	Accessibility
Option B:	Personalization
Option C:	Customization
Option D:	Dependability
7.	Competitive driver of e-business is
Option A:	Reduced sales costs
Option B:	Reduced service costs
Option C:	Avoiding losing market share to business
Option D:	To obtain supplies more rapidly
8.	The most realistic relationship between e-business and e-commerce is
Option A:	E-commerce is subset of e-business
Option B:	E-commerce is nothing but e-business
Option C:	E-business is subset of e-commerce

Option D:	No relationship exists between e-commerce and e-business
9.	Which of following parameter is not associated with e-commerce security environment?
Option A:	Confidentiality
Option B:	Availability
Option C:	Message Integrity
Option D:	Non repudiation
10.	What is at the heart of any ERP system?
Option A:	Information
Option B:	Employees
Option C:	Customers
Option D:	Database
11.	Web ERP is suitable for _____
Option A:	Both small and big organizations
Option B:	Only big organizations
Option C:	Medium scale organizations
Option D:	Only small organizations
12.	_____ maintains reports of warehouse supplies.
Option A:	ERP financial module
Option B:	ERP Inventory software module
Option C:	ERP Resource module
Option D:	ERP verification module
13.	Which type deals with auction?
Option A:	B2B
Option B:	B2C
Option C:	C2B
Option D:	C2C
14.	Amazon belongs to
Option A:	B2B
Option B:	C2B
Option C:	C2C
Option D:	B2C
15.	What is the percentage of customers who visit a Web site and actually buy something called?
Option A:	Affiliate programs
Option B:	Click-through
Option C:	Spam
Option D:	Conversion rate
16.	Data in _____ bytes size is called Big Data.
Option A:	Tera
Option B:	Giga
Option C:	Peta

Option D:	Meta
17.	The Android software is based on Java and runs in a?
Option A:	Dalvik virtual machine
Option B:	Quadrangle virtual machine
Option C:	Qualcomm virtual machine
Option D:	Snapdragon virtual machine
18.	What is NOT a benefit of BYOD?
Option A:	Reduced costs.
Option B:	Viruses and security issues.
Option C:	Familiarity.
Option D:	Ownership.
19.	What does VNC stand for:
Option A:	Various Network computers
Option B:	Virtual Network Computing
Option C:	Virtual Network Communication
Option D:	Various Network Communication
20.	IPSec provides security at:
Option A:	Physical Layer
Option B:	Network Layer
Option C:	Transport Layer
Option D:	Session Layer

Q2 (20 Marks Each)	
A	Solve any Two 5 marks each
i.	Difference between Physical economy and Digital economy
ii.	Explain Digital Signature
iii.	Types of E-Commerce
B	Solve any One 10 marks each
i.	Explain ERP
ii.	Explain Analysis of Company's Internal and External environment

Q3. (20 Marks Each)	
A	Solve any Two 5 marks each
i.	Write short note on Market research and Advertisement
ii.	Write short note on Firewall
iii.	Explain process of Digital Transformation
B	Solve any One 10 marks

	each
i.	Explain IOT
ii.	Explain Business Plan Preparation

University of Mumbai
Examination 2020 under cluster 08 (Lead College: PHCET)
Examinations Commencing from 23rd December 2020 to 6th January 2021
Program: B.E. All Branches
Curriculum Scheme: Rev2016
Examination: BE Semester VIII
Course Code: ILOC 8026 and Course Name: Research Methodology

Time: 2 hours

Max. Marks: 80

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Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	_____ are statements/assumptions made -about the likely outcomes of the problem-which may or may not be true.
Option A:	Hypotheses
Option B:	Analytical models
Option C:	Research questions
Option D:	Marketing research problems
2.	Characteristic of research is _____.
Option A:	Empirical
Option B:	Hypothetical
Option C:	Theoretical
Option D:	Unethical
3.	Attributes of objects, events or things which can be measured are called
Option A:	Qualitative measure
Option B:	Data
Option C:	Variables
Option D:	Invariables
4.	Inductive logic proceeds from
Option A:	General to General
Option B:	Specific to General
Option C:	General to Specific
Option D:	Specific to Specific
5.	This is not the purpose of review of researches done in related fields of study
Option A:	to know what knowledge already exists
Option B:	to know gaps in knowledge that exists
Option C:	to avoid the replication of knowledge that exists
Option D:	to list the studies in their own research work
6.	A company wants to know what are the problems are faced by employees in the night shift duties. The company is intending to undertake
Option A:	Pure research
Option B:	Applied research
Option C:	Basic research

Option D:	Causal research
7.	The process not needed in experimental researches is
Option A:	Reference collection
Option B:	Controlling
Option C:	Observation
Option D:	Manipulation and replication
8.	Fundamental Research is otherwise called
Option A:	Action Research
Option B:	Survey
Option C:	Pilot study
Option D:	Pure Research
9.	Which of the following tasks is not a part of research design?
Option A:	Design the exploratory, descriptive, and/or causal phases of the research.
Option B:	Construct and pretest a study instrument.
Option C:	Formulate the sampling plan
Option D:	Develop hypotheses
10.	Research design is a blue print, outline and
Option A:	Plan
Option B:	System
Option C:	Strategy
Option D:	Guide
11.	Which technique is generally followed when the population is finite?
Option A:	Area sampling technique
Option B:	Purposive sampling technique
Option C:	Systematic sampling technique
Option D:	Random sampling technique
12.	In an experiment, the group that does not receive the intervention is called
Option A:	The experimental group
Option B:	The participant group
Option C:	The control group
Option D:	The treatment group
13.	Questionnaire is a
Option A:	Research method
Option B:	Measurement technique
Option C:	Tool for data collection
Option D:	Data analysis technique
14.	A Type 1 error occurs in a situation where:
Option A:	The null hypothesis is accepted when it is in fact true
Option B:	The null hypothesis is rejected when it is in fact false
Option C:	The null hypothesis is rejected when it is in fact true
Option D:	The null hypothesis is accepted when it is in fact false

15.	Which of the following is not a data-collection method?
Option A:	Research questions
Option B:	Unstructured interviewing
Option C:	Postal survey questionnaires
Option D:	Participant observation
16.	When a hypothesis is stated negatively it is called
Option A:	Relational Hypothesis
Option B:	Situational Hypothesis
Option C:	Null Hypothesis
Option D:	Casual Hypothesis
17.	Which of the following statement is wrong regarding inductive generalizations?
Option A:	They are based on observed facts and realistic foundation
Option B:	is scientific in character and some of the important theorems of the physical and social sciences have been developed through this method
Option C:	It is helpful in finding out the material truth
Option D:	It is easy, cost effective and time saving method
18.	Developing a researchable question would not involve
Option A:	Considering the time and resources available to you
Option B:	Bearing in mind your technical expertise in the area of research
Option C:	Deciding what statistical software to use
Option D:	Assessing the work involved
19.	Research ethics do not include
Option A:	Integrity
Option B:	Honesty
Option C:	Subjectivity
Option D:	Objectivity
20.	Failure to acknowledge the borrowed material is called
Option A:	Acknowledgement
Option B:	Index
Option C:	Bibliography
Option D:	Plagiarism

Q2.	Solve any Four out of Six	5 marks each
A	What are the problems faced by Researcher	
B	Give the Characteristics of Research Explain in detail	
C	Explain Qualitative & Quantitative Research	
D	What is a Research Design? Explain its Necessity	
E	What are the Characteristics of good hypothesis ? Explain type I & type II errors	
F	What are the differences between observation and interviewing as methods of data collection?	

Q3.	Solve any Four out of Six	5 marks each
A	Define Hypothesis with example	
B	Explain Ex post facto Research with example	
C	What do you mean by Sampling ? What are the types of Sampling	
D	Enumerate the different methods of collecting data giving one example each	
E	State the sources of research problem. How a problem is identified? Enumerate the criteria for the selection of a problem	
F	“Ethics in research is the need of the hour” Justify the statement	

University of Mumbai

Examination 2020 under cluster __ (Lead College: APSIT)

Examinations Commencing from 23rd December 2020 to 6th January 2021 and from 7th January 2021 to 20th January 2021

Program: ALL

Curriculum Scheme: Rev2016

Examination: FE/SE/TE/BE Semester VIII

Course Code: ILO8024 and Course Name: HUMAN RESOURCE MANAGEMENT

Time: 2 hour

Max. Marks: 80

Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks. 2 marks each (40 Marks)
1.	Human resource management excludes
Option A:	Motivation
Option B:	Selling
Option C:	Rewards and compensation
Option D:	Recruitment
2.	Human resource Planning is choosing the
Option A:	Right product
Option B:	Right person
Option C:	Right producers
Option D:	Right human behaviour
3.	Maslow's theory of human needs include...
Option A:	Responsibility
Option B:	Self-actualization
Option C:	Self-management
Option D:	Empowerment
4.	_____ represent basic convictions that "a specific mode of conduct or end state of existence is personally or socially preferable to an opposite or converse mode of conduct or end-state of existence."
Option A:	Values
Option B:	Attitude
Option C:	Motivation
Option D:	Ethics
5.	_____ is a process by which we organize and interpret sensory impressions in order to give meaning to our environment
Option A:	Decision making
Option B:	Negotiation
Option C:	Perception
Option D:	Conflict negotiation
6.	Which one of the below mentioned functions is the part of the organizational level?
Option A:	Organisational Culture
Option B:	Group Structure

Option C:	Team
Option D:	Group Norms
7.	A leader should be able to ____
Option A:	Take selfish decisions
Option B:	Explain organisational goals
Option C:	Sack the employees
Option D:	Fire the employees
8.	Group rules are for ____ of the members.
Option A:	Harassment
Option B:	Behaviour
Option C:	Punishment
Option D:	Sacking
9.	What is the first step in the appraisal process?
Option A:	Giving feedback
Option B:	Defining the job
Option C:	Administering the appraisal tool
Option D:	Making plans to provide training
10.	Power that is based on fear called as
Option A:	Reward Power
Option B:	Information Power
Option C:	Coercive Power
Option D:	Legitimate Power
11.	Human Resource Planning is done based on
Option A:	Market Condition
Option B:	Financial Condition
Option C:	Organisational Plan
Option D:	External Environment
12.	Which is the least expensive method for recruitments?
Option A:	Walk - ins, write - ins and talk - ins
Option B:	Campus placements
Option C:	Employment exchanges
Option D:	Consultants
13.	Development is not related to
Option A:	Technical aspects
Option B:	Conceptual
Option C:	Human skills
Option D:	Termination
14.	Which one from the following options is challenge in diversity at workplace?
Option A:	Increase in Productivity
Option B:	High Performance team building
Option C:	Conflicts
Option D:	Increase in Pay

15.	Which of this is a step in training process
Option A:	Use of evaluation models
Option B:	Obstacles in the system
Option C:	KSA deficiency
Option D:	Provide proper feedback
16.	Which among the following will not be included in Business Process Reengineering?
Option A:	To set the vision & business goals
Option B:	To dissuade employees from using technology
Option C:	Establish a competent team
Option D:	Redesign the process
17.	Which one is generation Z?
Option A:	Born Between 2001-2020
Option B:	Born Between 1965-1981
Option C:	Born Between 1941-1964
Option D:	Born Between 1982-2000
18.	Which conflict occurs within an individual?
Option A:	Interpersonal
Option B:	Intra-personal
Option C:	Intra-Group
Option D:	Inter Group
19.	As per the factories Act " CHILD" means a person who has not completed ---- - years of age
Option A:	15
Option B:	16
Option C:	17
Option D:	18
20.	Shops and Establishment Act applies to all-----
Option A:	Cultivate Shops , Restaurants, Hotels, Theatres, Amusement parks etc.
Option B:	Only Shops
Option C:	Only Hotels
Option D:	Only Theatres

Q. 2 Solve any Two Questions out of Three

10 marks each (20 Marks)

- A) Explain the appraisal process and the methods of appraisal (10)
- B) Explain the recruitment process and the external sources of recruitment in detail. (10)
- C) Explain evolution and functions of HRM (10)

Q. 3 Solve any Two out of Three

10 marks each (20 Marks)

- A) Explain organizational behavior and its determinants. (10)
- B) Define the term 'training and development'. Explain the importance and various inputs required for a training and development program. (10)

C)

i) Write short note on TQM. (5)

ii) Define Ethics and explain characteristics of ethics (5)

University of Mumbai
Examination 2020 under cluster __ (Lead College: _____)
Examinations Commencing from 23rd December 2020 to 6th January 2021 and from 7th
January 2021 to 20th January 2021

Program: **ALL**

Curriculum Scheme: Rev2016

Examination: BE Semester VIII

Course Code: ILO8027 and Course Name: IPR and Patenting

Time: 2-hour

Max. Marks: 80

Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	A _____ is a sign used on products that have a specific geographical origin and possess qualities or a reputation that are due to that origin.
Option A:	Logo
Option B:	Geographical Indication (GI)
Option C:	Trademark
Option D:	Patents & Copyrights
2.	A company wishes to ensure that no one else can use their logo should file rights for a
Option A:	Patents
Option B:	Copyrights
Option C:	Trade mark
Option D:	Industrial design
3.	A vocalist who wishes to assign the rights to reproduce a video he has made of his concert should go for filing a
Option A:	Patents
Option B:	Copyrights
Option C:	Trade mark
Option D:	Industrial design
4.	A _____ extinguishes all rights of the IP holder.
Option A:	Grant
Option B:	Sale
Option C:	Deal
Option D:	Infringement
5.	The industrial design is protected for _____ years
Option A:	15
Option B:	10
Option C:	5
Option D:	20

6.	Patent right is not _____
Option A:	Limited period right
Option B:	Territorial right
Option C:	Absolute right
Option D:	Natural right
7.	PCT stands for _____
Option A:	Patent Certification Treaty
Option B:	Patent Cooperation Trade
Option C:	Patent Cooperation Treaty
Option D:	Patent Copyright Treaty
8.	E-commerce thing that needs to be considered with respect to IP is _____
Option A:	traditional knowledge
Option B:	Media
Option C:	Logo
Option D:	Photos
9.	TKRC is _____
Option A:	Traditional Knowledge Resource Classification
Option B:	Total Knowledge Resource Classification
Option C:	Traditional Knowledge Resource Contents
Option D:	True Knowledge Resource Contents
10.	What is included in biological resources?
Option A:	Animals
Option B:	human genetic material
Option C:	softwares with Genetic algorithms
Option D:	Designs
11.	What protects the intellectual property created by inventors?
Option A:	Copyright
Option B:	geographical indications
Option C:	Patents
Option D:	registered designs
12.	Is a patent granted in India valid in any other country?
Option A:	Yes
Option B:	only in signatory countries to TRIPS
Option C:	No
Option D:	only to neighboring countries
13.	Which of the following is not patentable according to Indian Patent Act 1970?

Option A:	Pin
Option B:	Chair
Option C:	washing machine
Option D:	a new method of horticulture
14.	Where is the Japan Patent Office located?
Option A:	Tokyo
Option B:	Kyoto
Option C:	Osaka
Option D:	Nara
15.	_____ means a person who in law represents the estate of a deceased person;
Option A:	Person
Option B:	Patentee
Option C:	legal representative
Option D:	person interested
16.	_____ means an application for patent made in accordance with the Patent Cooperation Treaty.
Option A:	patent of addition
Option B:	Patent
Option C:	international application
Option D:	new invention
17.	_____ means trespass on an intellectual property.
Option A:	Enforcement
Option B:	Licensing
Option C:	Infringement
Option D:	Assignment
18.	IPC in patenting means
Option A:	Indian Patent Classification
Option B:	International Panel Code
Option C:	International Patent Classification
Option D:	International Postal Code
19.	In compulsory license, the right of the licensee is _____
Option A:	Exclusive license
Option B:	Non-exclusive
Option C:	Assignable
Option D:	non-assignable
20.	The Indian Patent Act was established in
Option A:	1790

Option B:	1947
Option C:	1970
Option D:	2020

Q2.	Solve any Four out of Six	5 marks each
A	Describe different types of Intellectual Property.	
B	What are the impacts of IP Rights?	
C	Enumerate the procedure to register the copyright.	
D	Explain Paris Convention Treaty.	
E	What are challenges to Intellectual Property in Traditional Knowledge?	
F	Explain in brief about Intellectual Property and Digital Economy.	

Q3.	Solve any Four out of Six	5 marks each
A	Explain the contents of complete specification for patent application.	
B	Discuss the major steps involved to register a patent.	
C	Write a short note on rights and liabilities of patentees.	
D	Write a short note on US Scenario of Patent Rules	
E	List and explain types of claims.	
F	Describe non-patentable inventions with example.	

Program: BE (ALL BRANCHES)

Curriculum Scheme: Rev2020

Examination: BESemesterVIII

Course Code:ILOC8021and Course Name: Project Management

Time: 2 hour

Max. Marks: 80

Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	Which of the following is the most important element of Project Management Plan that is useful in Planning process:
Option A:	Risk Management activities
Option B:	Quality Assurance activities
Option C:	Activity Resource requirements
Option D:	Budget Control activities
2.	CPM is an acronym for
Option A:	Control Path Method
Option B:	Critical Path Method
Option C:	Cohesion Path Method
Option D:	Control Path Model
3.	A Project with a total funding of \$100,000 finished with a BAC value of \$95,000. What term can BEST describe the difference of \$5,000?
Option A:	Cost Variance
Option B:	Management Overhead
Option C:	Management Contingency Reserve
Option D:	Schedule Variance
4.	Activity Definition is typically performed by which of the following:
Option A:	Project Manager who created the WBS
Option B:	Project Team Members responsible for the work package
Option C:	Project Officer
Option D:	Project Stakeholder
5.	Expected risks in a project is represented in a tabular form by
Option A:	Risk Table
Option B:	Assessment Table
Option C:	Time Table
Option D:	Round Table
6.	A project has a 60% chance of a \$100,000 profit and a 40 percent of a \$100,000 loss. The Expected Monetary Value for the project is:
Option A:	\$100,000 profit
Option B:	\$60,000 loss
Option C:	\$ 20,000 profit
Option D:	\$40,000 loss

7.	The time taken to break even or pay back the initial investment is called as
Option A:	Back period.
Option B:	Payback period.
Option C:	Cash back period.
Option D:	Rate of Return.
8.	The expenditure and income taken place in a project is indicated by
Option A:	Cash flow forecast.
Option B:	Cost analysis.
Option C:	Fund flow.
Option D:	Technical forecast.
9.	The method which is carried out to calculate the earliest dates on which each activity may be started and completed is
Option A:	Backward pass
Option B:	Forward pass
Option C:	No pass.
Option D:	Increasing pass.
10.	The shortest time in which we could expect to complete the activity, barring outright miracles is called as
Option A:	Optimistic Time
Option B:	Pessimistic Time
Option C:	Most Likely Time
Option D:	Shortest Time
11.	Which of these is not one of the constraints of a project?
Option A:	Scope
Option B:	Team
Option C:	Resources
Option D:	Budget
12.	Which is not one of the stages of Project Management Lifecycle?
Option A:	Definition and Conceptualization
Option B:	Management and Measurement
Option C:	Planning and Budgeting
Option D:	Execution and Control
13.	Activities A, B, and C are the immediate predecessors for Y activity. If the earliest finish times for the three activities are 12, 15, and 10, then the earliest start time for Y will be
Option A:	10
Option B:	15
Option C:	12
Option D:	100
14.	The critical path is referred to as the
Option A:	Most direct path from the beginning node to the ending node

Option B:	Shortest path in terms of time
Option C:	Longest path in terms of time
Option D:	Path with the largest amount of slack time
15.	A schedule activity may begin 10 days before the predecessor activity finishes. This is an example of:
Option A:	Finish-to-Start
Option B:	Start-to-Finish
Option C:	Start-to-Start
Option D:	Finish-to-Finish
16.	Resource requirement in project becomes constant while the project is in its what progress stage
Option A:	40 to 55%
Option B:	55 to 70%
Option C:	70 to 80%
Option D:	80 to 95%
17.	What limits the options of the project team?
Option A:	Constraints
Option B:	Assumptions
Option C:	Technology
Option D:	Deliverables
18.	The difference between the cumulative earned value of the work performed and the cumulative actual cost is known as
Option A:	Cost performance index
Option B:	Cost variance
Option C:	Budgeted costs
Option D:	Cost quality index
19.	Which of the following does NOT generate changes to the Project documents:
Option A:	Define Activities
Option B:	Sequence Activities
Option C:	Estimate Activity Resources
Option D:	Estimate Activity Durations
20.	If the Earned Value is equal to Actual Cost, it means
Option A:	Project is on budget and on schedule
Option B:	Schedule variance index is 1
Option C:	There is no schedule variance
Option D:	There is no cost variance

Q2	Solve any Two Questions out of three.	5 marks each
A	I. Compare AOA and AON	
	II. Compare internal risk and external risk.	
	III. State the limitations of Gantt chart	
B	Solve any One	10 marks each
	I. What is Work breakdown structure. Draw and explain the WBS for hospital management system.	
	II. What is project crashing. Explain with the help of suitable example.	

Q3	Solve any Two Questions out of Three	5 marks each
A	I. List and explain the phases of project life	
	II. Why leveling of resources is preferred to large fluctuations, justify ?	
	III. List the steps involved in terminating a project.	
B	Solve any One	10 marks each
	I. Explain the terms qualitative risk and quantitative risk. List and explain the risk response strategies.	
	II. What are the knowledge areas and process groups in Project Management as per PMI?	

University of Mumbai
Examination 2020 under cluster __ (Lead College: _____)
Examinations Commencing from 23rd December 2020 to 6th January 2021 and from 7th
January 2021 to 20th January 2021
Program: All
Curriculum Scheme: Rev2016

Examination: BE

Semester VIII

Course Code: ILO8022

Course Name: Finance management

Time: 2 hour

Max. Marks: 80

Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	_____ are a long-term promissory notes with maturities ranging from 5 to 30 years.
Option A:	Notes
Option B:	Shares
Option C:	Bonds
Option D:	Commercial Papers
2.	Which of the following is not the Financial Services in Indian Financial System?
Option A:	Local Bankers
Option B:	Investment Banking
Option C:	Credit Rating
Option D:	Asset Management
3.	The regulator for Primary and secondary market is
Option A:	IRDA
Option B:	SEBI
Option C:	RBI
Option D:	CRISIL
4.	With a well-diversified portfolio, an investor can reduce
Option A:	Unsystematic risk
Option B:	systematic risk
Option C:	Market Risk
Option D:	finance risk
5.	A statistical measure of the degree to which two variables (e.g., securities' returns) move together.
Option A:	Certainty equivalent
Option B:	Covariance
Option C:	Variance
Option D:	Coefficient of variation
6.	How you can turn a portfolio having two risky securities into risk less if
Option A:	The securities are completely negatively correlated
Option B:	The securities are completely positively correlated
Option C:	If the correlation ranges between zero and one

Option D:	If the correlation ranges between zero and two
7.	When the concept of ratio is defined in respected to the items shown in the financial statements, it is termed as
Option A:	Accounting ratio
Option B:	Financial ratio
Option C:	Costing ratio
Option D:	leverage Ratio
8.	When the concept of ratio is defined in respected to the items shown in the financial statements, it is termed as
Option A:	Accounting ratio
Option B:	Financial ratio
Option C:	Costing ratio
Option D:	leverage Ratio
9.	What is the value of the firm usually based on
Option A:	The value of debt and equity.
Option B:	The value of equity.
Option C:	The value of debt.
Option D:	The value of assets plus liabilities.
10.	The assets that can be converted into cash within a short period (i.e.1 year or less) are known as
Option A:	Current assets
Option B:	Fixed assets
Option C:	Intangible assets
Option D:	Investments
11.	The assets that can be converted into cash within a short period (i.e.1 year or less) are known as
Option A:	Current assets
Option B:	Fixed assets
Option C:	Intangible assets
Option D:	Investments
12.	The use of NPV rule in investment decisions require information about –
Option A:	Profit
Option B:	Risk
Option C:	Time value of money
Option D:	Cash flows
13.	Which among the following is not a current liability?
Option A:	Equity Shares
Option B:	Interest payable
Option C:	Accrued Expenses
Option D:	Accounts Payable
14.	The XYZ purchases a new equipment. The selected data is given below: Cost of equipment: Rs 25,000, Useful life of equipment: 5 years, Tax rate: 30%. If

	equipment is depreciated using straight line method, what is the depreciation tax benefit associated with the new equipment?
Option A:	Rs 35000
Option B:	Rs 1500
Option C:	Rs 7500
Option D:	Rs 5000
15.	Gross Working Capital is the capital invested in
Option A:	Total Assets
Option B:	Total Assets minus Total Liabilities
Option C:	Total Current Assets
Option D:	Current Assets minus Current Liabilities
16.	In _____ approach, the capital structure decision is relevant to the valuation of the firm.
Option A:	Net income
Option B:	Net operating income
Option C:	Traditional
Option D:	Miller and Modigliani
17.	Under the lease agreement, the lessee gets the right to
Option A:	Share profits earned by the lessor
Option B:	Participate in the management of the organization
Option C:	Use the asset for a specified period
Option D:	Sell the assets
18.	What assumptions have to consider to approach the Net operating income to valuation?
Option A:	that debt and equity levels remain unchanged.
Option B:	that interest expense and taxes are included in the calculation
Option C:	that dividends increase at a constant rate.
Option D:	that ko remains constant regardless of changes in leverage.
19.	If a firm has low fixed costs relative to all other firms in the same industry, a large change in sales volume (either up or down) would have:
Option A:	a smaller change in EBIT for the firm versus the other firms.
Option B:	no effect in any way on the firms as volume does not effect fixed costs.
Option C:	a decreasing effect on the cyclical nature of the business.
Option D:	a larger change in EBIT for the firm versus the other firms.
20.	Which of the following are theories for dividend relevance?
Option A:	Walter's Model
Option B:	MM Approach
Option C:	Game theory
Option D:	Market Value theory

Q2	Solve any Four out of Six	5 marks each
A	What functions are performed by the Reserve Bank of India?	
B	A 12 - payment annuity of Rs.20,000 will begin 8 years hence. (The first payment	

	occurs at the end of 8 years). What is the present value of this annuity if the discount rate is 14 percent?
C	What are the Sources of Short Term Financing?
D	Examine critically "Debentures" as a source of Corporate Finance
E	How to calculate discounted payback period for a project? (assume suitable data)
F	Discuss traditional approach of capital structure design

Q3	Solve any Four out of Six	5 marks each
A	State and illustrate different financial instruments	
B	What are the risk associated with business and how are they measured?	
C	What is the importance of Financial Ratio Analysis?	
D	Discuss factor affecting working capital needs of an entity	
E	Discuss Modigliani-Miller (MM) approach for capital structure	
F	Explain the Factors determining Dividend Policy.	

University of Mumbai

Examination 2020 under cluster 8 (Lead College: PHCET)

Examinations Commencing from 23rd December 2020 to 6th January 2021 and from 7th January 2021 to 20th January 2021

Program: All Branch

Curriculum Scheme: Rev 2016

Examination: BE Semester VIII

Course Code: ILO8023 and Course Name: Entrepreneurship Development and Management
Time: 2 hour Max. Marks: 80

Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	MUDRA stands for _____ .
Option A:	Metropolitan and Urban Development Regulatory Authority
Option B:	A scheme under Ministry of AYUSH
Option C:	Micro Units Development and Refinance Agency
Option D:	Macro Units Development and Refinance Agency
2.	What is Mahila Vikas Nidhi?
Option A:	It offers developmental assistance for pursuit of income generating activities to women
Option B:	housing scheme for women
Option C:	subsidized gas cylinder
Option D:	Subsidy scheme for women
3.	Enterprise is classified as medium if
Option A:	Annual turnover not more than 15cr
Option B:	Annual turnover not more than 250cr
Option C:	Annual turnover not more than 25cr
Option D:	Annual turnover not more than 50cr
4.	What is CVY?
Option A:	Coir Vikas Yojana
Option B:	Cottage Vikas Yojana
Option C:	Cotton Vikas Yojana
Option D:	Communication Vikas Yojana
5.	What is purpose of National Manufacturing Competitiveness Programme
Option A:	to support the SMEs to get loan
Option B:	to support the SMEs to get market
Option C:	to support the SMEs to get land
Option D:	to support the SMEs in their endeavor to become competitive
6.	IPR stands for _____
Option A:	Intellectual Property Rights
Option B:	Individual Property Rights
Option C:	Indian Property Rights

Option D:	Institutional property rights
7.	One of the disadvantages of a franchise business for a franchisee is,
Option A:	Lack of market availability
Option B:	Lack of independence.
Option C:	Lack of training
Option D:	Lack of brand identity.
8.	In PESTEL analysis, 'P' stands for:
Option A:	political
Option B:	population
Option C:	people
Option D:	profit
9.	Question Marks in BCG matrix represents,
Option A:	High Growth, Low Market Share
Option B:	Low Growth, Low Market Share
Option C:	Low Growth, High Market Share
Option D:	High Growth, High Market Share
10.	A good Business plan _____ .
Option A:	Predict the future.
Option B:	Predict the demand.
Option C:	Can attract the investors.
Option D:	Guarantee profit.
11.	When the companies mutually agreed to become partners in fairly & friendly way to run the business, then it is called as,
Option A:	collaboration
Option B:	franchise
Option C:	acquisition
Option D:	merger
12.	Document that can convince the reader that the business can produce enough revenue to make a satisfactory profit and therefore attractive as an investment opportunity is called as,
Option A:	Future plan
Option B:	Profit-loss statement
Option C:	Balance statement
Option D:	Business plan
13.	Which of the following is NOT the example of PPP project?
Option A:	Mumbai Metro
Option B:	Sister Nivedita Bridge in Kolkata
Option C:	Underground car parking system in Kolkata
Option D:	Ola Travelling system
14.	Which of the following questions are NOT answered by a business plan?
Option A:	Where am I now?
Option B:	Where am I going?
Option C:	How will I get there?

Option D:	Why should I do this business?
15.	Who is appointed as a chairperson of the Mission Directorate (Executive Committee) level of National Skill Development Mission.
Option A:	Secretary, MSDE
Option B:	Minister, MSDE
Option C:	Secretary, Shiksha Mantralaya
Option D:	Minister, Shiksha Mantralaya
16.	Which one of the following is NOT the category of clients in MUDRA Bank?
Option A:	Shishu
Option B:	Kishor
Option C:	Tarun
Option D:	Vruddha
17.	What is the process of one company taking over by the other called?
Option A:	Merger
Option B:	Acquisition
Option C:	Going public
Option D:	Write off
18.	What is Vertical Merger?
Option A:	takes a company a step closer towards monopoly by eliminating a competitor
Option B:	combination of two entities at different stages of the industrial or production process
Option C:	the shareholders of one entity receives cash instead of shares in the merged entity
Option D:	merger between two entities in unrelated industries
19.	_____ refers to the successful selling of a product or service in a specific market.
Option A:	Market penetration
Option B:	Advertisement
Option C:	outreach
Option D:	consolidation
20.	What is NOT an IPO
Option A:	An initial public offering (IPO) refers to the process of offering shares of a private corporation to the public in a new stock issuance.
Option B:	Initial public offering or stock market launch is a type of public offering in which shares of a company are sold to institutional investors and usually also retail investors.
Option C:	An initial public offering (IPO) refers to the process of offering shares of a private corporation to the public in a new stock issuance.
Option D:	IPO is transferring company to charitable trust

Q2	Solve any Four out of Six.	5 marks each
A	Discuss challenges faced by MSMEs.	
B	Explain the various forms of business ownership.	
C	Explain new product development process.	
D	Explain MSME with respect to following points: 1) The industries that come under MSME, 2) Definitions of micro, small and medium enterprises In accordance with the provision of Micro, Small & Medium Enterprises Development (MSMED) Act, 2006, 3) benefits of MSME registration.	
E	Explain PMEGP with respect to the following points: 1) It's objectives, 2) Eligibility criteria for PMEGP, 3) It's features	
F	Explain the small business life cycle in detail.	

Q3.	Solve any Four out of Six.	5 marks each
A	Discuss various funding schemes for women entrepreneurs	
B	Explain marketing schemes for MSMEs	
C	What do you mean by MSME?	
D	Explain the importance of business plan for new business.	
E	What are the various sources of a finance for new business & explain the importance of capital to entrepreneurship.	
F	Explain supply chain management.	

University of Mumbai

Examination 2020 under cluster __ (Lead College: _____)

Examinations Commencing from 23rd December 2020 to 6th January 2021 and from 7th January 2021 to 20th January 2021

Program: ALL

Curriculum Scheme: Rev2016

Examination: BE Semester: VIII

Course Code: ILO8029 and Course Name: Environmental management

Time: 2 hour

Max. Marks: 80

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Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	Abiotic environment does not include
Option A:	Soil
Option B:	Water
Option C:	Air
Option D:	Plant
2.	A relatively dense layer of band which is found in the thermosphere is known as?
Option A:	Troposphere
Option B:	Mesosphere
Option C:	Stratosphere
Option D:	Ionosphere
3.	The word environment is derived from French word
Option A:	Environner
Option B:	Environnering
Option C:	E-Environner
Option D:	Envo
4.	Sunder LalBahuguna is famous for
Option A:	Narmada BachaoAndolan
Option B:	TehriBachoAndolan
Option C:	Ganga BachoAndolan
Option D:	Jungle BachoAndolan
5.	Which of the following conceptual components of the environment are effective transporters of matter?
Option A:	Hydrosphere and lithosphere
Option B:	Atmosphere and lithosphere
Option C:	Atmosphere and hydrosphere
Option D:	Lithosphere and biosphere
6.	Acid rain can be prevented by

Option A:	Increasing the emission of SO ₂ and NO ₂
Option B:	Decreasing the emission of SO ₂ and NO ₂
Option C:	Increasing the emission of HCL and Phosphate
Option D:	Decreasing the emission of HCL and Phosphate
7.	To maintain ecological balance and regulate the population size of different animals, this is useful
Option A:	Sun chain
Option B:	Wind chain
Option C:	Food chain
Option D:	Grass chain
8.	The tropical grasslands in Africa with tall grasses scattered with shrubs or stunted trees are called
Option A:	Savanas
Option B:	Pampas
Option C:	Steppes
Option D:	Prairies
9.	Among the ecosystem mentioned below , where one can find maximum biodiversity
Option A:	Mangroves
Option B:	Desert
Option C:	Coral Reefs
Option D:	Alpine meadows
10.	Which of the following helped in the saving of trees?
Option A:	Pouring of water
Option B:	Developing of chemical manuals
Option C:	Use of modern agriculture
Option D:	Development of iron and steel
11.	Which of the following model satisfies four conditions - Consistently satisfactory, Sustainable economic performance, Ethical actions and Behaviour.
Option A:	Spiral Model
Option B:	Corporate Citizenship Model
Option C:	Corporate Civil Model
Option D:	Spiral Model
12.	Supplying socially harmless products, Adopt fair pricing and Provide good service after sales are responsibilities towards -
Option A:	Consumer
Option B:	Seller
Option C:	Dealer
Option D:	Manufacturer
13.	Which is not a decided component amongst the following to maintain public

	health and safety to ensure quality of total environment ?
Option A:	Water
Option B:	Air
Option C:	Junk food
Option D:	Radiation
14.	CER stands for -
Option A:	Corporate Environmental Responsibility
Option B:	Complete Environmental Responsibility
Option C:	Corporate Energy Responsibility
Option D:	Corporate Environmental Response
15.	The term 'Municipal Solid Waste' is used to describe which kind of solid waste?
Option A:	Non toxic
Option B:	Toxic
Option C:	Non hazardous
Option D:	Hazardous
16.	ISO – 14001 gives stress on
Option A:	Plan – Do -check -Act
Option B:	Environmental protection
Option C:	Prevention rather than detection
Option D:	Proceed-Do-correct-Act
17.	What is not covered in the ISO-14000 ?
Option A:	Adoption of environmental safety guideline
Option B:	Energy audit in Industry
Option C:	Adoption of clean environment
Option D:	Adoption of environmental management system in industry or organization
18.	Name the Ministry which deals with environment related issues
Option A:	Ministry of Water Resources
Option B:	Ministry of Forest
Option C:	Ministry of Environment , Forests and Climate change (MoEFCC)
Option D:	Ministry of Agriculture
19.	Under _____ Act, Rules relative to various aspects of management of hazardous chemicals, wastes. have been notified.
Option A:	Water Act (1974)
Option B:	Air Act (1981)
Option C:	Environment Protection Act (1986)
Option D:	Biodiversity Act (2002)

20.	_____ of the Constitution of India directs the State to protect and improve the environment and safeguard wildlife and forests.
Option A:	Article 51A
Option B:	Article 58A
Option C:	Article 1A
Option D:	Article 48A

Q2	Solve any Four out of Six (Total 20Marks)
A	What are different environmental issues relevant to India
B	State the various carrier opportunities in Environmental Management
C	Describe any TWO types of Ecosystems
D	What is relationship between Food chain and Food Web
E	What is an EMS certification all about.
F	Give a brief account of Air (P and CP Act)
Q3.	Solve any Two Questions out of Three (Total 20 Marks)
A	Explain what is meant by hazardous waste and how it can be dealt with.
B	Explain the role of environment management and total quality management to achieve total quality environmental management
C	Explain some of the common sources of water pollutants and their effects on humans, plants and animals.

University of Mumbai

Examination 2020 under cluster __ (Lead College: _____)

Examinations Commencing from 23rd December 2020 to 6th January 2021 and from 7th January 2021 to 20th January 2021

Program: Institute Level Elective

Curriculum Scheme: Rev2016

Examination: BE Semester VIII

Course Code: ILO8025 and Course Name: PE and CSR

Time: 2 hour

Max. Marks: 80

1. Please save this file with file name as per the sample format given below:

File Name: "Date of Examination_Scheme_Program_Semester_Subject Code_QP Set Number"

For example:

QP set number 1 of Engineering Mathematics-I of First Year Semester I for Rev2019 scheme and scheduled on 7/01/2021 has to have the file name as

0701_R19_FE_I_FEC101_QP1

QP set number 1 of first core course of Mechanical Engineering Semester V for Rev2016 scheme and scheduled on 23/12/2020 has to have the file name as

2312_R16_Mech_V_MEC501_QP1

QP set number 3 of Department Level Optional Course of Computer Engineering Semester VI for Rev2012 scheme and scheduled on 3/01/2021 has to have the file name as

0301_R12_Comp_VI_CSDLO6021_QP3

Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	The inclusive term used to refer to any net benefits produced by an action.
Option A:	ethic of virtue
Option B:	ethic of care
Option C:	Utilitarianism
Option D:	Utility
2.	The market for automobiles is an example of?
Option A:	Monopolistic competition.
Option B:	Duopoly.
Option C:	Differentiated oligopoly.
Option D:	Pure oligopoly.
3.	Rights that all human beings everywhere possess to an equal extent simply by virtue of being human beings is,
Option A:	Right
Option B:	Legal right
Option C:	Moral rights or human rights
Option D:	Characteristic of Rights
4.	The gradual breakdown of ozone gas in the stratosphere above us caused by the release of chlorofluorocarbons (CFCs) into the air.

Option A:	ozone depletion
Option B:	Global warming
Option C:	Pollution
Option D:	Greenhouse gases
5.	Which following statement is explain about Negative Rights?
Option A:	Duties of others have to not interfere in certain activities of the person who holds the right.
Option B:	Duties of other agents (it is not always clear who) to provide the holder of the right with whatever he or she needs to freely pursue his or her interests.
Option C:	Provide a basis for justifying one's actions and for invoking the protection or aid of others
Option D:	Are correlated with duties others have toward the person with the right
6.	The undesirable and unintended contamination of the environment by human activity such as manufacturing, waste disposal, burning fossil fuels, etc. is called as ?
Option A:	Pollution
Option B:	Resource depletion
Option C:	Greenhouse gases
Option D:	Global warming
7.	Discrimination that is not consciously or deliberately sought, but is brought about by stereotypes or as an unintended outcome is called as..
Option A:	Intentional
Option B:	Institutional
Option C:	Individual
Option D:	Unintentional
8.	Perfectly competitive markets encourage firms to use resources efficiently to keep costs?
Option A:	Low
Option B:	Moderate
Option C:	Zero
Option D:	High
9.	Which of the following is not a category of Sustainability?
Option A:	Environmental Sustainability
Option B:	Natural Sustainability
Option C:	Social Sustainability
Option D:	Economic Sustainability
10.	Which of the following is a characteristic of monopolistic competition?
Option A:	Few sellers.
Option B:	All of the above are characteristics of monopolistic competition.
Option C:	A differentiated product.
Option D:	Easy entry into and exit from the industry.
11.	Business people have the skills to solve?
Option A:	All Economic Problems
Option B:	All Social Problem
Option C:	Some Social Problem

Option D:	All Technical Problem
12.	Which of the following is Problem associated with Contractual Theory?
Option A:	Sellers cannot remove all their duties to buyers by getting them to agree to disclaimers of responsibility.
Option B:	Safety should not be provided through the market.
Option C:	Assumes consumer and seller meet as equals, but seller has more knowledge even then consumer must not rely on the seller.
Option D:	Assumes makers of products deal directly with consumers but they do not; however manufacturer's advertisements do form a kind of direct promise to consumers.
13.	The Globalization do not facilitate to
Option A:	Removal of control on movement of capital across borders
Option B:	Barriers to trade and investment
Option C:	Improvements in communication
Option D:	Immigration control
14.	What should be Market Approach to Consumer Protection?
Option A:	Claims safety is a commodity that should be mandated by government.
Option B:	In a market, sellers will provide safety if consumers demand it.
Option C:	In a market, the price of safety and the amount sellers provide will not be determined by the costs of providing it and the value consumers place on it
Option D:	Safety should not be provided through the market.
15.	Which of the following is not a Indicator of Discrimination?
Option A:	Proportion of rich and poor at all economic levels.
Option B:	Proportions of minorities and women at lowest economic levels
Option C:	Average benefits minorities and women receive compared to others
Option D:	Proportions of minorities and women at highest economic levels.
16.	Privacy with respect to a person's physical activities is called as?
Option A:	individual privacy
Option B:	personal privacy
Option C:	physical privacy
Option D:	psychological privacy
17.	What is Triple Bottom Line (TBL) ?
Option A:	An accounting tool that looks at the impact on people, planet and profits
Option B:	A management strategy which states all the attention should be on profits
Option C:	An accounting tool that looks at cost, profit and loss.
Option D:	A management strategy which focuses on corporate social responsibility
18.	Which of the following general principle is not followed by corporation while practicing CSR:
Option A:	Companies should support the inclusion of the principles of the India Global Compact
Option B:	Companies should indulge in free marker practices, rejecting any illegal or fraudulent practice and implement effective mechanisms
Option C:	Mangers are not responsible to follow and encourage ethical business practices among employees

Option D:	Companies should encourage and facilitate communication and dialogue with its shareholders, investors, employees, Customers and suppliers
19.	Distributing the benefits and burdens fairly among people is called as,
Option A:	Rule-utilitarianism
Option B:	Rights
Option C:	Justice
Option D:	Utilitarianism
20.	The moral argument for CSR is..
Option A:	The corporation is a creation of society and should therefore serve its needs.
Option B:	The corporation is a legal creation and therefore cannot be a moral agent
Option C:	Only Large corporations have the power or resources to address society's problems
Option D:	Business decisions will have social and environmental consequences which will be addressed by government.

Q2	Solve any Two Questions out of Three	10 marks each
A	How Ethics is an integral part of Business, Explain with Example	
B	What are the Ethics of pollution control.	
C	How can the rights of a consumer be defined in a due care theory? Explain with suitable example	

Q3	Solve any Two Questions out of Three	10 marks each
A	Explain in detail Corporate Social Responsibility and Small and Medium Enterprises (SMEs) in India.	
B	Why incorporate CSR into PPP for sustainable development?	
C	What is TBL? How it is work?	

University of Mumbai
Examination 2020 under cluster 5(Lead College: APSIT, Thane)
Examinations Commencing from 23rd December 2020 to 6th January
Program: EXTC
Curriculum Scheme: Rev2016
Examination: BE SemesterVIII
Course Code: ECC801 and Course Name: RF DESIGN

Time: 2 hour

Max. Marks: 80

Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	The maximum unilateral gain of a transistor is a function of:
Option A:	S PARAMETERS OF THE TRANSISTOR
Option B:	Load reflection coefficient
Option C:	Source reflection coefficient
Option D:	Input and output reflection coefficient
2.	A transistor has following S-parameters at 6 GHz: $S_{11} = 0.6\angle -60^\circ$, $S_{12} = 0.05\angle -60^\circ$, $S_{21} = 1.9\angle 81^\circ$, $S_{22} = 0.5\angle -60^\circ$, $\tau_{opt} = 0.62\angle 100^\circ$, $F_{min} = 1.6\text{dB}$. The centre and radius of the noise figure circle minimum noise figure is given by.
Option A:	Centre= $0.56\angle 100^\circ$,radius=0
Option B:	Centre= $0.62\angle 100^\circ$,radius=0
Option C:	Centre= $0.56\angle 100^\circ$,radius=0.1
Option D:	Centre= $0.48\angle 100^\circ$,radius=0.2
3.	The narrowband amplifiers are categorized as the amplifiers having operational bandwidth
Option A:	Between 5%to 10%
Option B:	Greater than to 50%
Option C:	Less than or equal to 10%
Option D:	Greater than 80%
4.	Which is the term used to describe how well a device or a system is able to function in an electromagnetic environment without introducing electromagnetic disturbances that interfere with the operation of other electrical products in the environment.
Option A:	EMI
Option B:	EMC
Option C:	EMP
Option D:	Filter
5.	In radiative coupling, the emitter radiation field
Option A:	Decays as $1 / R$, where R is the separation distance between the emitter and the receptor

Option B:	Decays as R , where R is the separation distance between the emitter and the receptor
Option C:	Decays as $1 / 2 R$, where R is the separation distance between the emitter and the receptor
Option D:	Decays as $2R$, where R is the separation distance between the emitter and the receptor
6.	For CE0102 how many frequency Range is used.
Option A:	30HZ To 10KHZ
Option B:	10KHZ To 10 MHZ
Option C:	10 MHZ To 40 GHZ
Option D:	40GHZ TO 80GHZ
7.	If a low pass filter is to be designed for linear phase in the pass band, which one of the followings is the best choice
Option A:	Elliptic filter
Option B:	Butterworth filter
Option C:	Chebyshev filter type-I
Option D:	Chebyshev filter type-II
8.	The Insertion loss is the ratio of
Option A:	Power delivered to load to the power available from the source
Option B:	Inserted power to reflected power
Option C:	Reflected power to inserted power
Option D:	Power available from source to power delivered to load
9.	The image impedance in the filter synthesis indicates –
Option A:	Terminated impedance of the filter device
Option B:	Input impedance offered by the filter
Option C:	An impedance of an infinite chain of identical circuit sections

Option D:	Characteristic impedance of transmission line
10.	_____ is a LPF normalized for a cutoff frequency of 1 rad/sec (0.159 Hz) & for source and load resistors of 1Ω .
Option A:	Low pass prototype
Option B:	Low pass filter
Option C:	High pass filter
Option D:	Band stop filter
11.	For an upconversion mixer if input to mixer is f_o , and $1/3f_o$, then output of filter is
Option A:	$(2/3)f_o + (4/3)f_o$
Option B:	$(1/3)f_o + (4/3)f_o$
Option C:	$(2/3)f_o + (1/3)f_o$
Option D:	$(1)f_o + (4/3)f_o$
12.	_____ provides a reference frequency, and the frequency synthesizer generates the other frequencies.
Option A:	crystal resonator
Option B:	crystal oscillator
Option C:	Microwave amplifier
Option D:	Power divider
13.	The fractional division operation in the frequency synthesizer is accomplished by –
Option A:	Using an accumulator with two counters
Option B:	Using a dual modulus divider circuit
Option C:	Using an accumulator with single counter
Option D:	Using a pair of VCO with divider network
14.	Any conductor carrying electrical current has an associated _____
Option A:	Resistive field
Option B:	Capacitive field
Option C:	Magnetic field
Option D:	Wood enclosure
15.	Which of these is a Conducted EMI Narrowband EMI units
Option A:	$\text{dB}\mu\text{V/m/MHz}$
Option B:	$\text{dB}\mu\text{A}$
Option C:	$\text{dB}\mu\text{V/MHz}$
Option D:	$\text{dB}\mu\text{Vm}$
16.	The transient produced on the power transmission line is an example of –
Option A:	Crosstalk between the conductors
Option B:	Radiated EM coupling
Option C:	EM noise produced in the apparatus
Option D:	EM noise contributed by the device nonlinearities

17.	In the S matrix of a power transistor, if the parameter S_{21} is 2.6 then the gain G_0 of the transistor has the value
Option A:	8.3dB
Option B:	6.3dB
Option C:	2.22dB
Option D:	7.3dB
18.	The scattering parameters of the transistor are found as below: $\begin{vmatrix} S_{11} & S_{12} \\ S_{21} & S_{22} \end{vmatrix} = \begin{vmatrix} 0.94 \angle 164^\circ & 0.031 \angle 59^\circ \\ 1.22 \angle 43^\circ & 0.57 \angle -165^\circ \end{vmatrix}$ The stability factor K is found out to be –
Option A:	0.55
Option B:	1.174
Option C:	1
Option D:	INFINITE
19.	The Richard's Transformations is useful for –
Option A:	Converting inductor element into capacitor and vice versa
Option B:	Converting capacitor element into capacitor and vice versa
Option C:	Convert inductor and capacitors into equivalent pieces of transmission line
Option D:	Low pass filter to Band stop filter transformation
20.	The single port oscillator is derived from two port oscillator by means of –
Option A:	Connecting generator at load terminal of two port oscillator
Option B:	Terminating the output port of two port oscillator
Option C:	Shorting the input port of two port oscillator
Option D:	Placing open circuit at output port of two port oscillator

Q2	Solve any Two Questions out of Three	10 marks each
A	<i>Explain method of filter design by image parameter method with neat sketches. What are probable drawbacks of this method.</i>	
B	<i>Explain all the steps involved in low noise microwave amplifier design</i>	
C	<i>Explain direct digital frequency synthesis.</i>	

Q3	Solve any Two Questions out of Three	10 marks each
A	<i>List and explain any four performance parameters of microwave mixers. Also explain working of diode ring mixer.</i>	
B	<i>What is radiated differential mode coupling? In what way this is different</i>	

	<i>from the radiated Common mode coupling? Explain this with example.</i>
C	<i>Why do the EMI standards vary with reference to civilian and military applications? What are the various standards for civilian applications? How do they evolve? Discuss them in detail.</i>

University of Mumbai
Examination 2020 under cluster 5(Lead College: APSIT)
Examinations Commencing from 23rd December 2020 to 6th January 2021
Program: Electronics & Telecommunication
Curriculum Scheme: Re2016
Examination: BE Semester: VIII
Course Code: ECC802 and Course Name: Wireless Network

Time: 2 hour

Max. Marks: 80

Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks.
1.	Which of the following Statement is false ?
Option A:	Wireless body area network has limited Computational power.
Option B:	Wireless body area network has limited Energy resources.
Option C:	Wireless body area network has large available memory.
Option D:	Wireless body area networks are used in medical applications.
2.	Which of the following technology does not come under wireless personal area network?
Option A:	Zigbee technology
Option B:	Bluetooth technology
Option C:	UWB technology
Option D:	WiMAX technology
3.	Which mode has the highest duty cycle in case of Bluetooth technology?
Option A:	Sniff mode
Option B:	Hold mode
Option C:	Park mode
Option D:	Run mode
4.	Which of the following device initiates communication with other devices in Bluetooth technology?
Option A:	Slave Unit
Option B:	Master Unit
Option C:	Parked Unit
Option D:	Beggar Unit
5.	What does RFID tags consist of?
Option A:	Transponder, Digital Memory Chip, Unique electronic product code
Option B:	Low noise amplifier and IMEI number
Option C:	High Power amplifier and IMSI number
Option D:	Mixer and MSRN number
6.	Which of these statements is not true about NFC ?
Option A:	NFC is also based on RFID protocols.
Option B:	NFC device is not only a reader but also a tag.
Option C:	NFC is not used for contactless payment system.
Option D:	NFC system operates on the same frequency as HF RFID.
7.	What is the functionality mode of a Zigbee device?
Option A:	Only Full function device (FFD)
Option B:	Only Reduced function device (RFD)

Option C:	Either FFD or RFD
Option D:	Both FFD and RFD
8.	In which ISM band WLAN works?
Option A:	2 GHz and/or 7.3 GHz
Option B:	3 GHz and/or 8 GHz
Option C:	2.4 GHz and/or 5 GHz
Option D:	6 GHz
9.	Outdoor LAN bridges are used to connect
Option A:	LANs of adjacent rooms
Option B:	LANs in different building
Option C:	LANs in same building
Option D:	LANs on different floors of same building
10.	Which of the following is not WLAN equipment ?
Option A:	Outdoor LAN bridges
Option B:	Access point
Option C:	LAN adaptor
Option D:	Repeater
11.	In which of the scenario, wireless sensor networks are used ?
Option A:	The topology of the network does not change.
Option B:	Topology of the network changes very frequently.
Option C:	Sensors nodes are having unlimited power.
Option D:	Sensors nodes are having unlimited memory.
12.	Which of the following component is required to connect Wireless Mesh Network to other network?
Option A:	Hub/Switch
Option B:	Gateway/Router/bridge
Option C:	Node
Option D:	Antenna
13.	In IoT, Gateway is used to provide the connection between which of the following devices?
Option A:	Cloud and Controller
Option B:	Network and Cloud
Option C:	Cloud and Controller
Option D:	Controller and device
14.	Which multiple access technique is used in UMTS?
Option A:	TDMA
Option B:	FDMA
Option C:	SDMA
Option D:	WCDMA
15.	What will be the maximum no. of subscriber at initial installation, if present no. of subscribers in the zone is 50,000, subscriber growth is 5% per year and initial installation is based on four year design.
Option A:	50000
Option B:	50500
Option C:	60775
Option D:	60000

16.	Which of the following is an advantage of WiMAX ?
Option A:	Low Bandwidth
Option B:	High Cost
Option C:	Security
Option D:	Short Range
17.	If allocated spectrum for GSM 1800 network is 4.8 MHz and Full channel Bandwidth is 200KHz, calculate total no. of RF carriers.
Option A:	24
Option B:	12
Option C:	6
Option D:	4
18.	In case of a CDMA based system, if the required interference margin is 3dB, then what is the value of cell loading (ρ)?
Option A:	1
Option B:	3
Option C:	2
Option D:	0.5
19.	What is one of the important characteristic of ad hoc network that differentiates it from the cellular network?
Option A:	Static backbone network topology
Option B:	Sporadic connectivity
Option C:	Stable connectivity
Option D:	Detailed planning before base stations can be installed
20.	Which statement is FALSE about node to node communication in case of Ad hoc Networks?
Option A:	Nodes can never communicate beyond their wireless range using multihop communication.
Option B:	Nodes can communicate directly with other nodes within their wireless range.
Option C:	Node to Node communication ensures better use of channel.
Option D:	Node to node communication may have to contend with the side effects of radio communication like noise and fading.

Q.2	Solve any Four out of Six.	5 marks each
A	Differentiate between flat and three tier architecture of WBAN.	
B	Why Collisions cannot be detected on a WLAN environment ? IEEE802.11 uses which protocol to avoid collision ?	
C	List the layers of Bluetooth protocol stack from bottom most layer upwards. Explain the function of any two layers.	
D	List the main features of WiMAX. What is the meaning by flexible architecture in WiMAX networks ?	
E	Explain how Multiple Access Collision Avoidance (MACA) algorithm handles the problem of hidden and exposed node problems?	
F	Explain Flooding routing protocol for wireless sensor network in brief	

Q3	Solve any Two Questions out of Three	10 marks each
A	Using the following data for a GSM1800 network, calculate, (1) average busy hour traffic per subscriber,	

	<p>(2) traffic capacity per cell, (3) required number of base stations per zone, and (4) the hexagonal cell radius for the zone. Subscriber usage per month : 150 minutes Days per month : 24 Busy hours per day: 6 Allocated spectrum : 4.8 MHz Frequency reuse plan : 4/12 RF channel width 200 kHz (full rate) For Erlang calculation refer Table A.1.</p>
B	<p>Draw the Direct Sequence Spread Spectrum (DSS) PHY PLCP Protocol Data Unit (PPDU) frame structure, with reference to this determine, - The field used to synchronize the receiver's carrier tracking and Timing. - The field used to find the end of PPDU frame. -The function of signal field in the frame.</p>
C	<p>Since MANET is infrastructure less network then how the routing, authentication and access control are performed ?</p>

Table A.1 Offered loads (in Erlangs) for various blocking objectives: according to the Erlang-B model—system capacity from 1–20 channels.

P(B) = Trunks	0.01	0.015	0.02	0.03	0.05	0.07	0.1	0.2	0.5
1	0.010	0.015	0.020	0.031	0.053	0.075	0.111	0.250	1.000
2	0.153	0.190	0.223	0.282	0.381	0.471	0.595	1.000	2.732
3	0.455	0.536	0.603	0.715	0.899	1.057	1.271	1.930	4.591
4	0.870	0.992	1.092	1.259	1.526	1.748	2.045	2.944	6.501
5	1.361	1.524	1.657	1.877	2.219	2.504	2.881	4.010	8.437
6	1.913	2.114	2.277	2.544	2.961	3.305	3.758	5.108	10.389
7	2.503	2.743	2.936	3.250	3.738	4.139	4.666	6.229	12.351
8	3.129	3.405	3.627	3.987	4.543	4.999	5.597	7.369	14.318
9	3.783	4.095	4.345	4.748	5.370	5.879	6.546	8.521	16.293
10	4.462	4.808	5.084	5.529	6.216	6.776	7.511	9.684	18.271
11	5.160	5.539	5.842	6.328	7.076	7.687	8.487	10.857	20.253
12	5.876	6.287	6.615	7.141	7.950	8.610	9.477	12.036	22.237
13	6.607	7.049	7.402	7.967	8.835	9.543	10.472	13.222	24.223
14	7.352	7.824	8.200	8.803	9.730	10.485	11.475	14.412	26.211
15	8.108	8.610	9.010	9.650	10.633	11.437	12.485	15.608	28.200
16	8.875	9.406	9.828	10.505	11.544	12.393	13.501	16.807	30.190
17	9.652	10.211	10.656	11.368	12.465	13.355	14.523	18.010	32.181
18	10.450	11.024	11.491	12.245	13.389	14.323	15.549	19.215	34.173
19	11.241	11.854	12.341	13.120	14.318	15.296	16.580	20.424	36.166
20	12.024	12.700	13.200	14.000	15.250	16.250	17.611	21.667	38.166

University of Mumbai

Examination 2020 under cluster 5 (Lead College: A P SHAH COLLEGE)

Examinations Commencing from 23rd December 2020 to 6th January 2021 and from 7th January 2021 to 20th January 2021

Program: BE EXTC

Curriculum Scheme: Rev2016

Examination: BE Semester VIII

Course Code: ECCDL08044 and Course Name: Network Management in Telecommunication

Time: 2-hour

Max. Marks: 80

Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	What are the functions of IT Manager?
Option A:	IT Manager works in isolation with the Telecom World
Option B:	Only Data Communication Manager function has to be handled by the IT Manager
Option C:	Only Telecommunication Manager Function has to be handled by the IT Manager
Option D:	The data communications manager functions and telecommunication manger functions have been merged to be managed by the IT manager
2.	What is trouble ticket administration?
Option A:	Trouble ticket administration is the integral part of Installation and maintenance group.
Option B:	Trouble ticket administration is a part of provisioning management.
Option C:	Trouble ticket administration is the administrative part of fault management and is used to track problems in the network.
Option D:	Trouble ticket administration is a part of configuration management.
3.	In absence of a sophisticated NMS, what are the methods used for Management in an organization.
Option A:	Reactively, not proactively • Troubleshooting tools eg., sniffer, ping etc.
Option B:	Proactively, not reactively • Troubleshooting tools eg., Cacti, Nagios etc.
Option C:	Proactively, not reactively • Troubleshooting tools eg. EmpMonitor
Option D:	Reactively, not proactively • Troubleshooting tools eg. Fiddler
4.	Select some common network problems (select the most relevant One).
Option A:	Power hits, Traffic Overload, Network Interface Problem, Network connectivity Problem
Option B:	Capturing packets, Router Management, Denial of Service, Customer ignorance
Option C:	Framing of packets, bit synchronization, clock timings, non-payment of bills
Option D:	Clock settings, Switching Delay, ignorance of the technology, firefighting
5.	What is the goal of network management
Option A:	The goal of network management is to ensure that the users of the network are

	provided IT services with a quality of service that they expect
Option B:	The goal of network management is to ensure that the users of the network are provided computer services.
Option C:	The goal of network management is to ensure that the users of the network are provided IT services
Option D:	The goal of network management is to ensure that the providers of the network are provided IT services with a quality of service that they provide.
6.	What is FCAPS?
Option A:	Fault Management, Complex Management, Accounting Management, Provisioning Management, System Management
Option B:	Filter Management, Console Management, Audit Management, Plagiarism Management, System Management
Option C:	Fault Management, Console Management, Audit Management, Provisioning Management, Social Management
Option D:	Fault Management, Configuration Management, Accounting Management, Provisioning Management, Security Management
7.	Select the TLV encoding of OCTET STRING "Hello World."
Option A:	02 0C 48 65 6C 6C 6F 20 57 6F 72 6C 64 2F
Option B:	04 1C 48 65 6C 6C 6F 20 57 6F 72 6C 64 2E
Option C:	04 0C 48 65 6C 6C 6F 20 57 6F 72 6C 64 2E
Option D:	04 0C 48 65 6C 6C 6F 20 57 6F 72 6C 64
8.	What are the three important services of SNMPv3 security model
Option A:	gatekeeper, locker and one to one billing
Option B:	isolation, TT management, and using gateways instead of routers
Option C:	separating telecommunication and computer networks, password sharing, small size of data transfer
Option D:	authentication, privacy, and access control
9.	SNMP version 3 uses which security model?
Option A:	View-based Security Model (VSM) for message trespassing and the View-based Access Control Model (VACM) for access control.
Option B:	User-based Security Model (USM) for message security and the View-based Access Control Model (VACM) for access control.
Option C:	User-based Security Model (USM) for access control and the View-based Access Control Model (VACM) for message security.
Option D:	View-based Security Model (VSM) for message security and the User-based Access Control Model (UACM) for access control.
10.	In TMN terminology, the switching systems, circuits, terminals, etc., which comprise a telecommunications network, are known as
Option A:	Operations support systems (OSS)
Option B:	Network Elements (NEs)
Option C:	Mediation devices (MDs)

Option D:	Q Adapter (QA)
11.	Who developed TMN standards?
Option A:	OSI is the standards body that has developed TMN standards
Option B:	IEEE is the standards body that has developed TMN standards
Option C:	ATM is the standards body that has developed TMN standards
Option D:	ITU-T is the standards body that has developed TMN standards
12.	What is eTOM?
Option A:	eTOM is the IEEE forum that deals with wireless technology.
Option B:	eTOM is electronic Telecommunication.
Option C:	The Tele Management Forum (TM Forum) is a body whose mission is to align technology with real business, and thus is the next sequential step in the process of TMN implementation
Option D:	eTOM is the broadband and SNMP management put together for enhanced services.
13.	In TMN functional architecture what is the function of WSF?
Option A:	The TNM WSF provides interface between two devices of different vendors.
Option B:	The TMN WSF provides an interface between human personnel and TMN activities
Option C:	The TMN WSF provides interface between two data communication networks
Option D:	The TMN WSF provides interface between data communication network and workstation
14.	The TMN information model has been used in specific technology such as _____ and _____.
Option A:	ATM and SDH/ SONET
Option B:	OSI and Mobile
Option C:	SNMP and broadband network
Option D:	IEEE and Satellite
15.	A reactive fault management system is responsible for:
Option A:	Detecting, isolating, correcting, root cause analysis
Option B:	repair, change, replace, audit
Option C:	debug, encode, decode, configure
Option D:	conceals the fault, migrate to new technology, communicate the error, change parameter settings
16.	In Network Management System, a term that responsible for controlling access to network based on predefined policy is called
Option A:	Fault Management
Option B:	secured Management
Option C:	active management
Option D:	security management

17.	Operations, Engineering and planning, Network provisioning, Inventory management are a part of _____ Management.
Option A:	Performance
Option B:	Configuration
Option C:	Security
Option D:	Audit
18.	What do you mean by LANE?
Option A:	LAN Ethernet to designate a local area network using Ethernet technology.
Option B:	LAN Emulation to allow interfacing between ATM network and traditional LAN
Option C:	LAN Emulation to allow interfacing between TCP/IP network and traditional LAN
Option D:	LAN Emulation to allow interfacing between TCP/IP network and traditional OSI.
19.	ISDN stands for:
Option A:	Integrated Service Digital Network
Option B:	Interaction System Digital Network
Option C:	Inexpensive System Digital Network
Option D:	Integrated Service Dual Network
20.	Broad Band Management is based on which technologies?
Option A:	It is based on MPLS and ATM LAN technology and broadband access technology
Option B:	It is based on MAN and ATM technology and broadband access technology
Option C:	It is based on MPLS and ATM WAN technology and broadband access technology
Option D:	It is based on TCP/IP and ATM WAN technology and narrowband access technology

Q2	Solve any two out of three	10 marks each
A	Explain SNMP organizational model	
B	Explain OSI network management Model	
C	Explain in details ATM LAN emulation.	
Q3	Solve any two out of three	10 marks each
A	Explain TLV encoding structure. How to define INTEGER 14 using TLV coding. Use both binary representation and hexadecimal representation.	
B	With respect to ISO/OSI network management: Describe following terms:	

	i) Scoping and Filtering, ii) Linked Replies, iii) GDMO, iv) ACSE and ROSE
C	Explain FCAPS in Network Management.

University of Mumbai

Examination 2020 under cluster _05_ (Lead College: A P Shah)

Examinations Commencing from 23rd December 2020 to 6th January 2021 and from 7th January 2021 to 20th January 2021

Program: Electronics and Telecommunication Engineering
Curriculum Scheme: Rev2016

Examination: BE

Semester: VIII

Course Code: EEC DLO8041

Course Name: Optical Network

Time: 2 hour

Max. Marks: 80

Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	Which is the most popular & efficient type of optical amplifier?
Option A:	Erbium doped fiber amplifier
Option B:	Raman amplifier
Option C:	Semiconductor optical amplifier
Option D:	Pre-amplifier
2.	By using optical, N (many) light pulses of different wavelengths are combined to form a composite signal.
Option A:	Filter
Option B:	Switches
Option C:	Amplifier
Option D:	Multiplexer
3.	An optical is a Multiport, Non reciprocal passive component.
Option A:	Isolator
Option B:	Circular
Option C:	Coupler
Option D:	Amplifier
4.	A..... Portion of the network between STS MUX & STS DEMUX.
Option A:	Section
Option B:	Line
Option C:	Path
Option D:	LTE
5.	STS-1 in SONET has Rate in (Mbps)
Option A:	51.84
Option B:	155.520
Option C:	466.560
Option D:	622.080
6.	STS -3 in SONET is equal to.....in SDH.
Option A:	STM-6
Option B:	STM-4
Option C:	STM-3
Option D:	STM-1

7.	Hybrid fiber-coaxial (HFC) used for broadband network contains.....
Option A:	Fiber cable
Option B:	Coaxial cable
Option C:	Fiber cable & Coaxial cable
Option D:	Two wire cable
8.	Star band is a broadband internet service provider (ISP) that provides.....
Option A:	FTTH internet access
Option B:	Cable access
Option C:	Telephone access
Option D:	Satellite access
9.can provide users with better throughput, faster single channel access for high data rate end users.
Option A:	OTDM
Option B:	OTDR
Option C:	OFDM
Option D:	OSDM
10.	The routing and wavelength assignment problem addresses the core issue of
Option A:	Traffic patterns in a network
Option B:	Wavelength adjustment
Option C:	Wavelength continuity constraint
Option D:	Design problem
11.	Impairment Aware – Routing & Wavelength Assignment (IA-RWA) is based onlayer impairment
Option A:	Physical
Option B:	Network
Option C:	Transport
Option D:	Data link
12.	Which routing is NOT used for optical networks?
Option A:	Fixed routing
Option B:	Fixed alternate routing
Option C:	Adaptive routing
Option D:	Default routing
13.	Which is NOT the wavelength Assignment Scheme in WDM optical networks?
Option A:	Least Used (LU)
Option B:	Random(R)
Option C:	Most Used (MU)
Option D:	First Fit (FF)
14.	“A router or ATM switch can connect into a dense wavelength division multiplexing (DWDM) transport network by mapping packets or cells directly onto a wavelength without the intervening use of a SONET or SDH TDM” is known as
Option A:	Core optical network

Option B:	Access optical network
Option C:	Metro optical network
Option D:	Clad optical network
15.	Optical link design model having Transmitter & receiver, Multiplexer & demultiplexer, Power line & pre amplifier is known as.....
Option A:	Transmission system model
Option B:	Transmitter model
Option C:	Receiver model
Option D:	Trans receiver model
16.	Which network is having high capacity optical fiber links between cities & Major hubs (data centres), distances between nodes: 1000-10000Km.
Option A:	Core optical network
Option B:	Access optical network
Option C:	Metro optical network
Option D:	Wireless network
17.	Select the wrong pair with respective to evolution of optical networks
Option A:	First Generation...point to point capacity expansion
Option B:	Second Generation.....Static linear / Ring
Option C:	Third Generation.....Improvement in fiber fabrication techniques
Option D:	Fourth Generation....Hybrid optical packet/circuit switching
18.	How many stages are possessed by the control plane?
Option A:	Two
Option B:	Three
Option C:	Four
Option D:	Five
19.	A is a series of logical connections between the source and destination nodes?
Option A:	Cell circuit
Option B:	Attenuation circuit
Option C:	Virtual circuit
Option D:	Switched network
20.	Fault detection mechanisms in optical networks depend ongenerated by different types of network monitoring equipment in response to unexpected events.
Option A:	Alarm
Option B:	Signal
Option C:	Path
Option D:	Value

Q2	Solve any Two Questions out of Three	10 marks each
A	What is optical coupler? With the help of suitable structure explain its working principle. What are its performance parameters?	
B	Draw Architecture of SONET/SDH and explain in brief	
C	What is OTDM? With the help of suitable block diagram explain its working principle	

Q3	Solve any Two Questions out of Three	10 marks each
A	Discuss the concepts of Routing and wavelength assignment with neat diagram.	
B	Short notes on: i) FTTC & FTTH ii) WDM Network	
C	Discuss Performance management and fault management in optical network	

University of Mumbai
Examination 2020 under cluster __ (Lead College: A. P. Shah Institute of
Technology (APSIT))

Examinations Commencing from 23rd December 2020 to 6th January 2021 and from 7th January 2021
to 20th January 2021

Program: Electronics and Telecommunication Engineering

Curriculum Scheme: Rev 2016

Examination: BE Semester VIII

Course Code: ECCDLO8042 and Course Name: Advance Digital Signal Processing

Time: 2 hour

Max. Marks: 80

Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	A signal $x(n)$ is down sampled by a factor M. The output $y(n)$ of the down sampler is given as
Option A:	$Mx(n)$
Option B:	$\frac{1}{M}x(n)$
Option C:	$\frac{1}{M}x\left(\frac{n}{M}\right)$
Option D:	$x(Mn)$
2.	The output produced by innovation process is
Option A:	random noise
Option B:	white noise
Option C:	red noise
Option D:	pink noise
3.	The estimate of power spectrum of random process is called,
Option A:	Periodogram
Option B:	Energy spectrum
Option C:	power spectrum
Option D:	variance
4.	The LMS algorithm uses _____ method for searching optimum $h(n)$
Option A:	Gauss elimination
Option B:	Newton Raphson method
Option C:	Levinson Durbin algorithm
Option D:	Steepest Decent algorithm
5.	The real value morlet wavelet is given as
Option A:	$\psi(t) = e^{-t^2} \cos\left(\pi \sqrt{\frac{2}{\ln(2)}} t\right)$
Option B:	$\psi(t) = e^{-t^2} \cos\left(\pi \sqrt{\frac{1}{\ln(2)}} t\right)$
Option C:	$\psi(t) = e^{-t^2} \cos\left(\pi \sqrt{\frac{2}{\log(2)}} t\right)$
Option D:	$\psi(t) = e^{-t^1} \cos\left(\pi \sqrt{\frac{2}{\ln(2)}} t\right)$

6.	Levinson-Durbin algorithm uses _____ structure of correlation matrix for efficient calculations
Option A:	Toeplitz
Option B:	diagonal
Option C:	Complex
Option D:	upper triangular
7.	Consider a difference equation $x(n) = -\sum_{k=1}^p a_k x(n-k) + w(n) + \sum_{k=1}^q b_k w(n-k)$
Option A:	MA model
Option B:	AR model
Option C:	ARMA model
Option D:	AZ model
8.	In a DSP based heart rate monitoring machine the heart beat count is calculated based on
Option A:	R-R peaks
Option B:	Q-Q peaks
Option C:	S-S peaks
Option D:	T-T peaks
9.	The RLS algorithm obtained from an LDU decomposition are called as,
Option A:	square-root RLS algorithm
Option B:	cube-root RLS algorithm
Option C:	Fast RLS algorithm
Option D:	Kalman filtering
10.	The relation between spectrum of the original signal ω_x and ω_y in decimation is
Option A:	$\omega_y = D\omega_x$
Option B:	$\omega_y = \frac{\omega_x}{D}$
Option C:	$\omega_y = \frac{D}{\omega_x}$
Option D:	$\omega_y = \frac{\omega_x}{I}$
11.	Which type of optimal window provides good time frequency resolution in Gabor Transform?
Option A:	Gaussian
Option B:	Haar
Option C:	B Spline
Option D:	Hanning
12.	Let $e(n)$ be the estimation error and $x(n)$ be the filter input signal. The orthogonality principle is
Option A:	$E [e(n) e(n-k)] = 0$
Option B:	$E [x(n) x(n-k)] = 0$
Option C:	$E [e^2(n)] = 0$
Option D:	$E [e(n) x(n-k)] = 0$
13.	The Kalman gain vector is given as,

Option A:	$K_M(n) = \frac{1}{w+\mu_M(n)} P_M(n+1)X_M^*(n)$
Option B:	$K_M(n) = \frac{1}{w-\mu_M(n)} P_M(n-1)X_M^*(n)$
Option C:	$K_M(n) = \frac{1}{w+\mu_M(n)} P_M(n-1)X_M^*(n)$
Option D:	$K_M(n) = \frac{1}{w} P_M(n-1)X_M^*(n)$
14.	If $X(e^{j\omega})$ and $Y(e^{j\omega})$ are input and output spectrum of an interpolator then,
Option A:	$Y(e^{j\omega}) = IX(e^{j\omega l})$
Option B:	$Y(e^{j\omega}) = IX(e^{j\omega/l})$
Option C:	$Y(e^{j\omega}) = X(e^{j\omega l})$
Option D:	$Y(e^{j\omega}) = X(e^{j\omega/l})$
15.	The Minimum variance spectral estimates yields estimates of the spectral peaks proportional to
Option A:	Square of the power at the frequency
Option B:	the power at that frequency
Option C:	cube of the power at that frequency
Option D:	square root of the power at that frequency
16.	Full form of ECG is _____ and it represents electrical activity _____
Option A:	Electrocardiogram, Human Brain
Option B:	Electrocardiogram, Human heart
Option C:	Electroencephalogram, Human Brain
Option D:	Electroencephalogram, Human heart
17.	The MSE of direct-form RLS algorithm is
Option A:	$\xi_{M \min} = \sum_{l=0}^n w^{n-l} d(l) ^2 - h_M^t(n) D_M^*(n)$
Option B:	$\xi_{M \min} = \sum_{l=0}^n w^{n-l} d(l) ^2 + h_M^t(n) D_M^*(n)$
Option C:	$\xi_{M \min} = \sum_{l=0}^n w^{n+l} d(l) ^2 - h_M^t(n) D_M^*(n)$
Option D:	$\xi_{M \min} = \sum_{l=0}^{n-1} w^{n-l} d(l) ^2 - h_M^t(n) D_M^*(n)$
18.	The polyphaser decomposition of $H(z)$ into L sections can be represented by the equation,
Option A:	$H(z) = \sum_{m=1}^L z^{-m} E_m(z^L)$
Option B:	$H(z) = \sum_{m=0}^{L-1} z^{-m} E_m(z^L)$
Option C:	$H(z) = \sum_{m=1}^L z^m E_m(z^L)$
Option D:	$H(z) = \sum_{m=1}^{L-1} z^{-m} E_m(z^L)$
19.	The MMSE of non-causal wiener filtering is,
Option A:	$\frac{1}{2\pi j} \oint [\Gamma_{dd}(z) - H_{opt}(z) \Gamma_{dx}(z^{-1})] z^{-1} dz$
Option B:	$\frac{1}{2\pi j} \oint [\Gamma_{dd}(z) + H_{opt}(z) \Gamma_{dx}(z^{-1})] z^{-1} dz$
Option C:	$\frac{1}{2\pi j} \oint [\Gamma_{dd}(z) - H_{opt}(z) \Gamma_{dx}(z^{-1})] dz$
Option D:	$\frac{1}{2\pi j} \oint [\Gamma_{dd}(z) - H_{opt}(z^{-1}) \Gamma_{dx}(z^{-1})] z^{-1} dz$
20.	Quality factor of Bartlett power spectrum estimate is
Option A:	1.1NΔf

Option B:	$1.39N\Delta f$
Option C:	$2.34N\Delta f$
Option D:	$1.15N\Delta f$

Q2	Solve any Two Questions out of Three	10 marks each
A	Derive and Explain Yule Walker method for AR model parameter	
B	Derive the mathematical expressions and explain how the smoothing the Periodogram using Blackman Tukey method	
C	Explain application of Wavelet theory in Speckle Removing and Signal compression	

Q3.	Solve any Two Questions out of Three	10 marks each
A	Draw neat sketches and explain with block diagram detection of fetal heartbeats during labour.	
B	Derive the frequency relation of Interpolation process and find the filter magnitude response.	
C	Derive the expression for Widrow Hoff LMS Algorithm.	

University of Mumbai

Examination 2020 under cluster 5 (Lead College: APSIT, Thane)

Examinations Commencing from 23rd December 2020 to 6th January 2021 and from 7th January 2021 to 20th January 2021

Program: Electronics and Telecommunications Engineering

Curriculum Scheme: Rev2016

Examination: BE Semester: VIII

Course Code: ECCDLO8043 and Course Name: SATCOM

Time: 2 hour

Max. Marks: 80

Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	The time period taken by the satellite to complete one orbit is called as -----
Option A:	Synodic period
Option B:	Lapsed time
Option C:	Sidereal period
Option D:	Sidereal Day
2.	The relative velocity of a geostationary satellite with respect to spinning motion of the earth is
Option A:	0m/s
Option B:	12m/s
Option C:	6m/s
Option D:	14m/s
3.	The angle from perigee to the satellite position, measured at the earth's center is called as-----
Option A:	Argument of perigee
Option B:	True anomaly
Option C:	Ascending node
Option D:	Descending node
4.	Which of the following is not a part of the propulsion subsystem of a satellite?
Option A:	Gyroscope
Option B:	Jet thruster
Option C:	AKM
Option D:	Fuel control system
5.	Which part of the transmitter subsystem modulates the baseband signal?
Option A:	Antenna
Option B:	Up converter
Option C:	Power amplifiers
Option D:	Mixer
6.	What is the reason for shifting from c band to ku band in satellite communication?
Option A:	Lesser attenuation

Option B:	Less power requirements
Option C:	More bandwidth
Option D:	Overcrowding
7.	Which of the following components receives, translates the signal frequency and re-transmits the signal in a satellite?
Option A:	Repeater
Option B:	Relay
Option C:	Transponder
Option D:	Transducer
8.	What does CATV stands for _____.
Option A:	Carrier Angular TV
Option B:	Cost amplitude TV
Option C:	Carrier amplitude TV
Option D:	Community antenna TV
9.	The C/N at the receiver depends on
Option A:	The C/N of the uplink
Option B:	The C/N of the downlink
Option C:	The C/N of both the uplink and downlink
Option D:	Input power at the receiver
10.	The losses for clear-sky conditions are given by -----equation
Option A:	[LOSSES] =[FSL] +[RFL] -[AML]
Option B:	[LOSSES] =[FSL] +[RFL] +[AML]
Option C:	[LOSSES] =[FSL] +[RFL] +[AML] +[AA] +[PL]
Option D:	[LOSSES] =[FSL] +[AA] +[PL]
11.	For a satellite circuit the individual link carrier-to-noise spectral density ratios are: uplink 100 dBHz; downlink 87 dBHz. Calculate the combined (C/N0) ratio.
Option A:	86.79 dB
Option B:	86.79 dBHz
Option C:	6.79 dBHz
Option D:	8.679 dBHz
12.	If the LNA has a noise figure of 3dB and gain of 10 it means that
Option A:	LNA amplifies the input noise by factor of two
Option B:	The signal power at the input is twice the noise power
Option C:	LNA adds same amount of noise power as ten times the noise at the input
Option D:	Ratio of output SNR to input SNR is two
13.	Free space loss varies:
Option A:	With distance from the source
Option B:	With square of the distance from earth
Option C:	Inversely with the square of the distance
Option D:	Directly with the square of the distance and square of frequency

14.	The figure of merit for an earth station is-----ratio
Option A:	C/N
Option B:	S/N
Option C:	C/N0
Option D:	G/T
15.	----- of TDMA system is a measure of the percentage of transmitted data that contains information as opposed to providing overhead for the access scheme.
Option A:	Figure of merit
Option B:	Efficiency
Option C:	Carrier to noise ratio
Option D:	Signal to noise ratio
16.	Preamble contains -----
Option A:	Address bits
Option B:	Data bits
Option C:	Guard bits
Option D:	Trail bits
17.	----- is necessary to prevent the bursts from overlapping.
Option A:	Preamble
Option B:	Guard time
Option C:	Frame efficiency
Option D:	Decoding quenching
18.	There are two primary classifications of communications satellite; one uses the angular momentum of its spinning body to provide roll and yaw relative to earth's surface while an internal subsystem provides roll and yaw stabilization. What are they?
Option A:	Gyroscopic satellites
Option B:	Delayed repeater satellites
Option C:	Passive and active satellites
Option D:	Spinners and three-axis stabilizer satellites
19.	Most VSAT systems operate in the -----, although there are some C-band systems in existence.
Option A:	Ka band
Option B:	Ku band
Option C:	L- band
Option D:	S- band
20.	The intentional degradation of GPS signal in specific areas is called _-----
Option A:	Selective availability
Option B:	Distributed GPD
Option C:	Selective degradation
Option D:	Signal jamming

Q2	
A	Solve any Two 5 marks each
i.	Why the 'Earth sensors' are not used for sensing the 'Yaw' axis in GEO satellites?
ii.	Explain what kind of antenna used for tracking and command signal transmission during transfer orbit.
iii.	Explain roll of LNA and HPA in satellite communication.
B	Solve any One 10 marks each
i.	Explain in short different losses in satellite communication link. A Geostationary satellite transmits 5 W of power with an antenna having gain=28db. The downlink is operated at 4 GHz and receiver antenna is a dish with diameter of 3.6 m. Compute the EIRP transmitted and the power received by the receiving station. Assume the receive antenna efficiency=0.7, and the overall losses= 2db.
ii.	Explain TDMA frame structure and efficiency with all parameters.

Q3.	
A	Solve any Two 5 marks each
i.	Calculate over all C/N Ratio for satellite if [C/N], uplink = 25db & [C/N], downlink = 20db Inter modulation Noise =12db.
ii.	Compare centralized and distributed control of demand assignment.
iii.	Write a short note on VSAT
B	Solve any One 10 marks each
i.	Explain design consideration of Earth station.
ii.	Explain TT & C subsystem. Explain role of multi tone frequency in tracking.