

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: BESemester: VIII

Course Code: ILO8029 and Course Name: Environmental 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.	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 KJSIEIT

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

Program: **Civil Engineering**

Curriculum Scheme: Rev 2016

Examination: BE Semester VIII

Course Code: **CE-C801** Course Name: Design and Drawing of Reinforced Concrete Structures

Time: 2 hour

Max. Marks: 80

Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks (40 marks)
1.	If the ratio of long span to short span of the slab is greater than two then this slab is called as
Option A:	Two way slab
Option B:	One way slab
Option C:	Cantilever slab
Option D:	Continuous slab
2.	In case of singly reinforced beam if X_u / d is equal to the limiting value $X_{u \max} / d$ then the section is
Option A:	Over reinforced section
Option B:	Under reinforced section
Option C:	Balanced section
Option D:	Neutral section
3.	If area of main steel used in slab is 187.33 mm^2 . What is the spacing of 8 mm diameter bar if effective depth of slab is 143 mm
Option A:	350 mm
Option B:	267 mm
Option C:	415 mm
Option D:	518 mm
4.	What is the moment of resistance of singly reinforced concrete beam of 200 mm width and 400 mm effective depth. Take M20 concrete and Fe415 steel. Let $X_{u \max} / d = 0.479$
Option A:	59.26 KNm
Option B:	53.56 KNm
Option C:	75.21 KNm
Option D:	88.37 KNm
5.	Horizontal upper portion of a step in staircase is called
Option A:	Riser
Option B:	Landing
Option C:	Tread
Option D:	Flight

6.	If number of risers used in stair case are 12 in each flight, then number of treads in each flight are equal to
Option A:	13
Option B:	11
Option C:	10
Option D:	9
7.	Minimum percentage of distribution steel used in stair case is ----- of gross cross sectional area of waist slab
Option A:	0.15%
Option B:	0.20%
Option C:	0.30%
Option D:	0.12%
8.	What is the area of distribution steel per meter width of stair case, if thickness of waist slab is 220 mm
Option A:	225 mm ²
Option B:	320 mm ²
Option C:	264 mm ²
Option D:	210 mm ²
9.	Toe slab is a part of
Option A:	Retaining wall
Option B:	Water tank
Option C:	Stair case
Option D:	Flat slab
10.	Counter fort retaining wall is designed when height of wall is above
Option A:	3 m
Option B:	9 m
Option C:	4 m
Option D:	6 m
11.	A cantilever retaining wall has width of base slab 3 m. Distance of point of application of resultant force from the heel end is 1.813 m. Therefore, its eccentricity is
Option A:	0.6 m
Option B:	0.51 m
Option C:	0.313 m
Option D:	0.78 m
12.	Which I.S code is used for design of water tank
Option A:	IS 875
Option B:	IS 800
Option C:	SP 16
Option D:	IS 3370
13.	Which type of joint in water tank is provided to serve as a continuity between

	first cast concrete and second cast concrete
Option A:	Rigid joint
Option B:	Vertical joint
Option C:	Roof slab joint
Option D:	Horizontal contraction joint
14.	What is the area of vertical distribution steel of a circular tank by IS code method if thickness of wall is 170 mm.
Option A:	510 mm ²
Option B:	620 mm ²
Option C:	850 mm ²
Option D:	763 mm ²
15.	Lap splices shall not be provided at
Option A:	Within a joint
Option B:	At mid span
Option C:	Long span
Option D:	Within a distance of 5d from the face of joint
16.	The capacity of structure or its member is the capacity to undergo large in-elastic deformations without significant loss of strength or stiffness is called
Option A:	Response
Option B:	Ductility
Option C:	Importance factor
Option D:	Durability
17.	When column terminate into a footing or mat special confining reinforcement shall extend at least ----- mm into the footing or mat
Option A:	110 mm
Option B:	300 mm
Option C:	200 mm
Option D:	500 mm
18.	A method of pre stressing concrete in which the tendons are tensioned before the concrete is placed is called
Option A:	Pre tensioning
Option B:	Post tensioning
Option C:	Tendon
Option D:	Debonding
19.	The grade of concrete for pre stressed member should be in the range of
Option A:	M-20 to M-30
Option B:	M-80 to M-100
Option C:	M-30 to M-60
Option D:	M-15 to M-30
20.	Loss of stress due to elastic deformation of concrete depends upon
Option A:	Relaxation of steel
Option B:	Friction and anchorage slip

Option C:	Modular ratio
Option D:	Shrinkage of concrete

Q2	Solve any One (20 Marks)
A	Design a 4 m x 6 m interior panel of a two way continuous slab for a live load of 3000 N/m ² . Use M20 concrete and Fe415 steel.
B	Design a reinforced concrete cantilever type retaining wall having 5 m tall stem. The wall retains soil level with its top. The soil weighs 18000 N/m ³ and has an angle of repose 30°. The safe bearing capacity of the soil is 200 KN/m ² . Use M20 concrete and Fe415 steel.
Q3	Solve any two (20 Marks)
A	Design the part of an open well stair case the steps of flight AB have 150 mm bearing on the wall. The flight AB has a going of 1.5 m and landing slab of 1.5 m on either side of going. Thickness of the wall is 400 mm and width of steps is 1.5 m. Determine the loading on the flight AB if rise is 150 mm and tread is 250 mm. Adopt M20 concrete and Fe415 steel. Live load = 3 KN/m ² .
B	Design a circular water tank 12 m diameter and 4 m high by I. S. Code method. The tank rest on firm ground. The wall of tanks is restrained at the base. Use M20 concrete and Fe250 steel.
C	Write short note on
i	Factors affecting ductility
ii	Freyssinet system of post tensioning

University of Mumbai

Examination 2020 under cluster : KJSIEIT

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

Program: BE Civil Engineering

Curriculum Scheme: **Rev2016**

Examination: BE Semester VIII

Course Code: CEC 802

Course Name: **Construction 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.	Quality management is performed in _____ phase
Option A:	Initiation
Option B:	Planning
Option C:	Execution
Option D:	Closure
2.	During the construction period, price variation clause in contracts caters to
Option A:	Increase in rates of only important materials
Option B:	Variation in cost in materials element, labour element and petrol-oil-lubricant element
Option C:	Variation in total cost of the project on an ad hoc basis
Option D:	Rate of inflation
3.	The feasibility study is carried out in _____ phase of project life cycle.
Option A:	Planning
Option B:	Organizing
Option C:	Initiation
Option D:	Closure

4.	Which management principle state that orders and instructions should flow down from top to bottom or higher level manager to lower one?
Option A:	Division of work
Option B:	Scalar Chain
Option C:	Unity of direction
Option D:	Unity of command
5.	Which management function involves setting goals & objectives and creating specific plans for completing them?
Option A:	Planning
Option B:	Organizing
Option C:	Controlling
Option D:	Leading
6.	The shortest possible time in which an activity can be achieved under ideal circumstances is known as _____
Option A:	Pessimistic time estimate
Option B:	Optimistic time estimate
Option C:	Expected time estimate
Option D:	The most likely time estimate
7.	The difference between the maximum time available and the actual time needed to perform an activity is known as _____
Option A:	Free float
Option B:	Independent float
Option C:	Total float
Option D:	Half float
8.	If t_o , t_p and t_m are the optimistic, pessimistic and most likely time estimates of an activity respectively, the expected time t of the activity will be
Option A:	$\frac{t_o + 3t_m + t_p}{2}$
Option B:	$\frac{t_o + 3t_m + t_p}{3}$
Option C:	$\frac{t_o + 4t_m + t_p}{4}$
Option D:	$\frac{t_o + 4t_m + t_p}{6}$
9.	An expected project completion time follows a normal distribution with a mean of 21 days and a standard deviation of 4 days. What is the probability that the

	project will be completed in a time between 22 to 25 days inclusive?
Option A:	0.0819
Option B:	0.7734
Option C:	0.8413
Option D:	0.2436
10.	The order cost per order of an inventory is Rs. 400 with an annual carrying cost of Rs. 10 per unit. The Economic Order Quantity (EOQ) for an annual demand of 2000 units is -----
Option A:	400
Option B:	440
Option C:	480
Option D:	500
11.	What are the factors responsible for the growth of HRM?
Option A:	Development of scientific management and awakened sense of social responsibility.
Option B:	The problem of how the available human resource could effectively minimize the cost and maximize the production.
Option C:	Overall development of an individual, in correspondence to achieve the goal the organization.
Option D:	Technical factors, awakening amongst workers, attitude of the government, cultural and social system.
12.	Approaches the even out the peaks of resource requirements so that a fixed amount of resources can be employed over time, is known as;
Option A:	Resource Management
Option B:	Resource levelling
Option C:	Resource prioritizing
Option D:	Resource generation
13.	ABC analysis is based upon the principle that
Option A:	There are usually a few critical items, and many items which are less critical
Option B:	The safety stock in terms of volume should be higher for A items than for C items.
Option C:	An item is critical if its usage is high
Option D:	All items in inventory must be monitored very closely
14.	In the time-cost optimization, using CPM method for network analysis, the crashing of the activities along the critical path is done starting with the activity having
Option A:	Longest duration
Option B:	Shortest duration
Option C:	Least cost slope
Option D:	Highest cost slope
15.	The CPM network is updated

Option A:	At regular intervals
Option B:	At any time
Option C:	At fixed times
Option D:	Whenever there is a difference in the planed and actual performance
16.	The optimum duration is the -----
Option A:	The summation of normal duration of each activity in the project
Option B:	The summation of normal duration of activities on critical path
Option C:	One which gives the minimum total cost for completing the project
Option D:	Summation of crash time of activities on critical path
17.	Ensuring the safety, health and welfare of the employees is the primary purpose of the
Option A:	Factories Act, 1948
Option B:	Industrial disputes Act, 1947
Option C:	Equal remuneration Act, 1976
Option D:	Payment of wedges Act, 1936
18.	The legislation in construction industry is necessary for -----
Option A:	Social benefits
Option B:	Providing mental stability
Option C:	Quality control
Option D:	Fixing the terms of employment and working conditions
19.	Which of the following involves redesigning of equipment, machinery and material for the safe performance of the jobs?
Option A:	Safety engineering
Option B:	Safety committee
Option C:	Safety training
Option D:	Safety campaigns
20.	_____ includes changing in designs or modifications in structures and equipments to reduce hazards on construction sites.
Option A:	Administrative controls
Option B:	Personal Protective Equipment
Option C:	Engineering controls
Option D:	Elimination

Q2	Solve any Four out of Six	5 marks each
A	Explain in detail the contribution made by Henry Fayol in the evolution of management thought.	
B	Explain the roles of various agencies involved in any construction project.	
C	Write a note on feasibility studies for a construction project.	
D	Explain in short Work Breakdown Structure.	
E	Explain the stages of planning of a construction project by contractor and owner.	
F	Explain the need and purpose of human resource management in construction sector.	

Q3	Solve any Four out of Six	5 marks each
A	What do you understand by A-B-C analysis?	
B	What do you understand by updating? What are the stages of updating? How will you determine frequency of updating?	
C	What is time overrun and cost overrun? What are the method to avoid them?	
D	What do you understand by OSHA?	
E	Write a short note on occupational health hazards in the construction industry.	
F	What is Quality control? Explain the role of inspection in quality control.	

University of Mumbai

Examination 2020 under cluster : KJSIEIT

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

Program: **Civil Engineering**
Curriculum Scheme: Rev. 2016
Examination: BE Semester VIII

Course Code: CE- DLO8O32

Course Name: Industrial Waste Treatment

Time: 2 hours

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 not correct with respect to the effect of oil on treatment systems?
Option A:	Foam formation
Option B:	Toxic to anaerobic bacteria
Option C:	Interferes with settling
Option D:	Explosive with pure oxygen
2.	Which of the following represents the amount of oxygen required for the microbial decomposition of the organic matter in river water?
Option A:	Biochemical oxygen demand
Option B:	Total suspended solids
Option C:	Chemical oxygen demand
Option D:	Total Kjeldahl nitrogen
3.	The primary objective of stream standards is
Option A:	To protect and preserve each stream for its best usage on an equitable basis for both upstream & downstream uses.
Option B:	To treat stream water
Option C:	To control the following stream standard system
Option D:	To establish the stream classification
4.	What is the population equivalent of a city having average sewage flow of 80×10^6 litres / day , domestic sewage quantity is 0.08kg/capita/day and average 5 day BOD is 240 mg/l.
Option A:	210000 persons
Option B:	250000 persons
Option C:	240000 persons
Option D:	200000 persons
5.	Which samples provide a more representative sample of the characteristics of the industrial wastewater for a longer period of time?
Option A:	Grab Sample

Option B:	Composite Sample
Option C:	Catch Sample
Option D:	Automatic Sample
6.	Treatability studies does not involve_____
Option A:	Determining whether the waste is amendable to the treatment process
Option B:	Finding which pretreatment is required
Option C:	Determination of optimal process conditions needed to achieve the desired treatment
Option D:	Disposal of waste
7.	Good housekeeping in any industry can
Option A:	Reduce productivity
Option B:	Increase fatigue rate
Option C:	Increase maintenance and operation cost
Option D:	Reduce volume and strength of Industrial waste
8.	If the BOD ₃ of a wastewater sample is 75 mg/L and reaction rate constant k (base e) is 0.345 per day, the amount of BOD remaining in the given sample after 10 days is
Option A:	3.2 mg/L
Option B:	3. 7mg/L
Option C:	3.9 mg/L
Option D:	3.5 mg/L
9.	The most economical method for neutralization of alkaline waste is
Option A:	Producing Carbon-dioxide in Alkaline Wastes
Option B:	Using Waste-Boiler-Flue Gas
Option C:	Sulfuric-Acid Treatment for Alkaline Wastes
Option D:	Carbon - Dioxide Treatment for Alkaline Wastes
10.	When the deoxygenation rate exceeds the reoxygenation rate, the oxygen sag curve shows _____ in a deficit of oxygen.
Option A:	Increase
Option B:	Decrease
Option C:	Constant
Option D:	Same
11.	Colour and odour of the industrial waste water is removed by the process
Option A:	Adsorption
Option B:	Coagulation
Option C:	Filtration
Option D:	Sedimentation
12.	The sludge treatment process, where sludge is treated with chemicals, is known as
Option A:	Dewatering

Option B:	Thickening
Option C:	Conditioning
Option D:	Drying
13.	The ultimate BOD for a waste water having 5-day BOD at 20° C as 158 ppm and deoxygenation rate constant as 0.2 per day is _____
Option A:	$L_0=200$ ppm
Option B:	$L_0=313$ ppm
Option C:	$L_0=212$ ppm
Option D:	$L_0=300$ ppm
14.	The discharge of industrial wastes in proportion to the flow of municipal sewage in the sewers or to the stream flow in the receiving river is known as
Option A:	Equalization
Option B:	Neutralization
Option C:	Proportioning
Option D:	Self Purification
15.	Which toxic heavy metal is found in Tannery Industry waste water
Option A:	zinc
Option B:	aluminum
Option C:	copper
Option D:	chromium
16.	Environmental Impact Assessment (EIA) is defined as
Option A:	Assessment of Environment
Option B:	A report written by government representatives on the planned development impacts of environment, socio-economic issues and culture
Option C:	A process of identifying, predicting, and evaluating the likely impacts of a proposed project to define mitigation actions
Option D:	Project life-cycle assessment
17.	In Electroplating Industry Cyanide waste is treated by
Option A:	Neutralization
Option B:	Reduction of Hexavalent chromium
Option C:	Equalization
Option D:	Alkaline Chlorination
18.	In Tannery Industry, the waste water stream produced during manufacturing can be grouped into
Option A:	Strong stream and intermittent streams
Option B:	Weak and continuous streams
Option C:	Strong & intermittent streams, Weak & continuous streams
Option D:	Toxic waste stream
19.	Purpose of sulphitation in cane sugar industry is
Option A:	To increase the volume of cane juice
Option B:	For bleaching and pH control
Option C:	To provide colour

Option D:	For thickening of juice
20.	A Common Effluent Treatment Plant can be changed to combined effluent treatment plant
Option A:	when it collects effluent from all the industries.
Option B:	when it collects sewage from surrounding localities and treat it with industrial wastewaters.
Option C:	when it collects effluent from all the city.
Option D:	when it collects effluent from all the small and big industries.

Q2 (20 Marks)	
A	Solve any Two 5 marks each
i.	Explain volume reduction and its parameters for Industrial waste.
ii.	What is the importance of By-product recovery in the industrial waste treatment?
iii.	Write a short note on Activated sludge process and its modifications.
B	Solve any One 10 marks each
i.	What is Environmental Impact Assessment? Why EIA is done? Explain the same in the following context – i) Screening ii) Scoping iii) Prediction iv) Reporting
ii.	Explain with a neat flow sheet manufacturing process of cotton cloth using cotton as a raw material in the textile industry.

Q3. (20 Marks)	
A	Solve any Two 5 marks each
i.	Why sampling of stream is necessary? Explain procedure followed in sampling.
ii.	Illustrate with flowsheet treatment given to pulp and paper industry effluent.
iii.	Discuss about Equalization. Explain the types of Equalization with neat sketch.
B	Solve any One 10 marks each
i.	A city discharges 250 cumecs of sewage into a river, which is fully saturated with oxygen and flowing at the rate of 4000 cumecs during its lean days with a velocity of 0.22 m/sec. The 5 day BOD of sewage at the given temperature is 270 mg/lit. Find when and where the critical D.O. deficit will occur in the downstream portion of the river and what is its amount? Assume coefficient of purification of the stream (f) as 4.0 and

	coefficient of deoxygenation (K_D) as 0.13
ii.	Explain the treatment given to the dairy industry waste, when the treated effluent discharged to sewer and inland surface water. Also write the characteristics of dairy waste water.

University of Mumbai

Examination 2020 under cluster : KJSIET

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

Program: Civil

Curriculum Scheme: Rev 2016

Examination: BE Semester VIII

Course Code: CE-DLO8033

Course Name: Pavement Design and Construction

Time: 2 hours

Max. Marks: 80

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Note:- All the Questions are compulsory and carry equal marks .

Q1.	Pick the correct sequence
Option A:	Seal coat- Wearing course-Tack coat-Binder coat-Prime coat
Option B:	Seal coat- Wearing course-Prime coat-Binder coat-Tack coat
Option C:	Seal coat- Binder course-Tack coat-Wearing coat-Prime coat
Option D:	Tack coat- Wearing course-Prime coat-Binder coat-Seal coat
Q2.	Quality of drainage is considered as Excellent if the water is removed within
Option A:	1 day
Option B:	2 hours
Option C:	5 hours
Option D:	1 week
Q3.	Which of these is not function of surface course?
Option A:	Resist abrasive forces of traffic
Option B:	Provide skid resistant surface
Option C:	Reduces the water penetration
Option D:	Acts as a structural portion of the pavement which distributes the load
Q4.	Axle load for triden axle with dual wheel on either side is taken as ___ kN
Option A:	80
Option B:	65
Option C:	148
Option D:	224
Q5.	Calculate Radius of relative stiffness of 15 cm thick cement concrete slab using following data. Modulus of elasticity of concrete is 2.1×10^5 kg/cm ² ; Poissons Ratio- 0.15 ; Modulus of subgrade reaction- 3 kg/cm ³
Option A:	77 cm
Option B:	27 cm
Option C:	57 cm
Option D:	67 cm

Q6.	Stresses induced in a rigid pavement in Summer Mid-day
Option A:	Load Stresses at edge + Temperature stress at edge
Option B:	Load Stresses at edge + Temperature stress at edge - Frictional stresses
Option C:	Load Stresses at edge + Temperature stress at edge + Frictional stresses
Option D:	Load Stresses at edge + Load stress at Corner + Temperature stresses at the edge
Q7.	Group index is calculated using following equation where a and b are related to % soil passing through sieve no 200, c is related to liquid limit and d is related to plasticity index
Option A:	$0.2 a + 0.005 ac + 0.01 bd$
Option B:	$0.2 a + 0.05 ab + 0.01 cd$
Option C:	$0.2 a + 0.05 ac + 0.01 bd$
Option D:	$0.02 a + 0.005 ac + 0.1 bd$
Q8.	Transverse contraction joint are provided at _____ spacing in airport pavement
Option A:	4-8 meter
Option B:	3-6 meter
Option C:	10-15 meter
Option D:	20-40 meter
Q9.	The heavy commercial vehicles are considered if their weight exceeds ____
Option A:	3.0 t
Option B:	4.0 t
Option C:	5.0 t
Option D:	6.0 t
Q10.	Concrete slab is opened for traffic after __ days in case of ordinary portland cement and period can be curtailed to __ days if rapid hardening cement is used.
Option A:	28 and 7
Option B:	14 and 7
Option C:	28 and 14
Option D:	28 and 20
Q11.	During construction of rigid pavement, if the fly ash is blended at site, quantity of fly ash shall be restricted to ____ % by weight of cementitious material
Option A:	10
Option B:	20
Option C:	15
Option D:	5
Q12.	_____ are provided along longitudinal joint to tie two adjacent slabs
Option A:	Expansion joint
Option B:	Contraction joint
Option C:	Tie bar
Option D:	Dowel bar
Q13.	Based on topography and climate of the location which factor is estimated?

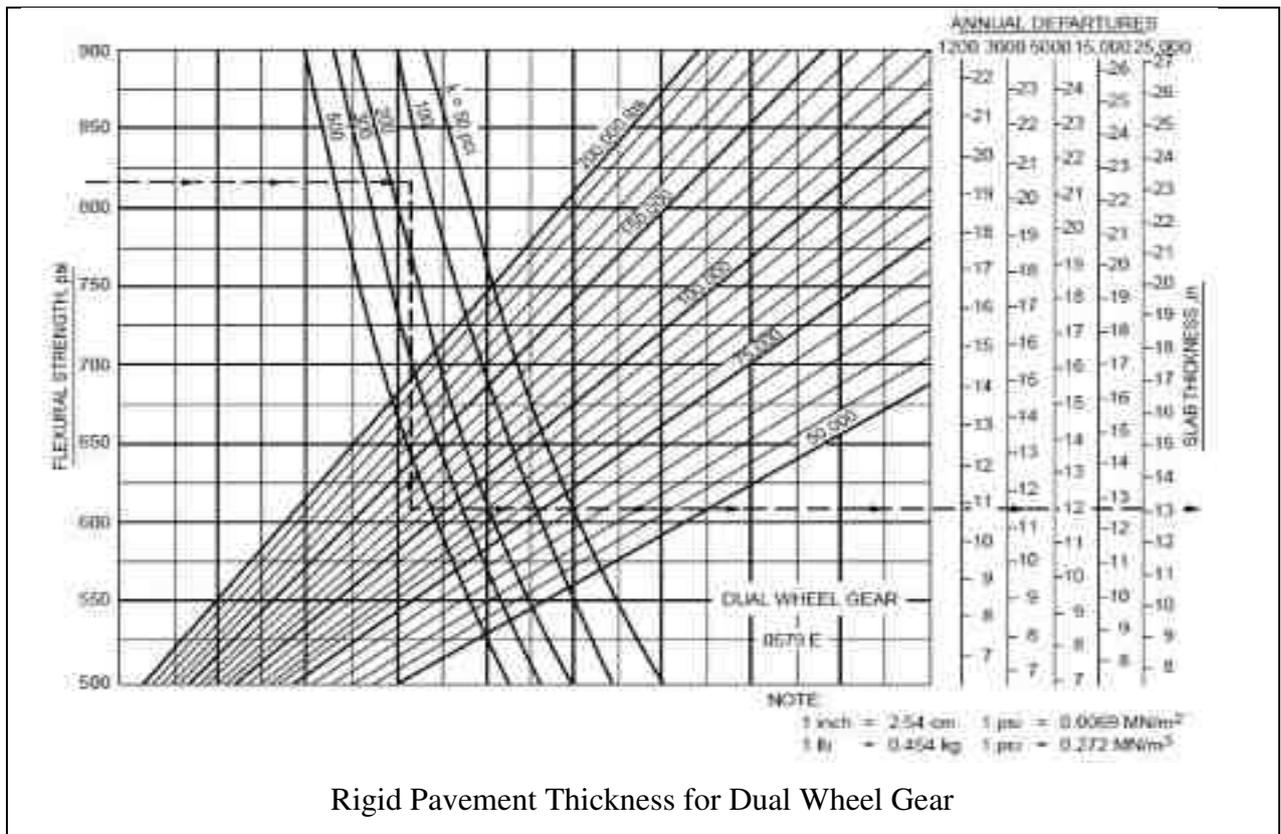
Option A:	Temperature
Option B:	Pavement quality
Option C:	Pavement design method
Option D:	Pavement thickness
Q14.	What is the failure in GSB layer of rigid pavement?
Option A:	Pumping
Option B:	Blowing
Option C:	Pumping & blowing
Option D:	Fatigue
Q15.	The warping stress is dependent on _?
Option A:	Length of slab
Option B:	Length and width of slab
Option C:	Thickness of slab
Option D:	Water content in slab
Q16.	Process of determining the quality of large group by examining part of the group is called as
Option A:	Sampling
Option B:	Testing
Option C:	Quality Assurance
Option D:	Quality of conformance
Q17.	Frequency of test for quality control of gradation of aggregate for cement concrete pavement
Option A:	1 test per 20 cum
Option B:	1 test per 15 cum
Option C:	1 test per 50 cum
Option D:	1 test per 30 cum
Q18.	Set of tools or methods that assists decision makers in finding the optimum strategies for providing and maintaining pavements serviceable conditions over a specified time period are called as
Option A:	Pavement Condition survey
Option B:	Pavement Serviceability index
Option C:	Pavement Management system
Option D:	Pavement quality control
Q19.	_____ is used for quality control for construction of roads and runways
Option A:	IRC-SP-11-1997
Option B:	IRC-81 1997
Option C:	IRC-SP-20-2002
Option D:	IRC-37-2018
Q20.	_____ is systematic process for collecting, managing, analyzing, and summarizing pavement information to support the selection and implementation of cost-effective pavement construction, rehabilitation, and

	maintenance programs.
Option A:	Pavement Management system
Option B:	Pavement Serviceability index
Option C:	Pavement Condition survey
Option D:	Pavement quality control

Q2									
A	Solve any Two							5 marks each	
i.	Calculate the deflection at the surface of a pavement due to wheel load of 40 KN and tyre pressure of 0.5 MPa. The value of young's modulus of elasticity of the pavement and subgrade may be assumed to be uniformly equal to 20Mpa.								
ii.	Following data is collected from axle load data survey, determine the equivalent number of standard axle load of 80 KN repetitions per year								
	Axle load	30-40	40-50	50-60	60-70	70-80	80-90	90-100	100-110
	Observations	57	69	62	81	107	101	114	98
iii.	Subgrade soil has following properties: Soil passing through sieve no 200 – 55% ; Liquid limit- 65% ; Plastic limit – 45% Design flexible highway pavement (cm) for 400 commercial vehicles per day using group index method								
<p>Curve A: Total thickness of sub-base Curve E- Thickness of additional base which may be substituted for sub-base curve A Curve B: Total thickness of sub-base + base + surface (light traffic- less than 50 CVFD) Curve C: Total thickness of sub-base + base + surface (medium traffic- 50-300 CVFD) Curve D: Total thickness of sub-base + base + surface (heavy traffic- more than 300 CVFD)</p> <p style="text-align: center;">Pavement thickness design based on Group Index.</p>									
B	Solve any One							10 marks each	
i.	Determine the thickness of pavement of concrete pavement using westergaard's Modified corner load formula to support maximum wheel load of 4000kg. Allow 10% of wheel load for Impact. Tyre pressure can be taken as 5.5 kg/cm ² . Modulus of subgrade reaction = 5 kg/cm ³ . Flexural strength of concrete is 40kg/cm ² Consider factor of safety of 2.								
ii.	Following data obtained from axle load survey data of 98 vehicles. Assuming standard axle load for Single axel – single wheel (SA-SW), Single Axle- Dual Wheel (SA-DW), Tandem Axle Dual Wheel (TA-DW). Calculate Vehicle Damage factor.								
	Axle Load Class	No. of Passes of Axles			Axle Load Class	No. of Passes of Axles with			

		with						
		SA-SW	SA-DW	TA- FW		SA-SW	SA-DW	TA- FW
	50-60	47	1	--	110-120	--	3	9
	60-70	33	3	--	120-130	--	--	10
	70-80	18	3	--	130-140	--	--	10
	80-90	--	14		140-150	--	--	7
	90-100	--	13	6	150-160	--	--	5
	100-110	--	3	6	160-170	--	--	5

Q3.	
A	Solve any Two 5 marks each
i.	Explain the Benkleman Beam with neat sketch and procedure to determine the characteristic deflection w.r.t IRC-81-1997.
ii.	Determine Cumulative Standard Axles in msa for 2 lane undivided carriageway using the following data. CBR = 5 %, Initial traffic on completion of construction 300cvpd. Growth rate = 6%, design life = 10 years, VDF = 2.5.
iii.	Spacing between the contraction joint of concrete pavement is 4.2 m. Determine the tensile stresses developed in concrete pavement due to contraction if coefficient of friction between bottom of the pavement and supporting layer is 1.1
B	Solve any One 10 marks each
i.	Using data given below, calculate the wheel load stresses at interior, edge and corner region of concrete pavement using westergaard's stress equation. Also determine the probable location where slab of pavement is likely to crack due to corner loading. Also calculate the stress using modified westergaard's equation and discuss the result P= 5100 kg ; Modulus of elasticity : $3 \times 10^5 \text{ kg/cm}^2$; Pavement thickness : 18 cm ; Poisson's Ratio : 0.15 ; Modulus of subgrade reaction : 6 kg/cm^3 ; Radius of contact area : 15 cm
ii.	Determine the required thickness of concrete slab to be used for a given runway used by a design aircraft dual – wheel gear of 110000 Ib gross weight. The 90- day flexural strength of concrete is found to be 815 psi. The modulus of subgrade reaction (K) is 100 pci, and the annual equivalent departures were expected to be 3000.(FAA Method)



University of Mumbai

Examination 2020 under cluster : KJSIEIT

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

Program: Civil Engineering
Curriculum Scheme: Rev 2016
Examination: BE Semester VIII

Course Code: CE-DLO8034
Time: 2 hours

Course Name: Bridge Engineering and Design
Max. Marks: 80

Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	Nose to tail Distance of IRC Class AA Loading for tracked vehicle is
Option A:	7200 mm
Option B:	7150 mm
Option C:	7250 mm
Option D:	7000 mm
2.	Contact Length of IRC Class 70 R Loading is
Option A:	4.87 m
Option B:	3.6 m
Option C:	3.7 m
Option D:	4.5 m
3.	Maximum axle load in Class B is
Option A:	69 kN
Option B:	68 kN
Option C:	66 kN
Option D:	67 kN
4.	Width of Tracked Wheel in Class AA Loading is
Option A:	0.84 m
Option B:	0.85 m
Option C:	0.86 m
Option D:	0.83 m
5.	Ground contact area (B and W) for axle load 16 kN is
Option A:	125 & 150 mm
Option B:	125 & 175 mm
Option C:	150 & 150 mm
Option D:	150 & 175 mm
6.	The maximum load transmitted by a single wheel of IRC class A loading is
Option A:	68 kN
Option B:	41 kN
Option C:	57 kN
Option D:	27 kN

7.	Impact Factor for IRC Class AA (tracked vehicle) loading for a span 7 m is
Option A:	25 %
Option B:	17.5 %
Option C:	10 %
Option D:	15 %
8.	Calculate the value of effective width of dispersion, Where Depth of WC= 0.08m Contact width of wheel= 0.5 m B and L= 9.5 m and 6.4 m respectively
Option A:	4 m
Option B:	5.05 m
Option C:	5.5 m
Option D:	6 m
9.	In designing bridge deck slabs for IRC Class AA tracked load, maximum shear force develops when the tracked load is
Option A:	At the centre of span
Option B:	At quarter span
Option C:	Adjacent to the support
Option D:	At 1/3 of span
10.	Eccentricity of Cables for Prestressed concrete bridge is given as
Option A:	$\frac{z_t \cdot z_b (f_{inf} - f_{sup})}{A(f_{sup} \cdot z_t + f_{inf} \cdot z_b)}$
Option B:	$\frac{z_t \cdot z_b (f_{sup} - f_{inf})}{A(f_{sup} \cdot z_t + f_{inf} \cdot z_b)}$
Option C:	$\frac{z_t \cdot z_b (f_{sup} - f_{inf})}{A(f_{sup} \cdot z_b + f_{inf} \cdot z_t)}$
Option D:	$\frac{A(f_{sup} \cdot z_b + f_{inf} \cdot z_t)}{z_t \cdot z_b (f_{sup} - f_{inf})}$
11.	Minimum Prestressing force is given by
Option A:	$\frac{A(F_{inf} \cdot Z_b + F_{sup} \cdot Z_t)}{Z_b + Z_t}$
Option B:	$\frac{(F_{inf} \cdot Z_t + F_{sup} \cdot Z_b)}{Z_b + Z_t}$
Option C:	$\frac{A(F_{inf} \cdot Z_t + F_{sup} \cdot Z_b)}{Z_b}$
Option D:	$\frac{(F_{inf} \cdot Z_t + F_{sup} \cdot Z_b)}{Z_t}$
12.	The design bending moment and shear force in balanced cantilever bridge deck are determined by using
Option A:	Moment distribution method
Option B:	Influence line diagram
Option C:	Slope deflection method
Option D:	Kani's Method

13.	The maximum negative moment in a double cantilever bridge deck is subjected to dead load and live load develops at
Option A:	The end support
Option B:	Middle of simply supported span
Option C:	Interior support
Option D:	At Articulation
14.	A end supports of the superstructure of a bridge are called ___
Option A:	Pier
Option B:	Abutment
Option C:	Wingwall
Option D:	Column
15.	Pneumatic caisson is a type of
Option A:	Well foundation
Option B:	Pile foundation
Option C:	Raft foundation
Option D:	Open caisson
16.	Minimum width of Pier should be=
Option A:	500 mm
Option B:	600 mm
Option C:	700 mm
Option D:	800 mm
17.	Due to effect of buoyancy during floods, the dead weight of pier
Option A:	Increases
Option B:	Remains the same
Option C:	Decreases
Option D:	Depends upon material
18.	For a stability of the pier subjected to various types of load, it is safer to ensure that the eccentricity of the resultant force acting at a base of the pier of width should not exceed
Option A:	$b/2$
Option B:	$b/6$
Option C:	$b/12$
Option D:	$b/9$
19.	A pier is an intermediate supporting structure of a bridge which transfers the load directly to
Option A:	Foundation
Option B:	Abutment
Option C:	Soil
Option D:	Wing-walls
20.	Which of the following is not the component of substructure of a bridge?
Option A:	Pier
Option B:	Abutment
Option C:	Wing-walls

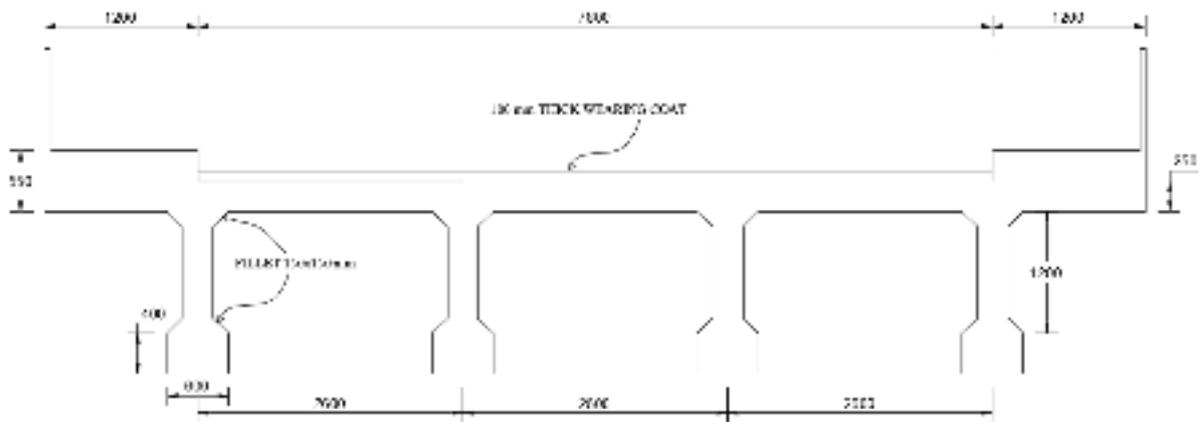
Option D:	Roadway
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Q2

A	Solve any Two	5 marks each
i.	Discuss incremental method for Launching a girder	
ii.	What is Lattice girder bridge?	
iii.	What is the different method of sinking a well? Explain any one method in brief	

B	Solve any One each	10 marks
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i. Determine **Design Shear Force** on longitudinal girder of a 30m span bridge, due to **IRC Class 70R** tracked vehicle and self-weight of bridge superstructure. Clear carriage width is 7.8m, footpath on either side is 1.2m and cross girders are provided at 5m c/c. Thickness of deck slab is 250mm thickness of wearing coat is 100mm. Area of cross girder is 70% of area of longitudinal girder.



ii. A simply supported post-tensioned prestressed concrete deck slab bridge of 12m effective span is designed to carry LLBM 190.78kNm & LLSF 71.32kN. Verify its safety in **flexure and shear** (preferably uncracked) for the following specifications.
 Carriage width: 7.5m;
 Footpath on either side: 1.5m;
 Wearing coat: 100mm; Depth of deck slab: 500mm;
 Initial strength of concrete is 50MPa and characteristic strength is 60MPa
 Characteristic strength f_p of prestressing steel is 1600MPa
 Cables are tensioned to 1000kN initially and spaced 300mm c/c at 100mm from soffit of the slab at mid span. Prestressing force in each cable accounting all losses is 800kN.
 Consider Moderate environmental conditions.

Q3

A	Solve any Two	5 marks each
i.	What do you mean by “Economic Span Length” of bridge? Develop equation for same.	
ii.	What is Well foundation? What are the various shape of well foundation? Also sketch components of well foundation.	
iii.	Define Bearing. Enlist the different types of bearing. Explain any one.	

B	Solve any One	10 marks
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	each
i.	<p>Calculate the LLBM for the RCC slab culvert for National highway to suit the following requirements:</p> <ul style="list-style-type: none"> • Carriage way: 7.5 m • Footpath: 1 m on either side • Effective span: 6.4 m • Material: M25 and Fe 415 HYSD bars • Live load: IRC class A • Wearing coat: 80 mm thick
ii.	<p>Design a post tension concrete slab bridge deck for the following data</p> <ul style="list-style-type: none"> • Clear span 9 m • Width of bearing 400 mm • Clear width of roadway 7.5 m • Footpath 1 m on either side • Kerbs 600 mm wide and 300 mm deep • Thickness of wearing coat 80 mm • IRC Class AA Tracked vehicle • Class I structure • M20 Grade concrete and 7 mm dia high tensile wires with an ultimate strength of 1500 N/mm^2 housed in cables with 12 wires and anchored by Freyssinet anchorages of 150 mm diameter. For supplementary reinforcement use Fe 415. • Assume compressive strength of concrete at transfer as 35 N/mm^2 and loss ratio 0.8

University of Mumbai

Examination 2020 under cluster : KJSIEIT

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

Program: Civil Engineering

Curriculum Scheme: Rev. 2016

Examination: BE Semester VIII

Course Code:CE-DLO8035 Course Name: Appraisal & Implementation of Infrastructure Projects

Time: 2 hours

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(s) is/are FALSE? I. Project success follows a quadruple constraint, consisting of time, cost, quality and functionality and client satisfaction. II. Key performance indicators are parameters, indicators or values that can be measured to evaluate whether a project is successful or not where as Success factors are conditions or factors that must be present for a project to be successful. III. Key performance indicators may be observed and influenced during project execution. Success factors can only be measured after a project has been completed. IV. A perfect project management organization is no guaranty for a successful project. Opposite, unsuccessful project management may complete a project successfully.
Option A:	I and II
Option B:	Only III
Option C:	I, II and IV
Option D:	All of the statements I,II,III and IV
2.	Which stage of the of the project management life cycle needs the maximum time of completion?
Option A:	Conceptualization
Option B:	Planning
Option C:	Execution
Option D:	Termination
3.	Appraisal of Infra structure projects consists of which essential stage
Option A:	Social Appraisal
Option B:	Political Support
Option C:	Techno Economical Feasibility Report
Option D:	Legislative documentation
4.	Pre feasibility Report of Infra structure projects requires clearance from
Option A:	Committee of Public Investment Board
Option B:	Standing Committee
Option C:	Joint committee

Option D:	Review committee
5.	The economic feasibility of a project can be assessed by
Option A:	Payback period method
Option B:	Gross investment method
Option C:	Net investment method
Option D:	Sinking fund method.
6.	A market where the potential consumers face a severely limited number of competitive suppliers is known as _____
Option A:	Wholesale market
Option B:	Retail market
Option C:	Captive market
Option D:	Stock market
7.	A technical institute is finding mean of GPA for their students. They are collecting data from their college exam cell. It is an example of _____
Option A:	Primary Data
Option B:	Secondary Data
Option C:	Experimental Data
Option D:	Qualitative Data
8.	CIF price stands for _____
Option A:	Cost, Insurance & Freight
Option B:	Cargo, Insurance & Freight
Option C:	Cost, Inspection & Freight
Option D:	Cargo, Insurance & Free Demonstration
9.	The _____ method of demand forecasting is categorized under casual method
Option A:	Trend projection method
Option B:	Delphi method
Option C:	Jury of executive method
Option D:	Consumption level method
10.	Appropriate technology refers to those methods of production which are suitable to local _____, social and cultural conditions
Option A:	religious
Option B:	economic
Option C:	climatic
Option D:	topographic
11.	The two major environmental key issues related to the byproduct of the production process are
Option A:	deforestation and desalination
Option B:	Reduction in groundwater penetration and precipitation
Option C:	effluents and emission
Option D:	Extinction of species and reduction in fresh water bodies

12.	Which is the best organizational structure in Project Management Professionals
Option A:	line
Option B:	line and staff
Option C:	functional
Option D:	matrix
13.	A project involve a cash outlay of rupees 8 lacs as an initial investment and generate cash inflow of rupees 1.5 lacs, 1.5 lacs, 2 lacs, 3 lacs, 1 lacs and 2 lacs in the 1st year, 2nd year 3rd year, 4th year, 5th year and 6th year respectively. For this project undiscounted payback period will be
Option A:	3 years
Option B:	5 years
Option C:	4 years
Option D:	6 years
14.	The internal rate of return (IRR) of a project is the discounted rate which makes its net present value (NPV) equal to
Option A:	Zero (0)
Option B:	One (1)
Option C:	Hundred (100)
Option D:	Minus one (-1)
15.	Benefit to cost ratio is the ratio of
Option A:	investment divided by present value of benefit
Option B:	(present value of benefit - investment) divided by investment
Option C:	present value of benefit divided by investment
Option D:	investment divided by (present value of benefit - investment)
16.	The cost of debt funds is usually_____ the cost of equity fund
Option A:	less than
Option B:	greater than
Option C:	non comparable to
Option D:	equal to
17.	_____ consists of depreciation charges and retained earnings
Option A:	Equity
Option B:	Internal Accruals
Option C:	Securities
Option D:	Working capital advances
18.	In built lease and transfer structure of PPP projects, the private entity _____ and _____ a complete facility, sells to the government, simultaneously lease it back for a predefined period to operate it as a business and finally transfer it to the government at a predetermined price
Option A:	Design and Builds
Option B:	Purchase and Demolition
Option C:	Repair and rehabilitate
Option D:	Retrofit and repair

19.	Generally electricity generation using coal or gas is an example of
Option A:	BOO Structure
Option B:	BOT Structure
Option C:	BOOT Structure
Option D:	BLT Structure
20.	The Eurocurrency loans has a floating rate of interest linked to SIBOR that stands for
Option A:	Singapore Intra bank Offered Rate
Option B:	Singapore International Offered Rate
Option C:	Singapore Interbank Offered Rates
Option D:	Singapore Infra bank Offered Rate

Q.2	Solve any Four out of Six	5 marks each
(A)	Explain SWOT analysis and how will you discriminate between internal and external factors that affects the SWOT results	
(B)	Draw the schematic diagram of feasibility study for a project	
(C)	What are the essentials of Financial Section of Detailed Project Report	
(D)	Enumerate the Sources of Secondary data for market demand forecasting	
(E)	<p>A firm planning to manufacture fairness facial cream for males in India tried to estimate its potential sales of 100 ml bottle of cream with following data: Adolescent and Adult male population in the country: 100 million. Proportion of Adolescent and Adult male population not fair in colour: 70 percent. Proportion of Adolescent and Adult male population not fair and using fairness cream: 50 percent.</p> <p>A 100 ml bottle of cream last for half month when applied once in a day on face only by one person.</p> <p>Proportion of the fairness facial cream market the firm could capture is 20 percent.</p> <p>What will be the Potential Annual Sale the firm could capture for 100 ml fairness facial cream bottle.</p>	
(F)	<p>A company has total current assets (TCA) as Rs 100 lacs and other current liabilities (OCL) are Rs 20 lacs. What will be the working capital Gap (WCG). What will be the maximum permissible bank finance (MPBF) extended as per the second method prescribed by Tandon Committee norm wherein the borrower has to arrange for 25 percent of TCA as margin. Also find the minimum Current Ratio by this second method.</p>	
Q.3	Solve any Four out of Six	5 marks each
(A)	How Finance can be raised in International Markets	
(B)	Differentiate between BOT, BOOT and BOO structure of PPP.	
(C)	Elaborate the technical analysis with respect to materials and inputs for	

		production/ process/construction.																											
	(D)	Enumerate the factors that are to be critically studied for technical appraisal of a project.																											
	(E)	<p>By Net Present Value Analysis, Find out whether investment on Machine A is better or on Machine B. The discounting rate is to be taken as 12 percent.</p> <table border="1"> <thead> <tr> <th>Machine type</th> <th>Machine A (Rs.)</th> <th>Machine B (Rs.)</th> </tr> </thead> <tbody> <tr> <td>Cost of machine</td> <td>2,00,000.00</td> <td>2,00,000.00</td> </tr> <tr> <td colspan="3">Cash inflows</td> </tr> <tr> <td>1st year</td> <td>30,000.00</td> <td>75,000.00</td> </tr> <tr> <td>2nd</td> <td>70,000.00</td> <td>1,00,000.00</td> </tr> <tr> <td>3rd</td> <td>1,50,000.00</td> <td>1,60,000.00</td> </tr> <tr> <td>4th</td> <td>1,80,000.00</td> <td>1,20,000.00</td> </tr> <tr> <td>5th</td> <td>1,20,000.00</td> <td>1,30,000.00</td> </tr> <tr> <td>6th</td> <td>2,30,000.00</td> <td>2,60,000.00</td> </tr> </tbody> </table>	Machine type	Machine A (Rs.)	Machine B (Rs.)	Cost of machine	2,00,000.00	2,00,000.00	Cash inflows			1st year	30,000.00	75,000.00	2nd	70,000.00	1,00,000.00	3rd	1,50,000.00	1,60,000.00	4th	1,80,000.00	1,20,000.00	5th	1,20,000.00	1,30,000.00	6th	2,30,000.00	2,60,000.00
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	(F)	<p>Explain weighted marginal cost of capital. A company uses equity, preference and debt in proportions 40%, 20% and 40% respectively. If the components cost of equity, preference and debt are 18 %, 12% and 8% respectively. Calculate the weighted average cost of capital (WACC).</p>																											

University of Mumbai

Examination 2020 under cluster : KJSIEIT

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

Program: Civil Engineering

Curriculum Scheme: Rev 2016

Examination: BE Semester VIII

Course Code: CE –DLO8037

Course Name: Applied Hydrology and Flood Control

Time: 2 hours

Max. Marks: 80

Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	Orographic precipitation occurs due to air masses being lifted to higher altitudes by
Option A:	the density difference of air masses
Option B:	a frontal action
Option C:	the presence of mountain barriers
Option D:	extra tropical cyclones
2.	The Double mass curve technique is adopted to
Option A:	check the consistency of rain gauge records
Option B:	to find the average rainfall over a number of years
Option C:	to find the number of rain gauges required
Option D:	to estimate the missing rainfall data
3.	A one day rainfall of 18 hours at Station C was found to have a return period of 50 years. The probability that a one-day rainfall of this or larger magnitude will not occur at station C during next 50 years is
Option A:	0.636
Option B:	0.020
Option C:	0.364
Option D:	0.371
4.	Lysimeter is used to measure
Option A:	infiltration
Option B:	evaporation
Option C:	evapotranspiration
Option D:	vapour pressure
5.	The rainfall on five successive days on a catchment was 2, 6, 9, 5 and 3 cm. If the ϕ -index for the storm can be assumed to be 3 cm/day, the total direct runoff from the catchment is
Option A:	20 cm
Option B:	11 cm
Option C:	10 cm
Option D:	22 cm

6.	If the wind velocity at a height of 4 m above ground is 6 km/h, its value at a height of 12 m above ground can be expected to be in km/h about:
Option A:	5.75
Option B:	6.53
Option C:	7.02
Option D:	8.05
7.	The slope-area method is extensively used in
Option A:	Development of rating curve
Option B:	Estimation of flood discharge based on high water marks
Option C:	Cases where shifting control exist
Option D:	Cases where backwater effect the pressure
8.	An ephemeral stream
Option A:	is one which always carries some flow
Option B:	does not have any base flow contribution
Option C:	is one which has limited contribution of groundwater in wet season
Option D:	is one which carries only snow-melt water.
9.	Streams that contribute to the ground water are called
Option A:	effluent streams
Option B:	groundwater streams
Option C:	influent streams
Option D:	perennial streams
10.	The rainfall is 10mm/hr on an area of one hectare. The runoff value will be equal to
Option A:	1000 m ³ /hr
Option B:	100 m ³ /hr
Option C:	10 m ³ /hr
Option D:	1 m ³ /hr
11.	The basic assumptions of the unit-hydrograph theory are.
Option A:	nonlinear response and time invariance
Option B:	time invariance and linear response
Option C:	linear response and linear time variance
Option D:	nonlinear time variance and linear response.
12.	A triangular DRH due to a storm has a time base of 80 hrs and a peak flow of 50 m ³ /s occurring at 20 hours from the start. If the catchment area is 144 km ² , the rainfall excess in the storm was
Option A:	20 cm
Option B:	7.2 cm
Option C:	5 cm
Option D:	1.5 cm
13.	The shape of the recession limb of hydrograph depends on:
Option A:	storm characteristics
Option B:	basin characteristics

Option C:	storm and basin characteristics
Option D:	temprature
14.	The time required by rain water to reach the outlet of drainage basin, is generally Called as
Option A:	time of concentration
Option B:	time of overland flow
Option C:	concentration time of overland flow
Option D:	duration of the rainfall
15.	The probability that a hundred-year flood may not occur at all during the 50 year life of a project is
Option A:	0.395
Option B:	0.001
Option C:	0.605
Option D:	0.133
16.	The standard project flood is
Option A:	Smaller than probable maximum flood in the region
Option B:	The same as the design flood used for all small hydraulic structures
Option C:	Larger than the probable maximum flood by a factor implying factor of safety
Option D:	The same as the probable maximum flood
17.	The prism storage in a river reach during the passage of a flood wave is
Option A:	a constant
Option B:	a function of inflow and outflow
Option C:	function of inflow only
Option D:	function of outflow only
18.	The volume of water that can be extracted by force of gravity from a unit volume of aquifer material is called
Option A:	specific retention
Option B:	specific yield
Option C:	specific storage
Option D:	specific capacity
19.	A sand sample was found to have a porosity of 40%. For an aquifer of this material, the specific yield is
Option A:	40%
Option B:	> 40%
Option C:	< 40%
Option D:	dependent on the clay fraction
20.	The specific capacity of a well in confined aquifer under equilibrium conditions and within the working limits of drawdown
Option A:	can be taken as constant
Option B:	decreases as the drawdown increases
Option C:	increases as the drawdown increases
Option D:	increases or decreases depending upon the size of the well

Q2																													
A	Solve any Two 5 marks each																												
i.	Describe a hydrologic cycle.																												
ii.	Explain the procedure for supplementing the missing rainfall data.																												
iii.	Describe the slope-area method of measurement of flood discharge in a stream.																												
B	Solve any One 10 marks each																												
i.	<p>Given below are observed flows from a storm of 6-h duration on a stream with a catchment area of 500 km².</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <td>Time (h)</td> <td>0</td> <td>6</td> <td>12</td> <td>18</td> <td>24</td> <td>30</td> <td>36</td> <td>42</td> <td>48</td> <td>54</td> <td>60</td> <td>66</td> <td>72</td> </tr> <tr> <td>Observed flow (m³/s)</td> <td>0</td> <td>100</td> <td>250</td> <td>200</td> <td>150</td> <td>100</td> <td>70</td> <td>50</td> <td>35</td> <td>25</td> <td>15</td> <td>5</td> <td>0</td> </tr> </table> <p>Assuming base flow to be zero, derive the ordinates of 6-h unit hydrograph</p>	Time (h)	0	6	12	18	24	30	36	42	48	54	60	66	72	Observed flow (m ³ /s)	0	100	250	200	150	100	70	50	35	25	15	5	0
Time (h)	0	6	12	18	24	30	36	42	48	54	60	66	72																
Observed flow (m ³ /s)	0	100	250	200	150	100	70	50	35	25	15	5	0																
ii.	<p>The following are the coordinates of a smooth curve drawn to best represent the stage discharge data of a river.</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <td>Stage (m)</td> <td>20.80</td> <td>21.42</td> <td>21.95</td> <td>23.37</td> <td>23.00</td> <td>23.52</td> <td>23.00</td> </tr> <tr> <td>Discharge (m³/s)</td> <td>100</td> <td>200</td> <td>300</td> <td>400</td> <td>600</td> <td>800</td> <td>1000</td> </tr> </table> <p>Determine the stage corresponding to zero discharge.</p>	Stage (m)	20.80	21.42	21.95	23.37	23.00	23.52	23.00	Discharge (m ³ /s)	100	200	300	400	600	800	1000												
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Discharge (m ³ /s)	100	200	300	400	600	800	1000																						

Q3.	
A	Solve any Two 5 marks each
i.	Explain Thiessen-Mean method.
ii.	Write short note on 'Reservoir evaporation and methods for its reduction.
iii.	What are the limitations of flood frequency studies?
B	Solve any One 10 marks each
i.	Describe the Muskingum method of routing of inflow hydrograph through a channel reach.
ii.	The discharge from fully penetrating well operating under a steady state in a confined aquifer of 35 m thickness is 3000 lpm. Values of drawdown at two observation wells 12 and 120 m away from the well are 3.0 and 0.3 m respectively. Determine the permeability of the aquifer.