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

==

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

===

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.	

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 ofthe 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 quantative 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 Manatralaya
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: ILO8029and 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.

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 9 (FAMT)
Examinations Commencing from 23rd December 2020 to 6th January 2021
Program: **Mechanical Engineering**
Curriculum Scheme: Rev2016
Examination: BE Semester VIII
Course Code: MEC801 and Course Name: **Design of Mechanical System**

Time: 2 hour   Max. Marks: 80

==
2312_R16_Mech_VIII_MEC801_QP1
==

Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	The optimization problem involves ………………..
Option A:	Short computations
Option B:	Zero computations
Option C:	Long computations
Option D:	Span computations
2.	What is design morphology ?
Option A:	sequential design methodology
Option B:	force analysis
Option C:	material selection
Option D:	optimum design
3.	Planning for distribution involves
Option A:	Design of reliability
Option B:	Design of safety
Option C:	Planning of warehouse systems
Option D:	Planning of recycling
4.	What does number 6 indicate in the class of wire rope 6 x 37 (18/12/6/1)?
Option A:	Diameter
Option B:	Strands
Option C:	Wires
Option D:	Stands
5.	The maximum bending stress in a crane hook having trapezoidal cross section always occurs at
Option A:	Inner fiber
Option B:	Outer fiber
Option C:	centroidal axis
Option D:	Neutral axis
6.	The minimum diameter of pulley for 3 bend system having 25 mm diameter of rope is
Option A:	500 mm
Option B:	575 mm
Option C:	525 mm

Option D:	550mm
7.	In case of reverse bending rope life is ---------------one half approximately
Option A:	reduce by
Option B:	increase by
Option C:	reduce to 90 %
Option D:	remain same
8.	If rope velocity is 14 m/min and diameter of pulley is 528 mm then find rpm of pulley
Option A:	N = 8.44 RPM
Option B:	N = 37.71 RPM
Option C:	N = 11.6 RPM
Option D:	N = 16.6 RPM
9.	In case of bearing section for pulley of EOT crane the rotation factor V will be
Option A:	V = 1.2
Option B:	V = 1
Option C:	V =0.5
Option D:	V = 1.8
10.	When a belt conveyor is transmitting maximum power,
Option A:	Effective tension is equal to centrifugal tension
Option B:	Effective tension is half of centrifugal tension
Option C:	Driving tension on slack side is equal to centrifugal tension
Option D:	Driving tension on tight side is twice the centrifugal tension
11.	What is the mass capacity of flat belt conveyor if volumetric capacity 0.55 m^3/hr? (ρ = 1500 kg/m^3)
Option A:	825 tons/hr
Option B:	825 kg/hr
Option C:	2.727 tons/hr
Option D:	2722 kg/hr
12.	What is the use of snub pulley?
Option A:	To support belt conveyor on lower run
Option B:	Increasing the lap angle on drive and tail pulley
Option C:	To give trough angle
Option D:	Transmit the power from motor to head pulley
13.	If maximum combustion force is 44210 N length of piston pin in connecting rod is 41 mm then induced bearing stress in piston pin is
Option A:	23 .44 Mpa
Option B:	33.48 Mpa
Option C:	30 MPa
Option D:	46.5 Mpa
14.	What are the stresses acting on the Gudgeon pin?
Option A:	Shear and bending both
Option B:	Shear Stress

Option C:	Bending stress
Option D:	Torsional Stress
15.	For four-stroke single-cylinder square engine with BP = 12 KW, N = 1200 rpm, compression ratio 14 , MEP = 1 MPa , ηm = 0.8 , Cylinder dia is
Option A:	124 mm
Option B:	136 mm
Option C:	115 mm
Option D:	119 mm
16.	Cylinder wall thickness is calculated on the basis of
Option A:	radial stress
Option B:	residual stress
Option C:	whipping stress
Option D:	circumferential hoop stress
17.	Which type of bearing is used in gear pump
Option A:	Thrust bearing
Option B:	Needle bearing
Option C:	Angular contact bearing
Option D:	Deep groove ball bearing
18.	In a water pump with 1000 ltr/min flow rate and 64 m of manometric head & 70 % overall η̇=0.7 the hydrostatic power is
Option A:	14 kw
Option B:	13 kw
Option C:	15 kw
Option D:	18 kw
19.	What is the maximum percentage loss of economic cutting speed if geometric progression ratio = 1.06 ?
Option A:	17.00%
Option B:	11.50%
Option C:	5.70%
Option D:	2.90%
20.	For 12 speed gearbox the optimum structural diagram is
Option A:	12 = 2(1) 3(2) 2(6)
Option B:	12=2(1) 3(2) 2(2)
Option C:	12= 2(6) 3(1) 2(3)
Option D:	12=2(6) 3(2) 2(1)

Q2	**Solve any Two Questions out of Three** **(10 marks each)** **Instructions:** 1. **Use of standard design data book is permitted** 2. **Assume suitable data if necessary, giving justification**
A	The following specifications refers to an EOT crane Application Class II Load to be lifted 10 T Hoisting speed 6 m/min Maximum Lift: 10 m **Select the suitable type and size of the wire rope for an expected life of 12 months. Perform rope life check.**
B	The specification of belt conveyor system are as follows Capacity: 300TPH Material to be conveyed: LimeStone Inclination :12 degree Lump size : 80mm Centre to Centre distance: 50m (Assume troughing angle 25 degree) . **Select the belt conveyor and Design required motor capacity and draw layout sketch of the belt conveyor system.**
C	It is required to design a gear pump for flow of 50 LPM and pressure 30 bar. The pump is to be driven from an electric motor by direct coupling. The design should include the **design of gears.**

Q3	**Solve any Two Questions out of Three** **(10 marks each)** **Instructions:** 1. **Use of standard design data book is permitted** 2. **Assume suitable data if necessary, giving justification**
A	A single cylinder four stroke cycle **diesel engine** develops 12 kW brake power when operating at 1000 rpm. Design the following components: (i) Determine bore size and check piston diameter for Total stress (Heat Dissipation and strength)
B	Explain Importance of Arithmetic progression and Geometric progression in the gear box design?
C	Draw the flowchart and explain the first three phases for the morphology of Design?

University of Mumbai
Examination 2020 under cluster 9 (FAMT)
Examinations Commencing from 23rd December 2020 to 6th January 2021
Program: **Mechanical Engineering**
Curriculum Scheme: Rev2016
Examination: BE Semester VIII
Course Code: MEC802 and Course Name: Industrial Engineering and Management

Time: 2 hour   Max. Marks: 80
===
2612_R16_Mech_VIII_MEC802_QP1
===

Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	Addition of Excess time to basic work content is called as
Option A:	Main work content
Option B:	Aggregate work content
Option C:	Total work content
Option D:	Overall work content
2.	Ineffective time Within the control of the worker involves
Option A:	bad working conditions
Option B:	lack of standardization
Option C:	Bad planning
Option D:	careless workmanship
3.	………….. is the application of techniques designed to establish the time for a qualified worker to carry out a specified job at a defined level of performance
Option A:	Method study
Option B:	work measurement
Option C:	work study
Option D:	motion study
4.	Outline process chart is a process chart giving an overall picture by recording in sequence only ………….and ……………..
Option A:	Operation and transport
Option B:	transport and permanent storage
Option C:	operations and inspections
Option D:	inspections and transport
5.	Critical examination involves primary questions related to …..
Option A:	Purpose, place, operation, layout, Means by which activities are undertaken
Option B:	Purpose, place, sequence, person, means by which activities are undertaken
Option C:	Purpose, plan, activity, time play out, means by which activities are undertaken
Option D:	Purpose, plan, place, layout , means by which activities are undertaken
6.	………………..is a chart on which the activities of more than one subject (worker, machine or items of equipment) are each recorded on a common time scale to show their interrelationship.

Option A:	Flow process chart
Option B:	Two handed process chart
Option C:	simo chart
Option D:	multiple activity chart
7.	Work sampling is a method of finding the percentage occurrence of a certain activity by
Option A:	random sampling and observation
Option B:	statistical sampling and random observation
Option C:	Random sampling and analysis
Option D:	statistical sampling and analysis
8.	Times today equipment does not involve
Option A:	stopwatch
Option B:	time study board
Option C:	time study form
Option D:	Torch
9.	………is an element who is does not occur in Every work cycle of the job but which may occur at regular or irregular intervals.
Option A:	repetitive element
Option B:	occasional element
Option C:	constant element
Option D:	governing element
10.	As per Rowan plan of wage and incentive system, bonus is paid for a worker
Option A:	Who is output exceed 67% Efficiency
Option B:	On the percentage of time saved
Option C:	On the percentage of time worked
Option D:	On the percentage of Standard Time
11.	P.M.T.S (Predetermined motion and time systems) does not include
Option A:	M.T.M (Method Time Measurement)
Option B:	Work factor system
Option C:	Basic motion time study
Option D:	Maynard operation sequence technique
12.	In work measurement, 1 TMU is equal to
Option A:	0.00036 seconds
Option B:	0.06 min
Option C:	0.0006 seconds
Option D:	0.0006 min
13.	Dispatching in Industrial engineering means
Option A:	Dispatch of sales order
Option B:	Dispatch of factory Mail
Option C:	Dispatch of finished product to the customer
Option D:	Dispatch of work orders to shop floor
14.	Which of the following is not an objective of cellular manufacturing

Option A:	Reduced manufacturing lead time
Option B:	Increased in quality
Option C:	Reduced setup time
Option D:	Measure standard time
15.	Prime objective of value engineering is
Option A:	Find the depreciation value for engineering materials
Option B:	Determine the sale value of a product
Option C:	Enhance the functional value and / or reduce the cost without change in quality of the product
Option D:	Enhance the esteem value of product
16.	Which manufacturing technique involves manufacturing of parts having similarities in geometry/manufacturing process / functions in one location
Option A:	Production technology
Option B:	Group technology
Option C:	Flexible manufacturing system
Option D:	Mass production system
17.	Which of the following is involved in Lean manufacturing?
Option A:	Elimination of cost only
Option B:	Quality enhancement only
Option C:	Reduction of inventory cost only
Option D:	Elimination of all types of wastes
18.	The following will have an esteemed value
Option A:	Wooden pencil
Option B:	Fountain pen with gold plating and diamond studded cap
Option C:	Ball pen
Option D:	Fountain pen
19.	What does symbol 'D' employ in work study
Option A:	Operation
Option B:	Inspection
Option C:	Delay/ temporary Storage
Option D:	Permanent storage
20.	In THERBLIGS, following is not a basic motion element
Option A:	Walk
Option B:	Move
Option C:	Use
Option D:	Plan

Q2.	Descriptive Questions Solve any four 5 marks each
A	How value engineering & value analysis are different from each other?
B	Explain principles of motion economy.
C	Write note on business process reengineering.
D	Explain value stream mapping with suitable example.
E	Describe the term productivity and its measures.
F	Draw and explain with a dummy the following sequence charts a) Outline process chart b) Flow process chart for worker
Q3.	Descriptive Questions Solve any Two 10 marks each
A	What are different techniques of industrial engineering? Explain any two in detail.
B	Write note on i) lean manufacturing ii) types of plant layout
C	What is a Functional analysis system technique? Construct FAST diagram for ball point pen / pencil with eraser / Projector.

University of Mumbai
Examination 2020 under cluster 9(FAMT, Ratnagiri)
Examinations Commencing from 23rd December 2020 to 6th January 2021
Program: **Mechanical Engineering**
Curriculum Scheme: Rev 2016
Examination: BE Semester VIII
Course Code: MEC803 and Course Name: Power Engineering

Time: 2 hour   Max. Marks: 80

==

Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	In order to avoid cavitation in centrifugal pump
Option A:	The suction pressure should be high
Option B:	The delivery pressure should be high
Option C:	The suction pressure should be low
Option D:	The delivery pressure should be low
2.	The _____ rate is the result of a purely chemical combination process in which the flame eats it way into the unburned charge.
Option A:	Transposition
Option B:	Reaction
Option C:	Burning
Option D:	Fusion
3.	What is the heat of reaction if the heat of combustion of products is 40 J and heat of combustion of reactants is 25 J?
Option A:	65 J
Option B:	1.6 J
Option C:	15 J
Option D:	-15 J
4.	The equivalent evaporation (kg/hr) of a boiler producing 2000 kg/hr of steam with enthalpy content of 2426 kJ/kg from feed water at temperature 40°C (liquid enthalpy = 168 kJ/kg, enthalpy of vaporization of water at 100°C = 2258 kJ/kg) is
Option A:	2000
Option B:	2149
Option C:	1682
Option D:	1649
5.	Presence of _____ in a dry gaseous fuel does not contribute to its calorific value.
Option A:	Sulphur
Option B:	Oxygen
Option C:	Hydrogen
Option D:	Carbon
6.	When the total heat of steam is h kJ/kg and the sensible heat of feed water is hf1 kJ/kg, then the factor of evaporation is given by

Option A:	(h - hf1)/2257
Option B:	(h + hf1)/2257
Option C:	(h × hf1)/2257
Option D:	(h / hf1)/2257
7.	The degree of reaction is defined as the ratio of
Option A:	Enthalpy drop in the fixed blades to the total enthalpy drop in the fixed and moving blades
Option B:	Enthalpy drop in the moving blades to the enthalpy drop in the fixed blades
Option C:	Enthalpy drop in the moving blades to the total enthalpy drop in the fixed and moving blades
Option D:	Enthalpy drop in the fixed blades to the enthalpy drop in the moving blades.
8.	Which statement is incorrect about reaction turbine
Option A:	both Kinetic and Pressure energy converted to work
Option B:	curved blades are used
Option C:	Only pressure energy converted to work
Option D:	Nozzle is not required for this turbine
9.	Open cycle gas turbine works on
Option A:	Brayton cycle
Option B:	Rankine cycle
Option C:	Carnot cycle
Option D:	Ericsson cycle
10.	The ratio of heat actually released by 1kg of fuel to heat that would be released by complete perfect combustion, is called
Option A:	Thermal efficiency
Option B:	Combustion efficiency
Option C:	Engine efficiency
Option D:	Compression efficiency
11.	In a two stage gas turbine plant, with intercooling and reheating........
Option A:	Both work ratio and thermal efficiency improve
Option B:	Work ratio improves but thermal efficiency decreases
Option C:	Thermal efficiency improves but work ratio decreases
Option D:	Both work ratio and thermal efficiency decreases
12.	The relation between maximum pressure ratio and optimum pressure ratio is given by
Option A:	optimum pressure ratio = (maximum pressure ratio)/2
Option B:	optimum pressure ratio = maximum pressure ratio
Option C:	optimum pressure ratio = sqrt(maximum pressure ratio)
Option D:	optimum pressure ratio = (maximum pressure ratio)^2
13.	The ____ the pressure ratio, the ____ will be efficiency.
Option A:	Less, More
Option B:	Less, Less
Option C:	More, More
Option D:	More, Less

14.	The heat of combustion of a fuel
Option A:	Is always negative.
Option B:	Is equal to the heat of formation.
Option C:	Can't be known without calculating it.
Option D:	Is always positive.
15.	Specific speed of a turbine depends upon
Option A:	Discharge and power
Option B:	Discharge and Speed
Option C:	Speed, power and head
Option D:	Power and head
16.	For radial discharge, the hydraulic efficiency of Francis is given by
Option A:	Vw1*u1
Option B:	Vw1*u1+ Vw2 u2/ gH
Option C:	Vw1*u1/ gH
Option D:	gH/ Vw1*u1
17.	The speed ratio of Francis turbine is the ratio of
Option A:	Theoretical jet velocity to peripheral speed at inlet
Option B:	Peripheral speed at inlet to the theoretical jet velocity
Option C:	Velocity of flow at inlet to theoretical jet velocity
Option D:	theoretical jet velocity to velocity of flow at inlet
18.	Which of the following turbine is suitable for specific speed ranging from 300 to 1000
Option A:	Kaplan turbine
Option B:	Pelton turbine
Option C:	Francis turbine
Option D:	Propeller turbine
19.	The width of the bucket for a pelton wheel is generally …………… the diameter of jet
Option A:	Double
Option B:	Three times
Option C:	Four times
Option D:	Five times
20.	From indicator diagram of reciprocating pump it is observed that maximum friction head occurs at an angle of
Option A:	0 degree
Option B:	45 degree
Option C:	90 degree
Option D:	60 degree

Q2	Solve any Four out of Six	5 marks each
A	Explain the term "Equivalent Evaporation"	

B	List the merits and demerits of closed cycle gas turbine over open cycle gas turbine.
C	What do you understand by governing of hydraulic turbines?
D	Write a note on Rocket Engine
E	What are the general features of rotary pumps? List the merits and demerits of rotary pumps oven positive displacement pumps.
F	Give the comparison between Impulse Turbine and Reaction Turbine

Q3.	Solve any Two Questions out of Three 10 marks each
A	1. Define the term: suction head, delivery head, static head and manometric head. 2. *What is priming of a centrifugal pump? Explain clearly why priming is essential before starting a centrifugal pump?*
B	A reaction turbine works at 450 rpm under a head of 120 m. The diameter of the inlet is 1.2 m and the flow area in 0.4m². At the inlet, absolute and the relative velocities make an angle of 20° and 60° respectively with the tangential velocity. Determine the power developed and the hydraulic efficiency. Assume the velocity of whirl at the outlet to be zero.
C	The length and diameter of a suction pipe of a single acting reciprocating pump are 5 m and 10 cm respectively. The pump has a plunger of diameter 150 mm and of stroke length of 300 mm. The center of the pump is 4 m above water surface in the pump. The atmospheric pressure head is 10.3 m of water and pump is running at 40 rpm. Determine (i) Pressure head due to acceleration at the beginning of the suction stroke (ii) Maximum pressure head due to acceleration (iii) Pressure head in the cylinder at the beginning and at the end of the stroke.

University of Mumbai
Examination 2020 under cluster 9 (Lead College: FAMT)
Examinations Commencing from 23rd December 2020 to 6th January 2021
Program: **BE (Mechanical)**
Curriculum Scheme: 2016
Examination: BE Semester VIII
Course Code: MEDLO8041 and Course Name: Power Plant Engineering
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 processes do occur in the Brayton cycle?
Option A:	two reversible adiabatic processes and two reversible isochoric processes
Option B:	two reversible adiabatic processes and two reversible isobaric processes
Option C:	two reversible adiabatic processes and two reversible isothermal processes
Option D:	two reversible adiabatic processes and two reversible isentropic processes
2.	In a binary cycle, ____ cycles with ____ working fluid are coupled.
Option A:	three, different
Option B:	two, different
Option C:	two, same
Option D:	three, same
3.	A simple Brayton cycle has a pressure ratio of 5 and a maximum temperature of 900 K. Air enters the compressor at 100 kPa, 300 K. Based upon cold-air standard analysis assumptions, the back-work ratio of this cycle is?
Option A:	0.36
Option B:	0.48
Option C:	0.23
Option D:	0.53
4.	Which of the following is a disadvantage of most of the renewable energy sources?
Option A:	Highly polluting
Option B:	High waste disposal cost
Option C:	Unreliable supply
Option D:	High running cost
5.	The following is dry type dust collectors
Option A:	Spray type
Option B:	Packed type
Option C:	Impingement type
Option D:	Cyclone separator

6.	What is the principle of operation of steam power plant?
Option A:	Carnot cycle
Option B:	Rankine cycle
Option C:	Brayton cycle
Option D:	Stirling cycle
7.	To obtain best thermal efficiency the working fluid in vapour power cycle should be...
Option A:	Toxic and corrosive
Option B:	Chemically unstable
Option C:	At high critical temperature
Option D:	With high specific heat
8.	Which one of the following pairs of materials is used as moderator in nuclear reactors?
Option A:	Heavy water and zirconium
Option B:	Zorconium and beryllium
Option C:	Cadmium and beryllium
Option D:	Beryllium and heavy water
9.	What type of hydropower plant does not use a dam:
Option A:	Impoundment
Option B:	Run off river
Option C:	Pumped storage
Option D:	No storage
10.	The maximum demand of a consumer is 2 kW and the corresponding daily energy consumption is 30 units. The load factor is
Option A:	0.05
Option B:	0.5
Option C:	0.625
Option D:	0.75
11.	A Steam Power Station has an annual load factor of 45%. If the maximum demand is 25000 kW, then units generated in annum are
Option A:	5.44*105 kWh
Option B:	9.86*107 kWh
Option C:	19.86107 kWh
Option D:	10.92*107 kWh
12.	Which of the following statement about economizer of steam power plant is wrong?
Option A:	Economizer increases the Boiler Efficiency
Option B:	It uses the heat of flue gases used by boiler going to the chimney
Option C:	Economizer increases the temperature of intake air
Option D:	It requires regular maintenance and cleaning
13.	Which statement about hydroelectric power plant is wrong?
Option A:	Efficiency of hydroelectric power plant does not reduce with age
Option B:	Its construction cost is very high and takes a long time for erection.

Option C:	It is very neat and clean plant because no smoke or ash is produced.
Option D:	Meeting rapidly changing load demands is not possible in hydroelectric power plant.
14.	The overall efficiency of two cycles coupled in series....
Option A:	is greater than the sum of the individual efficiencies minus their product
Option B:	is less than the sum of the individual efficiencies minus their product
Option C:	is multiple of the sum of the individual efficiencies minus their product
Option D:	is equal to the sum of the individual efficiencies minus their product
15.	Load shedding is done to
Option A:	improve power factor
Option B:	run the equipment efficiently
Option C:	reduce peak demand
Option D:	repair the machine
16.	Uranium 238 is represented by 92U238. What does it imply?
Option A:	It has 92 protons and 146 neutrons
Option B:	It has 146 protons and 92 electrons
Option C:	It has 92 protons and 238 neutrons
Option D:	It has 92 neutrons and 238 protons
17.	Which energy of water is used to drive the turbine
Option A:	Potential
Option B:	Kinetic
Option C:	Mechanical
Option D:	Electrical
18.	IGCC means
Option A:	Integrated Gasification Combined Cycle
Option B:	Inert Gas Coal Cycle
Option C:	Ideal Gasification Combined Cycle
Option D:	Integrated Gasification Coal Cycle
19.	What will be effect if steam pressure increased on efficiency of steam power plant?
Option A:	Does not changes
Option B:	Increases linearly
Option C:	Decreases linearly
Option D:	Increases nonlinearly
20.	The annual depreciation of a hydro power plant is about
Option A:	0.5% to 1.5%
Option B:	10% to 15%
Option C:	15% to 20%
Option D:	20% to 25%

Q2	**Descriptive Questions** **Solve any Four out of Six** **5 marks each**
A	Discuss rankine cycle with the help of T-s and h-s diagram? Write the expression for efficiency, work ratio and heat rejected.
B	Describe various methods to improve performance of gas turbine power plant.
C	What are the points taken into consideration while selecting site for steam power plant.
D	Explain pumped storage power plant with neat sketch.
E	What is PWR and how it differs from BWR?
F	Explain: • Connected load • Diversity load • Plant capacity load • Plant use factor • Demand factor

Q3	**Descriptive Questions** **Solve any Four out of Six** **5 marks each**
A	Write short note on closed cycle gas system.
B	Comment and discuss the issue of energy crisis in developing countries like India?
C	Write short note on 1. Run off & rain fall measurement systems. 2. Surge tank
D	Explain nuclear waste disposal.
E	Explain working of pulverized coal system with its advantages and disadvantages.
F	What is depreciation? Explain any one method to calculate depreciation cost.

Program: **Mechanical Engineering**
Curriculum Scheme: Rev 2016
Examination: BE Semester VIII
Course Code: MEDLO8042 and Course Name: Rapid Prototyping

Time: 2 hour   Max. Marks: 80

3112_R16_Mech_VIII_MEDLO8042_QP1

Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	Which material can be efficiently used as a support material?
Option A:	ABS
Option B:	PLA
Option C:	Nylon
Option D:	PVA
2.	Material shrinkage error can occur because of;
Option A:	poor resin properties
Option B:	bed weather conditions
Option C:	poor calibration of the machine
Option D:	error in cad file
3.	Metal spraying process is restricted to models with _____ surfaces.
Option A:	Large and gently curved
Option B:	Small and gently curved
Option C:	Large and with projection
Option D:	Small and with projection
4.	Which statement is correct for Soft Tooling?
Option A:	It is used for mass production
Option B:	It is used for single cast or small batch production
Option C:	It is used for simple cast
Option D:	It is used for both small as well as mass production
5.	Which of the following material is water soluble?
Option A:	Polylactic acid (PLA)
Option B:	Acrylonitrile butadiene styrene (ABS)
Option C:	Polycarbonate (PC)
Option D:	Polyvinyl alcohol (PVA)
6.	Packing density of part obtained from SLS process is in the range_____.
Option A:	25 to 50 percent
Option B:	50 to 62 percent
Option C:	75 to 90 percent
Option D:	98 to 100 percent

7.	The FDM process build parts directly by extruding _____ melt onto the model
Option A:	porous
Option B:	solid
Option C:	semi-liquid
Option D:	powder
8.	In SLA, the powder not melted or fused during processing serves as a
Option A:	waste
Option B:	built-in support
Option C:	extra powder
Option D:	throw away powder
9.	In Solid Ground Curing process mask is generated by_____.
Option A:	UV lamp
Option B:	Ionographic process
Option C:	Melted wax
Option D:	Resin
10.	Solid Ground Curing process is not used in making of _____.
Option A:	Investment casting
Option B:	Mold and tooling
Option C:	Medical imaging
Option D:	Cutting tools
11.	Disadvantage associated with Solid Ground Curing process is_____.
Option A:	Wax gets stuck in corners and crevices
Option B:	Self-supporting
Option C:	Minimum shrinkage effect
Option D:	High structural strength and stability
12.	The laser beam power in laminated object manufacturing is designed to cut exactly the thickness of _____of material at a time.
Option A:	one layer
Option B:	two layers
Option C:	four layers
Option D:	eight layers
13.	Advantage of SLS process
Option A:	Large physical size of the unit
Option B:	High power consumption
Option C:	Poor surface finish
Option D:	No part supports required
14.	PolyJet process from Objet involves _____.
Option A:	An array of printing heads to simultaneously selectively deposit powder
Option B:	An array of printing heads to simultaneously selectively deposit photopolymer

Option C:	Laser for printing
Option D:	Laser for masking
15.	In PolyJet process from Objet curing is done using _____.
Option A:	Laser
Option B:	Polymerization
Option C:	UV lamp
Option D:	Hardener
16.	Virtual Reality (VR) is the illusion of;
Option A:	3D Animation with effects
Option B:	3D interactive Computer-generated reality
Option C:	3D images
Option D:	2D Animation with effects
17.	What is the disadvantage of contact scanners?
Option A:	It is based only on CMM
Option B:	Soft materials cannot be scanned accurately
Option C:	Very small size job (Nano-microns) can be scanned
Option D:	It takes more time to scan compared to non-contact type.
18.	Which one of the statement is correct?
Option A:	Product life cycle management is a part of project data management
Option B:	Project data management is a part of product life cycle management
Option C:	Computer integrated manufacturing is a part of product data management
Option D:	Product life cycle management excludes project data management
19.	_____ is one where mechanical forces or restricting forms are applied on a material so as to form it into the desired shape.
Option A:	Subtractive process
Option B:	Additive process
Option C:	Formative process
Option D:	Casting process
20.	STL files contains _____.
Option A:	Mass properties of the model
Option B:	Geometrical data
Option C:	Drawing data
Option D:	Colour data

Q2.	Solve any Four out of Six	5 marks each
A	Discuss advantages and limitations of any two RP file formats	
B	Explain working principle of SLS process	
C	Compare SGC with SLA and LOM	
D	Explain the process of Cast Kirksite Tooling in Rapid Tooling	
E	Explain the materials used in FDM process	

F	Define Virtual Reality and explain its features

Q3.	**Solve any Two Questions out of Three** **10 marks each**
A	Explain the steps involved in Rapid Prototyping Process
B	Explain SGC with respect to following parameters; Principle, process steps, advantages, limitations and applications
C	Explain FDM with respect to following parameters; Principle, process steps, advantages, limitations and applications

University of Mumbai
Examination 2020 under cluster 09 (Lead College FAMT)
Examinations Commencing from 23rd December 2020 to 6th January 2021
Program: Mechanical Engineering
Curriculum Scheme: Rev 2016
Examination: B E Sem VIII
Course Code: MEDLO8043 and Course Name: Renewable Energy Systems

Time: 2 hour   Max. Marks: 80

===
3112_R16_Mech_VIII_MEDLO8043_QP1
===

For the students: All the Questions are compulsory and carry equal marks.

Q1.	For meeting the future energy requirements India is planning to have
Option A:	More use of fossil fuels
Option B:	Less energy consumption
Option C:	More use of Renewable energy
Option D:	Complete ban on fossil fuel
Q2.	Based on traditional use energy sources are classified as
Option A:	Conventional & Non-conventional
Option B:	Non-renewable & Renewable
Option C:	Commercial & Non commercial
Option D:	Primary & secondary sources
Q3.	Which of the renewable energy has maximum potential in India
Option A:	wind
Option B:	Geothermal
Option C:	Hydrogen
Option D:	Solar
Q4.	The efficiency of various types of collectors _____ with _____ temperature.
Option A:	increases, decreasing
Option B:	decreases, increasing
Option C:	remains same, increasing
Option D:	depends upon type of collector
Q5.	The global radiation reaching a horizontal surface on the earth is given by
Option A:	Hourly beam radiation + Hourly diffuse radiation
Option B:	Hourly beam radiation – Hourly diffuse radiation
Option C:	Hourly beam radiation / Hourly diffuse radiation
Option D:	Hourly diffuse radiation / Hourly beam radiation
Q6.	The angle made in the horizontal plane between the horizontal line due south and the projection of the normal to the surface on the horizontal plane is
Option A:	Hour angle
Option B:	Declination
Option C:	Surface azimuth angle
Option D:	Solar altitude angle

Q7.	The hour angle is equivalent to
Option A:	10° per hour
Option B:	15° per hour
Option C:	25° per hour
Option D:	45° per houR
Q8.	What does Heating and cooling of the atmosphere generates?
Option A:	Thermo line circulation
Option B:	Radiation currents
Option C:	Convection currents
Option D:	Conduction currents
Q9.	How much wind power does India hold?
Option A:	20,000 MW
Option B:	12,000 MW
Option C:	140,000 MW
Option D:	5000 MW
Q10.	What is the main source for the formation of wind?
Option A:	Uneven land
Option B:	Sun
Option C:	Vegetation
Option D:	Seasons
Q11.	Which type of windmill has better performance?
Option A:	Vertical type wind mills
Option B:	Darrieus type machines
Option C:	Magnus effect rotor
Option D:	Horizontal type windmills
Q12.	Biomass is produced by which substances.
Option A:	Stones
Option B:	Water
Option C:	Plants and aquatic derivatives
Option D:	Soil
Q13.	Which parameter is not effecting the biomass conversion process
Option A:	Temperature
Option B:	Pressure
Option C:	Culture condition
Option D:	Volume
Q14.	Which one is the types of gasifiers
Option A:	Criss-cross gasifiers
Option B:	Linedraft gasifiers
Option C:	Updraft gasifiers
Option D:	Mis-match gasifiers

Q15.	The main component of Biogas is
Option A:	Octane
Option B:	Methane
Option C:	Butane
Option D:	Propane
Q16.	Closed cycle systems use the fluid having _____
Option A:	High boiling points
Option B:	Low boiling points
Option C:	High viscosity
Option D:	Low viscosity
Q17.	The open cycle system produces _____ water
Option A:	Desalinated
Option B:	Impure
Option C:	Contaminated
Option D:	Chlorinated
Q18.	Vapour dominated geothermal systems are called as
Option A:	Petro thermal systems
Option B:	Geopressure systems
Option C:	Dry steam fields
Option D:	Hot dry rock systems
Q19.	A fuel cell is used to convert chemical energy into _____
Option A:	Mechanical energy
Option B:	Solar energy
Option C:	Electrical energy
Option D:	Potential energy
Q20.	The electrolytic solution used in a hydrogen-oxygen fuel cell is _____
Option A:	75% KOH solution
Option B:	25% KOH solution
Option C:	75% NaOH solution
Option D:	25% NaOH solution

Q2	Solve any Four out of Six 5 marks each
A	Explain social & economic effects of global energy crises in details
B	Explain solar Liquid flat plate collector & it's working
C	Explain components of wind energy conversion system
D	Discuss the factors which affect the production of biogas.
E	What is geothermal Energy? State its applications with advantages and limitations.
F	What is Fuel Cell? Classify it in brief.

Q3	Solve any Two out of Six 10 marks each

A	Describe construction and working of floating drum type biogas plant with the help of sketch.

B	Define & explain the following terms:
	    i) Latitude
	    ii) Declination
	    iii) Surface Azimuth Angle
	    iv) Hour Angle
	    v) Day Length

C	Describe with a neat sketch the working of wind energy system showing the main components. Discuss advantages and disadvantages of wind energy conversion systems.

University of Mumbai
Examination 2020 under cluster 09 (Lead College: FAMT)
Examinations Commencing from 23rd December 2020 to 6th January 2021
Program: Mechanical Engineering
Curriculum Scheme: Rev2016
Examination: BE Semester VIII
Course Code: MEDLO8044 and Course Name: Energy Management in Utility System

Time: 2 hour   Max. Marks: 80

==
3112_R16_Mech_VIII_MEDLO8044_QP1
==

Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	Which of the following statement is true regarding the EC act?
Option A:	Designated consumer has to get an energy audit by a accredited Energy Auditor
Option B:	State Designated Agencies have to appoint Energy auditor with prescribed qualifications.
Option C:	Designated consumer has to get an energy audit by a Certified Energy Manager
Option D:	Designated consumer has to get an energy audit conducted by the State Designated Agency
2.	A process requires 120 kg of fuel with a calorific value of 4800 kcal/kg for heating with a system efficiency of 82 %. The loss would be.
Option A:	576000kcal
Option B:	472320kcal
Option C:	103680kcal
Option D:	480000kcal
3.	The main purpose of BEE is to
Option A:	carry actual energy audit
Option B:	frame the policies for energy conservation and ensures its effective implementation in India
Option C:	sell energy efficient product
Option D:	Monitor energy consumption of all industries on daily basic
4.	If 10000 kg salt solution with 3.5% concentration is be converted to 7% concentration, the water evaporation will be
Option A:	2000 kg
Option B:	5000kg
Option C:	3000 kg
Option D:	3500 kg
5.	Luxmeter is used for
Option A:	Lighting level measurement
Option B:	Flow measurement
Option C:	Velocity measurement
Option D:	Temperature measurement

6.	Which of the following has the lowest energy content in terms of MJ/kg?
Option A:	LPG
Option B:	Diesel
Option C:	Natural Gas
Option D:	Coal
7.	Estimate simple payback period if 10 kW motor replaced with 6 kW efficient motor. Assumed 5000 h/year operation duration, 10 Rs/kWh, cost of motor Rs. 100000/-
Option A:	6 months
Option B:	8 months
Option C:	12 months
Option D:	24 months
8.	If operating 5 kW pump in night time, have benefit of lower tarrif by 0.5 Rs/kWh, the reduction in monthly bill for its 5 h/day running will be
Option A:	Rs. 270
Option B:	Rs. 500
Option C:	Rs. 375
Option D:	Rs. 425
9.	If higher pressure water from pipe is expanded to atmosphere pressure
Option A:	It cools and evaporate
Option B:	Its temperature increases
Option C:	All water converted to steam
Option D:	It subcools
10.	The pump was used to circulate cooling water from and to cooling tower. The height difference between cooling tower inlet and pump centre line is 5 m, the minimum pressure at pump outlet shall be
Option A:	0.5 bar (g)
Option B:	0.4 bar (g)
Option C:	0.3 bar (g)
Option D:	0.2 bar (g)
11.	The lower approach in cooling tower
Option A:	Increases refrigerant condensation pressure
Option B:	Decreases refrigerant condensation pressure
Option C:	Increases compressor power
Option D:	Decreases cooling capacity
12.	Steam traps are used for
Option A:	To allow condensate to flow and trap the steam
Option B:	Stop heat loss from system
Option C:	Allow excess steam to flow
Option D:	To maintain pressure in steam pipe
13.	The unit of lumen efficacy
Option A:	lm/W
Option B:	W/m2

Option C:	lux/W.m^2
Option D:	W/m^2/100lux

14.	The replacement of CFL with LED reduce the power consumption by
Option A:	10 to 20%
Option B:	20 to 30%
Option C:	40 to 50%
Option D:	60 to 80%

15.	In cogeneration
Option A:	High pressure steam is expanded through turbine and expanded steam is used for process
Option B:	High pressure steam is expanded through turbine and expanded steam is condensed
Option C:	Higher pressure steam is used for refrigeration
Option D:	Electricity is used for steam generation and steam is used for process

16.	Which of the following is not an environmental issue of global significance
Option A:	Ozone layer depletion
Option B:	Global Warning
Option C:	Loss of Biodiversity
Option D:	Suspended particulate Matter

17.	In a glass industry waste heat is used for power generation. This type of cogeneration
Option A:	topping cycle
Option B:	bottoming cycle
Option C:	gas turbine cycle
Option D:	reheat cycle

18.	The isentropic enthalpy drop of 2 TPH steam across turbine was 50 kJ/kg. If is isentropic efficiency was 50% , the power generation will be
Option A:	13.88 kW
Option B:	50.00 kW
Option C:	55.55 kW
Option D:	27.77 kW

19.	The calorific value of oil is 10000 kcal/kg. Find out the coal equivalent to replace 1 kg of oil (Coal GCV = 16000 kJ/kg) assuming same efficiency
Option A:	0.625 kg
Option B:	3.00 kg
Option C:	2.60 kg
Option D:	3.56 kg

20.	An induction motor draws 8 kW with a lagging reactive power of 4 kVAr. Calculate the operating power factor of the motor.
Option A:	0.65 to 0.75
Option B:	0.75 to 0.85
Option C:	0.85 to 0.95
Option D:	0.95 to 1.00

Q2. (20 Marks)	Solve any Four out of Six 5 marks each
A	How much carbon emission will be reduced per year by replacing 60 Watt incandescent lamp with 15 Watt CFL Lamp, if emission per unit is 1 kg CO2 per kWh and annual burning is 3000 hours?
B	The cost of replacement of inefficient compressor with an energy efficient compressor in a plant was Rs 5 lakh. The net annual cash flow is Rs 1.25 lakh. Calculate return on investment.
C	A plant required steam at 4 TPH at 3 bar, and power 450 kW power. Suggest suitable energy saving scheme with approximate operating parameters.
D	In a boiler operating with 10:1 fuel air ration & with 1 TPH coal consumption, flue gas were available at 300^oC. If flue gas temperature can be reduced to 200^oC for water preheating, estimate annual saving (Assume cost of fuel : 5 Rs/kg, CV: 10000 kJ/kg, efficiency of boiler : 65%)
E	If power factor is to be increase from 0.6 to 0.95 for 20 kW load, calculate size of capacitor bank and annual saving, if demand charges are 200 Rs/kVA.
F	If doubling the water flow rate reduces condenser temperature if 200 TR chiller and increases its COP from 2.8 to 3.3, estimate annual saving in electricity bill, if earlier pump power was 2.6 kW and electricity was available at Rs 10 per kWh.

Q3. (20 Marks)	Solve any Four out of Six 5 marks each
A	The specific power consumption of 200 TR water cooled chiller was 0.9 kW/TR. Estimate the thermal load in cooling tower.
B	If 100 CFL of 50 W working 12 h/day are to be replaced with 20 W LED, estimate reduction in annual electricity consumption and bill if electricity charges were 5 Rs/kWh.
C	Moisture content of 25 kg/h dry cloth is reduced from 65% to 15% over stenter. If condensate collection rate from it was 20 kg/h, find efficiency of drier. (steam entering dry and saturated at 7 bar (g))
D	Explain energy audit methodology in details.
E	Explain CDM and carbon credit with suitable example
F	If COP of 2 TR air conditioner is improved from 2.5 to 3.517, estimate reduction electrical unit consumption for 10 hours/day of continuous operation.