Code No. 2340/BL

FACULTY OF ENGINEERING

B.E. 4/4 (Mech.) II - Semester (Backlog) Examinations, December 2020
Subject: Production Drawing

Time: 2 Hours **Max. Marks: 75**

Note: (Missing data if, any can be assumed suitable)

PART-A

Answer any seven questions. **(7 x 3 = 21 Marks)**

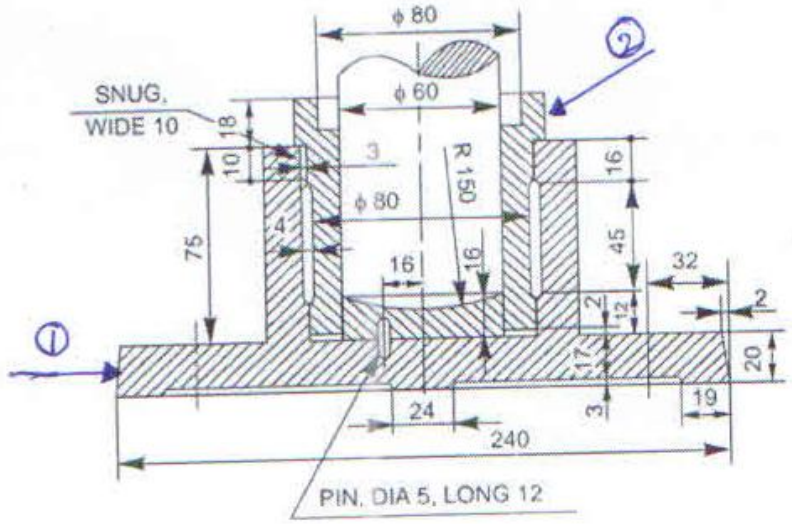
1. Explain the significance of Production Drawing in a Manufacturing firm.
2. Differentiate between Machine Drawing and Production Drawing.
3. Sketch conventional representation of Spur gear and splined shafts.
4. What do you understand by the term interchangeability? Explain.
5. Write the differences between unilateral and bilateral tolerance.
6. How geometrical tolerances are indicated on drawing sheet? Explain with sketch.
7. Calculate the maximum and minimum limits for both the shaft and hole in the following:
   i) 45H8/d7 ii) 40G7/h6
8. Explain the geometrical characteristics of a surface.
9. Define the term, Surface Roughness Number.
10. What is a process sheet? Explain.

PART-B (1X54=54 Marks)

Answer the following question.

11. a) From the assembly drawing of Foot Step bearing shown in Fig.1. Draw the sectional view and top view of :
    i) Body
    ii) Bush

…2



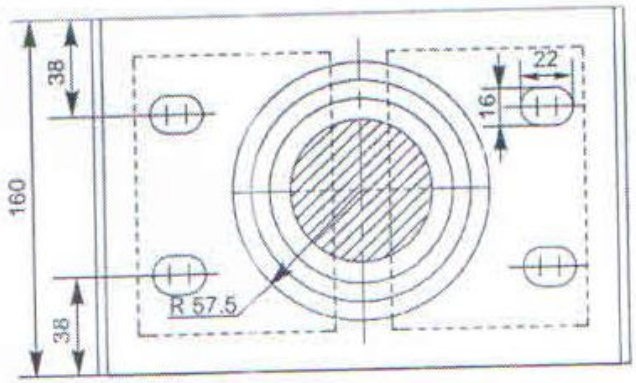


Fig. 1 Foot-step bearing

Parts list

Sl. No.	Name	Matl.	Qty.
1	Body	Cast iron	1
2	Bush	Brass	1
3	Disc	P Bronze	1
4	Shaft	Mild steel	1
5	Pin	Mild steel	1

Fig. 1 Foot Step Bearing

b) Write the Process sheet for the component bush.

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Code No. 2341/BL

FACULTY OF ENGINEERING

B.E. 4/4 (Prod.) II-Semester (Backlog) Examination, December 2020

Subject : Tool Design

Time: 2 Hours **Max. Marks: 75**

Note: (Missing data if, any can be assumed suitable)

PART – A

Answer any seven questions. **(7 x 3 = 21 Marks)**

1. Define Jig and fixture.
2. Name a few grinding methods of milling cutters.
3. Enlist the desired properties of tooling materials.
4. Sketch a simple die set element.
5. Briefly explain about fool proofing.
6. Enlist the applications of piercing.
7. Differentiate between pull and push type broach.
8. Briefly explain the principle of adjustable reamers.
9. Briefly explain the significance of taps.
10. Differentiate between hydraulic and pneumatic clamps.

PART – B

Answer any three questions. **(3 x 18 = 54 Marks)**

11. a) With the neat sketch explain the working principle of ECM.
    b) Differentiate between lapping and honing with Sketch.

12. a) Explain the principle and methods to determine the manufacturing tolerances in reamers.
    b) With a neat sketch explain how rake angle is varied from cutting point to the periphery in a drill.

13. a) Sketch a single point cutting tool and indicate various tool angle and their functions.
    b) Explain briefly various steps involved in designing of pull type and push type broach.

14. a) Explain the various processes parameters of EDM.
    b) Explain the principles of vacuum clamping.

15. a) Explain the methods of calculating bending allowance in bending process.
    b) Explain different plastic dies used in industry.

16. a) Explain the method of calculating forces and power estimation for milling cutters
    b) Enlist the principles of jigs and fixtures.

17. Write short notes on
    a. Redundant location.
    b. Super finishing operation.

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Code No. 2786/CBCS/MP

FACULTY OF ENGINEERING

B.E. VIII – Semester (CBCS) (Civil) (Makeup) Examination, December 2020
Subject: Retrofitting & Rehabilitation of Structures (Elective III)

Time: 2 hours **Max. Marks: 70**

Note: (Missing data if, any can be assumed suitable)

PART – A

Answer any five questions. **(5X2=10 Marks)**

1. Distinguish between the terms repair and retrofitting of a building.
2. Differentiate between preventive maintenance and corrective maintenance in buildings.
3. List the mechanisms of damage in concrete structures due to thermal factors.
4. Explain the mechanism of galvanic corrosion in deterioration of steel.
5. Give the classification of the NDT procedures in terms of their application.
6. Name at least four tools or equipment to be carried by a visual inspector to the site.
7. Give the classification of the repair materials based on their chemical make-up.
8. Differentiate in principle between gunite and shotcrete.
9. List the broad categories of retrofitting a building or a structure.
10. Name any two methods of strengthening in beams and distinguish the approach between the two.

PART – B

Answer any four questions. **(4X15=60 Marks)**

11. Summarize the causes of defects in concrete structures and their prevention during (a) Pre-construction stage (b) Construction stage
12. Explain the mechanism of deterioration caused in concrete structures due to (a) Acid attack (b) Carbonation
13. Write in detail components and methodology of the Ultrasonic Pulse Velocity (USPV) tests on concrete.
14. What are the objectives of condition survey? Explain the various stages involved in a condition survey of structures.
15. Describe in detail the Retrofitting or strengthening strategies used in columns for enhancement of (a) compressive strength(b) shear capacity of slab/beam-column joint.
16. Write short notes on the following Repair methods.

    (a) Repairs using mortars (b) Pre-placed aggregate concrete (PAC)
17. Write short notes on the following NDT methods.

    (a) Rebound Hammer Test

    (b) Carbonation Depth Measurement Test.

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Code No: 2788/CBCS/MP

FACULTY OF ENGINEERING

B.E. VIII-Semester (Civil) (CBCS)(Makeup) Examination, December 2020

Subject: APPLIED HYDROLOGY (E- III)

Time: 2 Hours **Max Marks: 70**

Note: (Missing data if, any can be assumed suitable)

PART – A

Answer any five questions. **(5X2=10 Marks)**

1. How is flood stage measured?
2. What do you understand by "Mean annual flood"
3. What is flood forecasting and state its importance.
4. Define flood routing.
5. Define the terms attenuation and lag time.
6. What are various methods of flood damage mitigation?
7. What is a purpose of flood wall?
8. What do you mean by flood channel?
9. What do you understand by stationarity and trend in time series?
10. What is the significance of Auto Correlation Coefficient?

PART – B

Answer any four questions. **(4 x 15 = 60 Marks)**

11 (a) Explain measurable features of flood

(b) Explain flood forecasting system operation

12. The flood inflow to a reach of a stream is given below. Route the flood to the D/S section of the reach. Assume K = 8 hr and x = 0.25. Determine attenuation and lag time. Assume initial value of discharge at the outflow section as 8 m^3/s.

Time (hr)	0	4	8	12	16	20	24	28
Inflow (m^3/s)	8	16	30	31	26	20	15	10

13. Explain Modified Puls method of reservoir routing.

14. Explain Channel improvement and Levees as a flood mitigation measures with neat sketches.

15. Explain critical characteristics of flood hazard.

16(a) What is the difference between correlation coefficient and serial correlation coefficient. Give examples.

(b) Explain the various components in time series.

17. Write short notes on

(a) Benefits from flood control.

(b) River training works.

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Code No: 2789/CBCS/MP

FACULTY OF ENGINEERING

B.E. VIII-Semester (Civil) (CBCS) (Makeup) Examination, December 2020

Subject : Introduction to Climate Change Elective - III

Time: 2 Hours **Max. Marks: 70**

Note: (Missing data if, any can be assumed suitable)

PART – A

Answer any five questions. **(5X2=10 Marks)**

1. Differentiate between Weather and Climate
2. Discuss different types of precipitation
3. What do you mean by Monsoon system?
4. Briefly deliberate on causes of climate change
5. Define General Circulation Models. What are Earth System models.
6. List out factors affecting Indian climate system
7. Discuss heat balance of earth system
8. What are Representative concentration pathways (RCPs) in CMIP5
9. Define limited area model
10. State limitation of Downscaling approaches.

PART – B

Answer any four questions. **(4 x 15 = 60 Marks)**

11. a) Explain the over view of climate system. How does the green house gas contribute in global warming?
    b) Discuss the radiation laws and also radiation balance in the earth system.

12. a) Critically discuss about global water balance and how do you fore see the changes in it under climate change
    b) Discuss the atmospheric stability. Bring out various indices of atmospheric instability

13. a) What do you mean by Inter annual variability of Indi of Indian menseen system. How do you measure variability
    b) What are the different types of droughts? Discuss each of them in detail.

14. a) What is coupled model Inter comparison Project Phase 5 (CMIP5)? What are the significant features of CMIP5?
    b) Elaborate the impacts of climate change on hydrology. Take case study of India summer monsoon rainfall under any Representative Concentration pathways (RCP)

15 a) What is ‘Bias’. Discuss various Bias correction methods. Also state their limitations.
    b) State the advantages of data reduction technique. Discuss principal component analysis

16 Discuss the following with neat sketch wherever necessary
    a) Statistical downscaling methods
    b) CMIPS data downloading methodology

17 a) Discuss features of CMIP5 over CMIP3. Why CMIP5 is preferred over CMIP3. State advantages of the same
    b) Explain different vertical layers of atmosphere. Elucidate features of each layer briefly with neat sketch.

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Code No: 2802 / CBCS / MP

FACULTY OF ENGINEERING

B.E. VIII-Semester (CBCS) (EEE) (Makeup) Examination December2020

Subject: High Voltage DC Transmission (E-III)

Time: 2 Hours **Max. Marks: 70**

Note: (Missing data if, any can be assumed suitable)

PART – A

Answer any five questions. **(5X2=10 Marks)**

1) Mention the limitations of HVAC Transmission
2) Sketch the power transfer capability vs Distance of transmission for HVAC and HVDC systems.
3) Define Valve Utilization Factor. Write down the expression for Valve Utilization factor for odd values of q (number of valves in a commutation group)
4) Draw the equivalent circuit of bridge rectifier operating at constant Ignition angle.
5) Define Overlap and mention the effect of Overlap on Output voltage of Greatz Circuit.
6) Explain the function of Bypass valve
7) What is the criterion for design of AC Filter?
8) Mention the potential applications of MTDC Systems
9) What are the four variables that characterize the DC Circuit breaker?
10) Mention the factors that are to be considered while planning for HVDC Transmission System.

PART – B

Answer any four questions. **(4 x 15 = 60 Marks)**

11 a) Explain the comparative merits of HVAC and HVDC Transmission Systems
b) Draw the schematic diagram of a typical HVDC converter Station and explain the features of each major equipment.

12 a) Derive equation for the output DC voltage of 12 pulse Converter used in HVDC system for a delay angle of α and without overlap.
b) Neglecting losses in the converter and overlap, prove that Delay angle is equal to power factor angle in case of Greatz Bridge.

13 a) What are the desired features of Control System used for HVDC Converter ?
b) Draw the combined characteristic of Rectifier and Inverter for a two terminal HVDC Link for forward Power flow and explain each segment of the characteristic.

14 a) Define Smoothing Reactor. Enumerate the functions of DC smoothing reactor in HVDC Transmission line
b) Explain the operation of DC Circuit Breaker with the help of general arrangement drawing and waveforms.

15 a) Compare Series and parallel MTDC systems.
b) What type of MTDC system is favoured in HVDC grid. Give necessary explanation.

16 a) Explain the means of reducing over voltages and give the basic principles of over voltage protection.
b) Explain how power reversal is done in HVDC in two terminal HVDC system.

17 a) What is surge arrester? Draw the arrangement of surge arresters in a 12 pulse converter station.
b) Write short notes on Commutation Failure.

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Code No: 2824/CBCS/MP

FACULTY OF ENGINEERING

BE VIII-Semester (CBCS) (ECE) (Makeup) Examination, December 2020

Subject : Internet of Things (Elective-III)

Time: 2 Hours **Max. Marks: 70**

Note: (Missing data if, any can be assumed suitable)

PART – A

Answer any five questions. **(5X2=10 Marks)**

1. Give brief overview of IOT
2. What are different challenges in IOT?
3. Explain the layered architecture of IOT
4. What is the role of cloud computing and Big data analytics in IOT.
5. What is machine to machine communication
6. Explain about Near field communication and RFID
7. List out the modules in IOT design
8. Explain data visualization and its importance in IOT
9. Explain what are the components and communication media required for making smart irrigation
10. What are different platform middleware for WOT

PART – B

Answer any four questions. **(4 x 15 = 60 Marks)**

11. a) What is internet of things (IOT). What are components required to design IOT Device and explain about IOT device with an example.
    b) What effect will the IOT have in healthcare? Explain with any one example of smart device

12. a) Explain in detail about IOT protocol stock
    b) How prototyping of embedded devices is done Discuss in detail

13. a) Explain how getting started with API and how writing a new API
    b) Discuss about IOT design methodology

14. a) Discuss how logical design is done using python. What are the different packages for IOT
    b) Write the python program for controlling LED and LDR using Raspberry Pi

15. a) Explain different cloud storage models and communication APIS for IOT
    b) What is data analytics? What is the role of data analytics for IOT?

16. Write note on
    a) Smart home Application
    b) Smart environment
17. a) Explain about different Business models for IOT
    b) Discuss about IOT start ups.

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Code No: 2825/CBCS/MP

FACULTY OF ENGINEERING

B.E. VIII-Semester (CBCS) (ECE) (Makeup) Examination, December 2020

Subject : Neural Networks (Elective- III)

Time: 2 Hours **Max. Marks: 70**

Note: (Missing data if, any can be assumed suitable)

PART – A

Answer any five questions. **(5X2=10 Marks)**

1. What is the necessity of activation function?
2. State Hebbian learning rule.
3. Define pattern clustering
4. What is sigmoid function?
5. Write the properties of neural network.
6. Differentiate Auto Associative memory and Hetero Associative memory
7. What are the two types of signals identified in the Back Propagation network?
8. On what basis Kohenen's self-organizing nets work?
9. What is Boltzmann learning law?
10. Write the applications of Hopfield Neural network

PART – B

Answer any four questions. **(4 x 15 = 60 Marks)**

11. a) Compare and contrast biological neuron with ANN
    b) Explain perceptron neuron model

12. a) Explain Shunting and stochastic Activation model.
    b) List the requirements of learning laws

13. What is Associative memory? Explain its various types with examples.

14. a) Draw the architecture of a Multilayer perceptron (MLP) and explain its operation
    b) Explain Back propagation neural network and list its applications.

15 Explain Hopfield network with its topoloty, algorithm and applications

16 a) Explain Mc Culloch-pitts Neuron model
    b) Differentiate supervised and unsupervised learning

17 Write short notes on
    a) Adaline Neuron Model.
    b) Kohonen self orgenising Network & its applications.

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Code. No.2826/CBCS/MP

FACULTY OF ENGINEERING

B.E. (ECE) VIII-Semester (CBCS) (Makeup) Examination, December 2020

Subject : Satellite Communication (Elective-III)

Time: 2 Hours **Max. Marks: 70**

Note: (Missing data if, any can be assumed suitable)

PART – A

Answer any five questions. **(5X2=10 Marks)**

1. Describe kepler's laws of planetary motron
2. Why is uplink frequency different from downlink frequency
3. State the advantages of geosynchronous satellites
4. What is meant by EIRP
5. What is the fiqure of merit of earth stations?
6. What is multiple access of satellite
7. What are GPS codes
8. Explain subsatellite point
9. What is RADARSAT
10. State the frequency of C-band and the band

PART – B

Answer any four questions. **(4 x 15 = 60 Marks)**

11. a) What are orbital perturbations encountered by an orbiting satellite? How are they over come?
    b) List all the earth orbits and give their advantages disadvantages and their application

12. a) With a neat sketch explain the steps involved in placing satellite in the geostationary orbit from earth
    b) Discuss the procedures for launch and launch vehicles for spacecrafts

13 a) Explain the telemetry, tracking and command system of a typical satellite system.
    b) What is the figure of merit for an earth station? Derive as expression for the same

14. a) Explain in detail the steps involved is the design of satellite link for a specified C/N ratio
    b) Derive an expression for system noise temperatures of a earth station reciever

15. a) Compare the various multiple access techniques and their advantages and disadvantage over each other and state their applications
    b) Derive an expression for C/N ratio of earth slation receive

16 a) Explain the working of deferential GPS
    b) Explain the different segments in GPS configuration and write a note on source of errors

17. Explain the receiver output and outdoor unit and indoor unit for DBS communication. What is VSAT and how is it different from DBS.

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Code No. 2831/CBCS/MP

FACULTY OF ENGINEERING

B.E. (Mech.) VIII-Semester (CBCS) (Makeup) Examination, December 2020

Subject : Power Plant Engg. (Elective – III)

Time : 2 Hours **Max. Marks: 70**

Note: (Missing data if, any can be assumed suitable)

PART – A

Answer any five questions. **(5X2=10 Marks)**

1 What is the importance of Thermal Power Plants in the National power grid?
2 List out various steps involved in coal handling equipments.
3 What is overfeed fuel bed?
4 What are the applications of Gas Turbine power plant?
5 Explain Hydrological cycle.
6 Give the classification of dams and spill- ways.
7 What are the methods to control the pollution of atmosphere from power plant?
8 List major advantages of nuclear power plant.
9 What is a fast breeder reactor?
10 Define load curves, average load and load factor.

PART – B

Answer any four questions. **(4 x 15 = 60 Marks)**

11 Explain belt conveyor and screw conveyor system with diagrams.

12 Explain the important method of coal firing into the furnace.

13 What are the factors for setting up of a Hydraulic-Turbine power plant?

14 Explain the working principle of a Pressurized Water Reactor (PWR).

15 Explain any two types of dust collectors with a neat sketch.

16 Discuss in detail about power plant economics.

17 Write short notes on:
(a) Sodium Graphite Reactor
(b) Feed water Treatment

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Code No. 2846/CBCS/MP

FACULTY OF ENGINEERING

B. E. (A.E) VIII – Semester (CBCS) (Makeup) Examination, December 2020

Subject: Transport Management (E-III)

Time: 2 hours **Max. Marks: 70**

Note: (Missing data if, any can be assumed suitable)

PART – A

Answer any five questions. **(5X2=10 Marks)**

1. Define Training and its need.
2. What is personal policy?
3. List out various types of fare collecting method.
4. What is Route Survey?
5. What is “Stand time”?
6. Define Route Schedule.
7. What is contract carriage?
8. Classify the permits based on validity period.
9. Differentiate between preventive maintenance and break down maintenance.
10. Name different break down equipment.

PART – B

Answer any four questions. **(4 x 15 = 60 Marks)**

11. (a) Explain types of employment tests.
    (b) Explain aims and objectives of Industrial psychology.

12. (a) Write short notes on Layout of a central workshop.
    (b) Explain in detail about the various functional wings of Transport system.

13. (a) Explain the requirements of a good fare system.
    (b) Explain direct costs and indirect costs.

14. (a) Write short notes on Fitness certificate for vehicles.
    (b) Explain registration of motor vehicles and the required documents.

15. (a) Write short notes on Better fuel economy.
    (b) Explain tyre maintenance procedure and causes and remedies for the uneven tyre wear.

16. (a) Explain designing of stage and fare structure.
    (b) What are the basic factors to be considered in bus scheduling?

17. (a) Write short notes on Psychological tests.
    (b) Classify the Permits based on validity period.

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Code No.2851/CBCS/MP

FACULTY OF ENGINEERING

B.E. (CSE) VIII-Semester (CBCS) (Makeup) Examination, December 2020

Subject : Mobile Computing (Elective-III)

Time : 2 hours **Max. Marks:70**

Note: (Missing data if, any can be assumed suitable)

PART – A

Answer any five questions. **(5X2=10 Marks)**

1 Why the exposed/hidden terminal problem arises?
2 What is the advantage of frequency reuse?
3 Write the types of handover is GSM
4 Differentiate broadcast form multicast
5 What are the low power states of bluetooth
6 Compare infrastructure based Vs infrastructure less networks.
7 Define home agent and foreign agent of mobile IP.
8 How DHCP is useful?
9 List two advantages of I-TCP
10 What is WML script?

PART – B

Answer any four questions. **(4 x 15 = 60 Marks)**

11 a) Discuss the reasons of using cellular systems.
b) What is multiplexing? Compare all types of multiplexing.

12 a) Draw and explain architecture of GPRS.
b) Explain different types of satellite orbits with their applications.

13 a) Explain the protocol architecture of HIPERLAN.
b) Discuss MAC layer of BLUETOOTH.

14 a) Describe tunneling and encapsulation in mobile IP.
b) How does DSR protocol work? Write in detail.

15 a) Explain layers of WAP
b) Why we need so many types of TCP? Justify in detail.

16 List out the different mobile transaction models along with elaboration.

17 Write short notes on
a) FHSS
b) DVB

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Code No: 2853/CBCS/MP

FACULTY OF ENGINEERING

B.E. (CBCS) (CSE) VIII - Semester (Makeup) Examination December 2020

Subject : Software Quality and Testing (Elective-III)

Time : 2 Hours **Max. Marks: 70**

Note: (Missing data if, any can be assumed suitable)

PART – A

Answer any five questions. **(5X2=10 Marks)**

1. What are the Main differences between software products and other industrial products? How do these affect SQA?
2. How can you relate Software Quality to Software errors, Software Faults & Software Failures?
3. Do you agree that CASE tools always play an important role in enhancing quality of software Products? Justify your answer
4. What are the benefits of preparing development plans for internal projects?
5. List the components of software maintenance and explain their distinctiveness
6. "Software Quality Metrics Play a very important role in process of Software development". Justify the correctness of this statement.
7. What is the specific difference between CMM, CMMI and PCMM?
8. What are the four specific tasks to be done during the design phase testing?
9. "Software testing is incomplete without Acceptance testing". Do you agree?Justify.
10. Rational provides complete testing Suite. What is the advantage of These integrated testing tools?

PART – B

Answer any four questions. **(4 x 15 = 60 Marks)**

11. a) With the help of "Software Quality Shrine" explain the SQA architecture.
    b) What is the importance of Pre-Project components like Development and Quality Plans? What are the five basic objectives of such plans?

12. a) "Ensuring Quality assurance for Software Product is difficult than for an industrial Product". Do you agree with this statement? Justify your answer
    b) With the help of sample entries bring out the importance of Software Development Plan of a SQA System.
13. a) What specific causes of errors can be more easily be identified by CASE tools? Enlist them.
    b) In software change control, what are the factors that affect the decision whether to implement the proposed changes?
14. a) Analyse the importance of key process areas of the various levels of CMMI?
    b) What is the specific importance of ISO 9000 for ensuring quality?
15. a) What specific use cases can you suggest to start with top down and Bottom up testing strategies?
    b) What are the eight considerations in developing testing methodologies?

…2

16. a) What are the specific advantages and disadvantages of using Off-the-self software components?
    b) Applications could be developed on some platform. What are the various tasks in testing for its performance in multiplatform environment?

17. a) Analyze the importance of Project Progress control.
    b) With simple example bring out the use of JUNIT tool.

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Code No.2869/CBCS/MP

FACULTY OF ENGINEERING

B.E. (IT) VIII-Semester (CBCS) (Makeup) Examination, December 2020

Subject : Machine Learning (Professional Elective-III)

Time : 2 hours **Max. Marks :70**

Note: (Missing data if, any can be assumed suitable)

PART – A

Answer any five questions. **(5X2=10 Marks)**

1 Define Machine Learning.
2 Explain Minimum Description Length principle.
3 Why Bias input is used in Perceptron?
4 What are support vectors?
5 Explain Bayes theorem.
6 Define Variance and Covariance.
7 Define Elitism, Tournaments, and Niching.
8 Explain Bagging.
9 What are the problems faced during clustering of real world database?
10 What is a dendrogram? Where it is used?

PART – B

Answer any four questions. **(4 x 15 = 60 Marks)**

11 List the steps and explain Candidate – Elimination algorithm with an example.

12 Explain Multi Layer Perceptron (MLP)? With a neat diagram.

13 a) What is HMM? Explain with an example.
b) Explain why making a Bayesian Network is a difficult task.

14 Explain the procedure involved in Linear Discriminant Analysis (LDA). List the application of LOA.

15 a) Explain Partitioning Around Medoids Algorithm.
b) Explain Robust Clustering using links Algorithm.

16 a) Write about Gini Impurity.
b) What are Auto-Associative networks? What are the uses of them?

17 Write short notes on
a) Naive Bayes Classifier
b) AdaBoost Algorithm
c) Clustering on Neural Networks

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