Code No. 14132

FACULTY OF ENGINEERING

B.E. 3/4 (Civil) II-Semester (Backlog) Examination, March / April 2021

Subject : Structural Engineering Design and Detailing – I (RCC)

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

Note: Missing Data, if any, may be suitably be assumed.

PART – A

Answer any seven questions. **(7x5=35 Marks)**

1 Indicate the forces on the toe of a cantilever retaining wall.
2 Write short notes on Pigeaud's method.
3 Define elastic design and its limitations.
4 What are the different loads considered in bridge design.
5 When combined footings are used?
6 What is shear key?
7 What are the stability requirements of a retaining wall?
8 Explain the design forces, formulae with notation, how the walls of a rectangular tank when L/B is less than 2 are designed.
9 When is a combined trapezoidal footing provided?
10 Explain with a sketch the forces acting on the conical dome of an Intze tank.

PART – B

Answer any two questions. **(2x20=40 Marks)**

11 Design a combined footing for the two colums of a multi storied residential building using the following data:
Size of the column = 520 mm x 520 mm
Axial load on each column = 900 kN
Spacing of the column = 3.5m c/c
SBC of the soil = 260 kN/m^2
Materials used = M25, Fe500 steel

12 Design a counter fort retaining wall for the following data:
Height of fill retained by wall = 7m,
Surcharge angle = 12^0,
Density of the soil = 18 kN/m^3,
Angle of internal friction = 32^0,
Coefficient of friction between soil and base slab = 0.70,
SBC of the soil = 300 kN/m^2
Materials used = M 30, & Fe 500

13 Design a circular water tank resisting on the ground with a flexible base and a spherical dome using the following data:
Capacity of the water tank = 9,00,000 litres
Depth of the storage = 4.5m
Free board = 400 mm
Materials used = M30 concrete, & Fe 500 steel.

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14 Design an Intz type of water tank to store 1.6 million of water. The height of the tank above ground level is 16m. Depth of foundation is 3.0m below ground level, basic wind pressure 2.0 kN/m^2. No.of supporting columns = 10. Adopt M30 grade concrete and Fe500 steel. Design the top ring beam, bottom ring beam, conical dome and bottom spherical dome. Use IS specifications.

15 Design an R.C. slab bridge for the following data:
Clear carriage way width = 7.0 m
Width of kerbs 1m each
Avg. thickness of W.C. 8 cm
Loading class AA tracked vehicle
Use M20 concrete and Fe 415 steel.
Draw also the longitudinal and cross – section reinforcement details of the bridge.

16 A T beam bridge has the following data :
Span of the bridge = 15 m
Clear carriage way width = 7.0 m
Width of the kerbs 1m each
Live load IRC class AA tracked
Thickness of wearing coat (Avg) 100 mm
Use of M20 grade concrete and Fe 415 steel.

Design one of the interior panels of the slab. Assume any reasonable data required.

Draw also the longitudinal and cross-section reinforcement details of the slab (bridge as a whole).

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Code No. 14140

FACULTY OF ENGINEERING

B.E. 3/4 (EE / Inst.) II – Semester (Backlog) Examination, March / April 2021

Subject: Microprocessors and Microcontrollers

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

Note: Missing data, if any may be suitably assumed.

PART – A

Answer any seven questions. **(7x3 = 21 Marks)**

1 When the 8086 processor is in minimum mode and maximum mode?
2 Write the process or pipelining in 8086 microprocessor.
3 Name the fourteen registers used for 8086 microprocessor.
4 Write a program to add a data byte located at offset 0500H in 2000H segment to another data byte available at 0600H in the same segment and store the result at 0700H in the same segment.
5 Define 'procedure' with an example.
6 List the features of 8255 PPI.
7 Explain the purpose of $\overline{BHE}$ and $\overline{AO}$ to the microprocessor.
8 Explain the special function registers TMOD, TCON.
9 Draw the Internal RAM memory organization of 8051.
10 Explain the following instructions in 8051:
SETB 86H
CLR 87H

PART – B

Answer any three questions. **(3x18 = 54 Marks)**

11 a) Draw the internal architecture of 8086 microprocessor and explain its operation.
b) Draw the read and write cycle timing diagrams of 8086 in minimum mode.

12 a) Explain different addressing modes used in 8086 microprocessor with examples.
b) Explain the physical memory organization of 8086 system.

13 a) Write an assembly language program to find the largest number in an array of 8-bit numbers.
b) Explain the function of the following instructions:
i) AAA ii) MOVSB iii) LAHF iv) JNZ v) CBW.

14 a) Explain briefly the different modes of operation of 8255 PPI.
b) Explain the block diagram and operation of 8279 keyboard / display interface.

15 With the help of functional block diagram explain 8051 microcontroller.

16 a) List out the different instructions set of 8051 microcontroller and explain with examples.
b) What is an interrupt? List the interrupt sources of 8051?

17 Write a short note on the following:
a) Memory Segmentation
b) 8251 USART
c) Special function registers of 8051 microcontroller.

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Code No: 14152/O

FACULTY OF ENGINEERING

B.E. 3/4 (ECE) II-Semester (Old) Examination, March / April 2021

Subject: Computer Organization & Architecture

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

Note: Missing data, if any may be suitably assumed.

PART – A

Note: Answer any Seven Questions (7x3 = 21Marks)

1. Represent the number (+46.5) as a floating point binary number with normalized fraction mantissa of 16 bits and 8 exponent bits.
2. Write the Basic Computer instruction formats for the memory, register and I/O reference instructions.
3. What is Instruction set completeness?
4. Explain briefly the microinstruction format.
5. A Stack is organized in such a way that SP always points at the next empty location on the stack. List the micro-operations for the Push and Pop operations. Assume stack grows downwards.
6. Mention the ways that computer buses can be used to communicate with memory and I/O.
7. Draw the flow chart for destination initiated transfer using handshaking.
8. Determine the number of clock cycles to process 200 tasks in a six-segment pipeline.
9. What is the advantage of Set-associative mapping over direct mapping in cache memory organization?
10. What is meant by “locality of reference” and how does it help in faster execution of programs?

PART – B

Note: Answer any Three Questions (3x18 = 54Marks)

11 a) Draw the flow chart for a floating point addition and subtraction algorithm.
   b) Describe the characteristics of various generations of computer.

12. a) Explain the common bus system of a basic computer with a neat sketch
   b) Formulate a mapping procedure that provides eight consecutive instructions for each routine. The operation code is 6 bits and control memory has 2048 words.

13. a) Explain instruction formats for various types of computer organizations as single accumulator, general register and stack.
   b) Compare CISC and RISC architectures.

14. a) Explain the operation of Daisy chaining method of priority interrupt.
   b) What is the need for I/O interface? Justify your answer.

15. a) Explain read and write operations with respect to associative memory.
   b) What do you mean by memory hierarchy? Describe in detail.

16. a) Formulate a six segment instruction pipeline for a computer. Specify the operations to be performed in each segment.
   b) Explain any four data manipulation instructions.

17. Write short note on any Two of the following:
   (a) CPU-IOP communication
   (b) Virtual memory concepts
   (c) Array processors

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Code No: 14151

FACULTY OF ENGINEERING

BE 3/4 II Sem. (ECE) (Backlog) Examinations, March/April 2021

Subject: Microprocessor and Microcontroller

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

Note: Missing data, if any may be suitably assumed.

PART – A

Answer any seven questions. **(7x3 = 21 Marks)**

1 What are features of 8086 Microprocessor?
2 What is the need for addressing mode? Explain advantages of indirect addressing mode?
3 Explain Synchronous mode instruction format of 8251?
4 Write a program to set and reset PC_7 using BSR mode.
5 Explain the function of the following signals of 8051.
i) ALE ii) PSEN iii) EA
6 Draw the structure of PSW of 8051 and specify function of each bit?
7 What is the role of TI/RI interrupt?
8 What is the significance of Interrupt Priority Register? Draw and explain it?
9 What is the resolution of ADC 804 and what its significance?
10 Write the differences between MOVX and MOVC instructions of 8051?

PART – B

Answer any three questions. **(3x18 = 54 Marks)**

11 a) Explain concept of segmented memory. What are its advantages?
b) Draw and Discuss the Flag register of 8086 with an example.

12 a) Describe the interrupt structure of 8086 with necessary diagram?
b) Explain Mode0 and Mode1 operation of 8253/8254

13 a) Explain Special Functional Registers of 8051?
b) Explain Conditional and un Conditional Jump instructions of 8051?

14 a) Explain Mode0 and Mode1 of Serial communication port of 8051?
b) Write a program to generate a square wave form of 5 KHZ frequency of P1.2 using Timer0 and Mode1. Assume that XTAL= 11.059 MHZ.

15 a) Describe LCD interface to 8051 with a neat diagram?
b) Describe the 8051 interface to stepper motor and write a program to rotate it continuously.

16 a) Write an assembly language program to perform one byte BCD addition.
b) Design an interface between 8086 CPU and two 4KX8 EPROMs and two 4KX8 RAM chips. Select the starting address of RAM is at 00000H.

17 Write any two of the following:-
(a) 8051 interrupts
(b) ADC interface to 8051
(c) 8255 PPI

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Code No: 14157

FACULTY OF ENGINEERING

BE 3/4 (Mech./AE) II-Semester (Backlog) Examination, March/April 2021

Subject: Heat Transfer

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

Note: Missing data, if any may be suitably assumed.

PART – A

Answer any seven questions. **(7x3 = 21 Marks)**

1 Distinguish between the conduction, convection radiation modes of heat transfer.
2 What is meant by 'one dimensional' when applied to conduction problems?
3 How does transient heat conduction differ from steady conduction?
4 What are the various types of fins?
5 What do you understand by the hydrodynamic and thermal boundary layers? Illustrate with reference to flow over a flat heated plate.
6 Why are heat transfer coefficients for natural convection much less than those in forced convection?
7 Define the terms absorptivity, reflectivity and transmissivity of during radiation heat transfer.
8 State Planck's law.
9 Explain the operation of a heat pipe. Why is it called a superconductor?
10 What are five significant dimensionless numbers in boiling and condensation?

PART – B

Answer any three questions. **(3x18 = 54 Marks)**

11 (a) A plane wall is 150 mm thick and its wall area is 4.5 m^2. If its conductivity is 9.35 W/m °C and surface temperatures are steady at l50°C and 45°C, determine: (i) Heat flow across the plane wall; (ii)Temperature gradient in the flow direction.

(b) A furnace wall is made of composite wall of total thickness 550 mm. The inside layer is made of refractory material (K = 2.3 W/mK) and outside layer is made of an insulating material (K = 0.2 W/mK). The mean temperature of the glass inside the furnace is 900°C and inter- face temperature is 520°C. The heat transfer coefficient between the gases and inner surface can be taken as 230 W/m^2 °C and between the outside surface and atmosphere as 46 W/m^2 ^{0}C. Taking air temperature = 30°C, calculate : (i) Required thickness of each layer, (ii) The rate of heat loss per m^2 area, and (iii) The temperatures of surface exposed to gases and of surface exposed to atmosphere.

12 (a) One end of a long rod, 35 mm in diameter, is inserted into a furnace with the other end projecting in the outside air. After the steady state is reached, the temperature of the rod is measured at two points 180 mm apart and found to be 180°C and l45°C. The atmospheric air temperature is 25°C. If the heat transfer coefficient is 65 W/m^2 °C, calculate the thermal conductivity of the rod.

(b) A 15 mm diameter mild steel sphere (k = 42 W/m °C) is exposed to cooling airflow at 20°C resulting in the convective coefficient h = 120 W/m^2 ^{0}C. Determine the following: (i) Time required to cool the sphere from 550°C to 90°C. (ii) Instantaneous heat transfer rate 2 minutes after the start of cooling. (iii) Total energy transferred from the sphere during the first 2 minutes. For mild steel take: p=7850 kg/m^3, c=475 J/kg° C and α=0.045 m^2/h.

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13 (a) Show by dimensional analysis for forced convection, Nu = Φ (Re, Pr).
(b) A hot plate 1.2 m wide, 0.35 m high and at 115°C is exposed to the ambient still air at 25°C. Calculate the following: (i) Maximum velocity at 180 mm from the leading edge of the plate; (ii) The boundary layer thickness at 180 mm from the leading edge of the plate; (iii) Local heat transfer coefficient at 180 mm from the leading edge of the plate; (iv) Average heat transfer coefficient over the surface of the plate; (v) Total mass flow through the boundary.

14 (a) Assuming the sun as a black body, it emits maximum radiation at 0.5 μm wavelength. Calculate (i) the surface temperature of the sun, (ii) the emissive power, (iii) the energy received by the surface of the earth and (iv) the energy received by a 2 m x 2 m solar collector whose normal is inclined at 60^0 to the sun. Take the diameter of the sun as 1.4×10^9 m, diameter of the earth as 13×10^6 m and the distance of the earth from the sun as 15×10^{10} m.
(b) The radiation shape factor of the circular surface of a thin hollow cylinder of 10 cm diameter and 10 cm length is 0.1716. What is the shape factor of the curved surface of the cylinder with respect to itself?

15 (a) A counterflow heat exchanger is employed to cool 0.55 kg/s (Cp=2.45 kJ/kg^{0}C) of oil from 115^0C to 40^0C by the use of water. The inlet and outlet temperatures of cooling water are 15^0C and 75^0C, respectively. The overall heat transfer coefficient is expected to be 1450 W/m^{2}k. Using the NTU method, calculate the following: (i) the mass flow rate of water, (b) the effectiveness of heat exchanger and (c) the surface area required.
(b) A steam condenser consisting of a square array of 625 horizontal tubes, each 6mm in diameter, is installed at the exhaust hood of a steam turbine. The tubes are exposed to saturated steam at a pressure of 15 kPa. If the tube surface temperature is maintained at 25°C, calculate: (i) The heat transfer coefficient, and (ii) The rate at which steam is condensed per unit length of the tubes. Assume film condensation on the tubes and absence of non-condensable gases.

16 (a) Explain the "Relaxation method" in solving two-dimensional heat conduction problems.
(b) An aeroplane flies with a speed of 450 km/h at a height where the surrounding air has a temperature of 1 °C and pressure of 65 cm of Hg. The aeroplane wing idealised as a flat plate 6m long, 1.2 m wide is maintained at 19°C. If the flow is made parallel to the 1.2 m width, calculate: (i) Heat loss from the wing; (ii) Drag force on the wing.

17 (a) Define the terms as applied to radiation heat transfer: Black, gray and real surface.
(b) Explain briefly about nucleation in nucleate boiling. Explain subsequent growth and motion of bubbles.
(c) How is Reynolds number defined for film condensation?

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Code No: 14162

FACULTY OF ENGINEERING

BE 3/4 (Prod.) II-Semester (Backlog) Examination, March/April 2021

Subject: CAD / FEM

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

Note: Missing data, if any may be suitably assumed.

PART – A

Answer any seven questions. **(7x3 = 21 Marks)**

1 Differentiate between CAD and FEM.
2 What are the benefits of computer aided design over conventional design process?
3 State the properties of parametric and non-parametric representation.
4 List any four surface entities.
5 Mention software's used for analysis.
6 Derive material matrix for plane strain.
7 Find the displacement at x=400 for a one dimensional linear element given nodal displacements are q_i=1mm, q_j = 4mm and nodal coordinates X_i=100mm, X_j=500mm.
8 Determine the shape functions for four node quadrilateral element.
9 Explain the types of loads used in structural problems.
10 What is constant strain triangle?

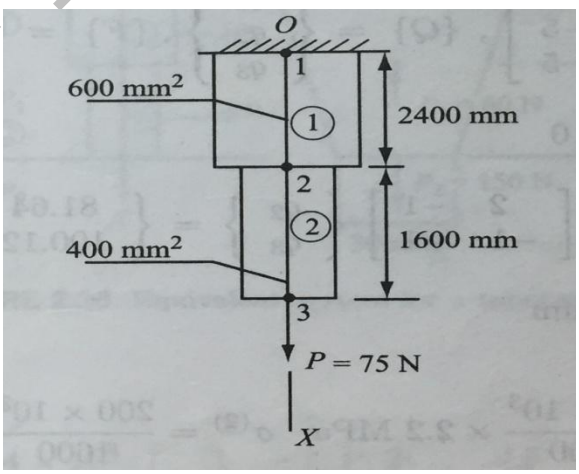
PART – B

Answer any three questions. **(3x18 = 54 Marks)**

11 (a) Discuss various steps involved in design criteria.
(b) Write the properties of Splines.

12 (a) What are the advantages of parametric representation entities?
(b) Write the transformation matrices for rotation, Scaling, translation and mirroring in homogenous coordinates .

13 (a) Derive the material property matrix 'D' for bar element.
(b) Find the nodal displacement and element stresses for the stepped bar shown in the Fig where E=200Gpa, A=500mm^2.



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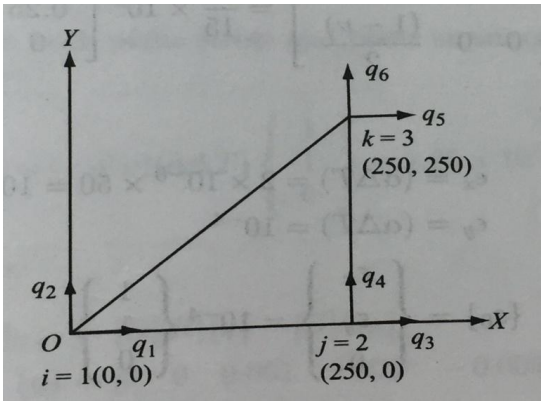
14 Calculate the nodal displacement and element stresses for the truss shown in Figure E=200GPa, Cross sectional area A = 500mm^2 and P=25 KN for all truss members.



15 Determine the deflection and slope at 2m from left end of a shaft mounted in bearing. A load of 2 KN-m act on the shaft .

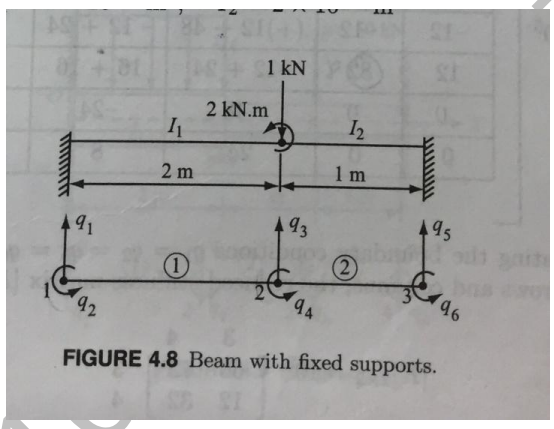
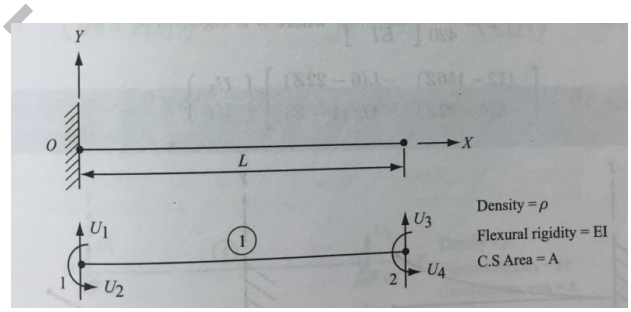


FIGURE 4.8 Beam with fixed supports.

16 Find the first two natural frequencies of a cantilever beam using one element.



17 Discuss Mechanical tolerance and Mass property calculation.

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Code No. 14171

FACULTY OF ENGINEERING

B. E. 3/4 (CSE) II – Semester (Backlog) Examination, March/April 2021

Subject: Object Oriented System Development

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

Note: Missing data, if any may be suitably assumed.

PART – A

Answer any seven questions. **(7x3 = 21 Marks)**

1. Define interfaces, types and roles.
2. What is a classifier?
3. Distinguish between a process and a thread.
4. Define composite and history stales of a state machine.
5. Write differences between components and classes.
6. Define artifact with an example.
7. What is a domain model?
8. What is Reverse engineering?
9. What are 4 P's of Unified process model?
10. Define iterative and incremental process.

PART – B

Answer any three questions. **(3x18 = 54 Marks)**

11. (a) Explain the kinds of Relationships in UML along with notions.
    (b) Write about extensibility Mechanisms.
12. Analyse the credit card validation system through use case diagrams.
13. Explain about supplementary requirements and requirements workflows with examples.
14. What is unified process model? Explain how unified process is use case driven and Architecture centric.
15. Explain the following:
    (a) Patterns & Frame works.
    (b) Artifact diagrams.
16. Explain about
    (a) Modeling the architecture of a system.
    (b) Swim-Lave diagram with an example.
17. What are interaction diagrams? Explain interaction diagrams with example.

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Code No. 14177

FACULTY OF ENGINEERING

B.E. 3/4 II-Semester(IT) (Backlog) Examination, March/April 2021

Subject : Object Oriented System Development

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

Note: Missing data, if any may be suitably assumed.

PART – A

Answer any seven questions. **(7x3 = 21 Marks)**

1 Differentiate conventional and object oriented modeling.
2 List out the various types of relationships with representation.
3 When do we need multiple use case diagram?
4 Contract collaboration and sequence diagram.
5 What is Forward and Reverse Engineering?
6 How does a Node differ from a processor?
7 Why the unified process is said to be architecture centric?
8 What is the necessity of Fastering Reuse?
9 What is a Business model?
10 Explain a small sample Test case.

PART – B

Answer any three questions. **(3x18 = 54 Marks)**

11 (a) Enumerate the principles of modeling.
(b) Explain the software Development Life Cycle with a neat diagram.

12 Explain modeling of the following:
(a) Workflow
(b) Flow of control by Time ordering

13 Explain modeling of the following:
(a) Source code
(b) A client / server system

14 Explain in detail about the Four P's in software Development process.

15 (a) Discuss the role of analysis in the software life cycle.
(b) Briefly explain about performing Unit test.

16 Explain modeling of the following:
(a) Vocabulary of a system
(b) Distribution of objects

17 (a) What is the relationship between use-cases and Architecture? Explain with one example.
(b) What is the activity involved in design test?

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Code No: 14660/CBCS

FACULTY OF ENGINEERING

BE VI-Semester (CE) (CBCS) (Backlog) Examination, March / April 2021

Subject: Water Recourses Engineering-II

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

Note: Missing data, if any may be suitably assumed.

PART – A

Answer any five questions. **(5x2=10 Marks)**

1 Describe briefly the various considerations made in the alignment of an irrigation canal.
2 What is a barrage? How does a barrage differ from a weir?
3 Write the drawbacks of Kennedy's theory.
4 Define under sluice. Give an example.
5 What is meant by canal escape?
6 What is divide wall?
7 Write a note on flexibility of modules.
8 List different types of canal falls.
9 Write any two functions of cross regulator.
10 Differentiate between super passage and syphon.

PART – B

Answer any four questions. **(4x15=60 Marks)**

11 (a) Classify briefly alluvium canals and mention their functions.
(b) Design an irrigation channel by Kennedy's theory to carry a discharge of 30 cumec N=0. 225, m=1, s=1/5000.

12 (a) Design a concrete lined channel to carry a discharge of 50 cumecs at a slope of 1 in 8100. The side slopes of the channel are 1. 2:1 The value of Manning's N may be taken as 0.016.
(b) Discuss in detail the various causes of failure of weirs on permissible foundation and their remedies.

13 (a) Draw a neat sketch of diversion head work along with its components. Discuss in detail about fish ladder.
(b) Describe briefly any two types of canal falls with neat sketches.

14 Design a vertical drop weir using Bligh's theory and check the thickness of floor of flood discharge=3000 m^3/s, HFL before constriction=250 mts. Full supply level=120 m, Bed level of river=165 mts, Lacey's silt factor=1 coefficient of creep=10 minimum downstream water level=165 m, Afflux=1mt.

15 (a) Write the design procedure of trapezoidal notch fall.
(b) Write a note on Khoshla's theory.

16 (a) Differentiate between Aqueduct and Syphon Aqueduct.
(b) Discuss in detail about cross drainage works carrying the natural drain over the canal with a neat sketch.

17 Write short notes on any two of the following:
(a) Lining of canals.
(b) Upstream and downstream cutoffs.
(c) Sensibility and proportionality of modules.
(d) Design of Aqueduct.

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Code No: 14670/CBCS

FACULTY OF ENGINEERING

BE VI - Semester (EEE) (CBCS) (Backlog) Examination, March / April 2021

Subject: Renewable Energy Technologies

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

Note: Missing data, if any, may be suitably assumed

PART – A

Answer any five questions. **(5x2=10 Marks)**

1 Explain how renewable energy is spreading wings in India.
2 List the advantages and disadvantages of fuel cell.
3 Define the following terms (a) Solar azimuth angle (b) Zenith angle
4 What is the principle of working of solar pond?
5 Define the terms lift and drag with reference to wind energy conversion.
6 Write the expression for power developed due to wind.
7 Differentiate between tidal and wave power generation.
8 What are the different sources of geothermal energy?
9 Write short note on biomass gasifiers.
10 What ate the different biomass energy resources?

PART – B

Answer any four questions. **(4x15= 60 Marks)**

11 (a) Describe the conventional and non-conventional energy sources with reference to Indian contest.
(b) Describe working principle of fuel cell with neat sketch and draw the performance characteristic of hydrogen – oxygen fuel cell?

12 (a) Briefly explain the solar energy.
(b) What are the special arrangements made in solar pond to retain the heat energy content in solar pond?

13 (a) Explain basic components of WECS. Give its classification and characteristics.
(b) Explain how the speed and direction of wind is measured.

14 (a) Discuss the theory and working principle of ocean thermal energy conversion (OTEC) system.
(b) Explain the working of tidal power plant with a neat schematic. Give the limitations of tidal power generation.

15 (a) How do you produce biogas and explain the methods in detail. Write the advantages of a biogas pant.
(b) Explain the factors affecting the site for biogas plant.

16 (a) Explain characteristic curves of velocity and power in windmill.
(b) List and explain the different types of losses in fuel cell.

17 (a) Write short notes on the following: Advantages and disadvantages of solar concentrating collectors over flat plate collectors.
(b) Photosynthesis

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Code No: 14673/CBCS

FACULTY OF ENGINEERING

BE VI-Semester (Inst.) (CBCS) (Backlog) Examination, March / April 2021

Subject : Electronics Instrumentation Systems

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

Note: Missing data, if any may be suitably assumed

PART – A

Note: Answer any Five Questions **(5x2= 10Marks)**

1. Define Active and Passive Transducers with examples.
2. Draw the schematic of R-2R resistive ladder.
3. Explain the principle of automatic zeroing.
4. Compare with true RMS meter with an average responding meter.
5. What is the difference between a wave analyzer and a harmonic distortion analyzer?
6. State the applications of spectrum analyzer.
7. What is the function Relay Switched attenuator.
8. Describe radio receiver
9. Brief about the magnetic material used for tape.
10. Give an example of Automatic Instrumentation.

PART – B

Note: Answer any Four Questions **(4x15= 60Marks)**

11. a) Draw the circuit of Isolation Amplifier with suitable diagram. Mention types and specification of Isolation Amplifier in detail.
    b) With suitable diagram explain ADC successive approximation.

12. Explain the following in detail related to digital meters
    i) Scaling and checking modes.
    ii) Input signal conditioning and counting errors.

13. a) With necessary diagrams discuss Hetrodyne Distortion Analyzer.
    b) Explain in detail about LOG IF Amplifier.

14. With necessary diagrams explain in detail about IEEE 488 interface bus.

15. a) Explain in detail about possibilities and limitations of improving Deflection Sensitivity of CRT.
    b) With necessary diagrams explain in detail about digital storage oscilloscope.

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16. a) In a video cable, a particular channel program is selected at 88.5 MHz. Explain how you measure its harmonics using Spectrum Analyzer. What are different harmonic frequencies for the above channel?
    b) Determine detection sensitivity of a CRO, given that with usual notation, 1=1.5cm, L=30 cm, d=5.5mm, Vd=5V & Va = 1000V.

17. Write short notes on the following
    a) CRO
    b) IEEE 488 interfacing

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Code No: 14683/CBCS

FACULTY OF ENGINEERING

BE VI - Semester (ECE) (CBCS) (Backlog) Examination, March / April 2021

Subject: Managerial Economics and Accountancy

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

Note: Missing data, if any, may be suitably assumed

PART – A

Answer any five questions. **(5x2=10 Marks)**

1 Define opportunity cost.
2 Distinguish risk and uncertainty.
3 What is price demand?
4 Define average revenue with a diagrams.
5 What is law of supply?
6 what are isoquant.
7 Elaborate IRR.
8 Explain the rules of double entry system.
9 What is book keeping?
10 What do you mean by debt-equity ratio?

PART – B

Answer any four questions. **(4x15= 60 Marks)**

11 Discus the nature and scope of managerial economics.

12 Define demand forecasting. Explain the various methods of demand forecasting.

13 What is monopoly? How is price and output determined under monopoly?

14 Explain various forms of internal economics of scale.

15 What is BEP? Explain it with the help of a chart. What are its uses and limitations?

16 Consider the following two investment proposals each costing Rs 10, 00,000. A discount rate of 10% is used to evaluate the proposals. Which proposal will you select under NPV? The cash flows after taxes are

Year	Proposal A(Rs)	Proposal B(Rs)
1	300000	600000
2	500000	400000
3	600000	300000

..2..

17 Prepare trading, profit and loss account and balance sheet from the following.

	Debit(Rs.)	Credit(Rs.)
Share Capital		50,000
Sales		1,00,000
Creditors		20,000
Bills payable		8000
Furniture	5000	
Opening stock	50,000	
Wages	2000	
Insurance	6000	
Office expenses	7000	
Debtors	40,000	
Cash	4000	
Plant and machinery	60,000	
Rent	1000	
Discount	3000	
	178000	178000

Adjustments:

The value of closing stock was Rs.70000. Write off depreciation @10% on machinery.

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Code No.14691/CBCS

FACULTY OF ENGINEERING

B.E.VI – Semester (M/P) (CBCS) (Backlog) Examination, March / April 2021

Subject: Metrology & Instrumentation

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

Note: Missing data, if any, may be suitably assumed

PART – A

Answer any five questions. **(5x2=10 Marks)**

1. Distinguish between precision and accuracy.
2. What is wringing of slip gauges?
3. Distinguish between comparator and gauge.
4. Explain the proving ring strain gauge.
5. List any five various geometric tests for testing machine tools.
6. What is a transducer? Name different types of transducers.
7. What are different rosette gauge arrangement to measure strains?
8. Explain about interchangeability.
9. Explain run out and concentricity for inspection of gear.
10. Differentiate between dynamic errors and systemic errors.

PART – B

Answer any four questions. **(4x15=60 Marks)**

11. a) What are the basic principles that should be observed in the design of measuring instruments?
    b) Explain the Taylors principle of gauge design and when does it desirable to take deviations from it.

12. a) A 200mm sine bar is to be set up an angle 43 degrees. Find how many slip gauges are needed from 87 pieces set.
    b) Explain the roundness measurement procedure and identification of error roundness with neat sketch.

13. a) Explain Taylor Hobson talysurf with neat sketch.
    b) Discuss the alignment tests to be performed on lathe machine.

14. a) Derive the equation of a best wire size method.
    b) Explain static and dynamic characteristics for elements of instrumentation.

15. a) State the laws of thermocouples with equation and sketch for each law.
    b) Explain with a neat sketch the working principle of bourdon tube pressure gauge.

16. a) Explain the working principle of strain gauge load cell to measure pressure.
    b) What is CMM and explain its important features? Explain the various types of accuracies in CMM.

17. a) Discuss the measurement of vacuum by using Pirani gauge.
    b) Explain the principle and operation of free flow and with neat sketch.

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Code No.14698/CBCS

FACULTY OF ENGINEERING

B.E. VI-Semester (A.E.) (CBCS) (Backlog) Examination, March / April 2021

Subject: Production Technology

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

Note: Missing data, if any, may be suitably assumed

PART – A

Answer any five questions. **(5x2=10 Marks)**

1 What are the advantages and limitations of wooden patterns?
2 Differentiate between semi centrifugal and centrifugal casting.
3 State differences between piercing and blanking
4 What is the principle of Forging?
5 Define weld ability. What are the requirements for good welding joint?
6 Differentiate between soldering and brazing.
7 Write factors which effect tool life.
8 What are the functions of cutting fluids?
9 Enlist work holding and tool holding devices in lathe, and drilling machine.
10 List out taper turning methods performed on lathe machines.

PART – B

Answer any four questions. **(4x15=60 Marks)**

11 a) What are various types of patterns used for sand molding? Explain about any three patterns with neat sketches.
b) Explain i) CO_2 molding g ii) Inspection of castings.

12 a) Write short notes on i) Spot welding ii) Butt welding.
b) Explain principle and applications of friction welding process.

13 a) Explain hydrostatic extrusion and tube extrusion with net sketches
b) Explain the process of injection molding.

14 a) What properties are to be considered in the selection of tool materials for machining?
b) What are the various types of chips produced in matching and explain the stability of BUE?
15 a) Explain various operations carried out on milling machine.
b) Differentiate between honing and lapping.

16 a) What properties are to be considered in the selection of tool materials for matching?
b) Explain the principle and applications of planetary rolling mill with near sketch

17 Write short note on the following:
a) Super finishing operations
b) Wire drawing
c) Pattern allowances

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Code No: 14710/CBCS

FACULTY OF ENGINEERING

BE VI - Semester (CSE) (CBCS) (Backlog) Examination, March / April 2021

Subject: Computer Networks & Programming

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

Note: Missing data, if any, may be suitably assumed

PART – A

Answer any five questions. **(5x2=10 Marks)**

1 Define Socket.
2 Differentiate between TCP and UDP.
3 What are the services of Transport layer?
4 What is an IP address?
5 List the applications of UDP.
6 What do you mean by DNS?
7 What common software problems lead to network defects?
8 What is a Gateway?
9 How many layers are there in the OSI model? Name them.
10 Differentiate between static IP addressing and dynamic IP addressing.

PART – B

Answer any four questions. **(4x15= 60 Marks)**

11 (a) What are the functions of the network layer? List out the design issues in it
(b) Explain about the key design issues in network layer

12 Explain the different IP address classes in detail

13 (a) Discuss the TCP service model
(b) Draw the UDP segment header format and explain its various fields

14 (a) Discuss the DNS name space
(b) Explain the SMTP and MIME

15 (a) Explain the socket address?
(b) Discuss the asynchronous I/O?

16 (a) What is congestion control? Discuss the general principles?
(b) Discuss the congestion control in virtual circuit?

17 Write notes on:
(a) Quality of Service (QOS)
(b) Load shedding

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Code No: 14717/CBCS

FACULTY OF ENGINEERING

BE VI - Semester (IT) (CBCS) (Backlog) Examination, March / April 2021

Subject: Embedded Systems

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

Note: Missing data, if any, may be suitably assumed

PART – A

Answer any five questions. **(5x2=10 Marks)**

1 List the characteristics of embedded computing applications.
2 Differentiate between microprocessor and microcontroller.
3 Sketch the structure of serial port control (SCON) SFR?
4 Differentiate between serial & parallel communications.
5 Define smart sensor.
6 What steps are involved in monitoring the environmental pollution?
7 What is the role of a task scheduler in RTOS?
8 State priority inversion problem.
9 What are the benefits and drawbacks of hardware and software implementation in SOC?
10 What are the different system level interconnection approaches?

PART – B

Answer any four questions. **(4x15= 60 Marks)**

11 Describe in detail the block diagram of 8051 microcontroller.

12 Describe how serial data communication is performed in 8051? Explain the various modes of operation and SFRs used for serial communication.

13 (a) Explain how port 0 can be used as input and output port in 8051 using circuit diagram.
(b) Explain the structure of IE and IP SFRs.

14 Explain how LCD can be interfaced with 8051 with suitable diagrams.

15 Define compensation Discuss the commonly encountered sensor defects and how can they be overcome?

16 (a) What is meant by shared data problem? How semaphores can be used to overcome the shared data problem.
(b) Discuss hard real time scheduling considerations.

17 (a) Describe the approach used in the design process of system on chip (SOC)
(b) Explain the vector processor model.

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