

FACULTY OF ENGINEERING**B.E. 4/4 (Civil) I – Semester (Backlog) Examination, March/April 2021****Subject: Concrete Technology****Time: 2 hours****Max. Marks: 75****Note: Missing Data, if any, may be suitably be assumed.****PART – A****Answer any seven questions.****(7x3=21 Marks)**

- 1 What do you mean by maturity of concrete?
- 2 What is meant by lean mix?
- 3 How is static elastic modulus of concrete determined?
- 4 What is segregation and bleeding?
- 5 What is shrinkage? How are they classified?
- 6 List out the stages of manufacturing of concrete?
- 7 What is light weight concrete? How are they classified?
- 8 What is durability? What are the various aspects of durability?
- 9 What is the principle of plasticizers?
- 10 Give the advantages of ready mix concrete?

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

- 11 a) What is the necessity of vibrating concrete? What are the different types of vibrators used for vibration of concrete?
b) Design a concrete mix as per IS-10262:2009 and IS-456:2000 for a grade of concrete M40. Nominal size of aggregate 20mm, exposure condition severe, degree of supervision good, type of aggregate crushed angular aggregate, workability 100mm slump, belonging to zone 2. Specific gravity of cement-3.15, CA – 2.7, FA – 2.55. Assume any missing data.
- 12 Discuss in detail the short term and long term properties of concrete.
- 13 Discuss in detail the effect of mineral and chemical admixtures on properties of concrete.
- 14 Write the advantages and disadvantages of fly ash. Also state the durability aspects of fly ash.
- 15 a) Write the durability aspects of recycled aggregate concrete?
b) What is light weight concrete? How are they classified?
- 16 Discuss any three types of high strength concrete.
- 17 Write short notes of the following:
 - a) Super plasticizers and V.M.A.
 - b) Fiber shortcreting
 - c) Hydration of cement

FACULTY OF ENGINEERING
BE IV/IV (EEE) I-Semester (Backlog) Examination, March / April 2021

Subject: Electrical Machine Design

Time: 2 Hours

Max .Marks: 75

PART – A

Answer any seven questions.

(7x3=21 Marks)

- 1 Give the classification of insulation material.
- 2 Compare the soft and hard magnetic material.
- 3 Draw the magnetization curves for two magnetic material, one of a very good quality and the other of a poor quality material. Explain the reasons for the differences in the magnetization curves.
- 4 Define carter's coefficient in connection with air gap of electrical machines.
- 5 How many ampere turns required for interpole of DC machine?
- 6 What are the losses at the commutator surface of DC machine?
- 7 Define window space factor.
- 8 What are the advantages of digital computers?
- 9 Give the various approaches available in CAD electrical machines.
- 10 Why the optimization is required fro any machine design.

PART – B

Answer any three questions.

(3x18= 54 Marks)

- 11 (a) Explain briefly about the suitability of a give insulating material for a particular application. site at least four different materials.
 (b) Distinguish soft and hard magnetic materials.
- 12 (a) Give the procedural steps to determine the required AT for air gap of an electrical machine.
 (b) Give the significance of carter's coefficient.
- 13 (a) What are various cooling methods adopted in the maintenance of heave duty electrical machinery?
 (b) An induction motor has a final steady temperature rise of 40°C when running at its rated output. Calculate its half hour rating for the same temperature rise if the copper loss at rated output is 1.2 times constant losses. The heating time constant is 110 min.
- 14 (a) Give the significance of electrical loading and magnetic loading in case of rotating machines.
 (b) Explain how the armature of a DC machine is designed.
- 15 (a) Derive KV A rating equation of 3 phase transformer.
 (b) Find the main dimensions of a 20 HP, 3 phase, 400V, 50 C/S.2810 r.p.m. Squirrel induction motor having an efficiency of .88 and a full load power factor 0.9
 Assume $B_{av}=0.5$ weber per m²
 $A_c=25000$ ampere conductors per meter
 The rotor peripheral speed is 20 meters per second at synchronous speed.
- 16 Explain different computer aided design methods with neat flow charts.
- 17 Give a brief explanation on the following:
 (a) Analysis method of CAD
 (b) Optimization method applicable to CAD

FACULTY OF ENGINEERING**B.E. 4/4 (ECE) I-Semester (Backlog) (Old) Examination, March / April 2021****Subject : Mobile Cellular Communication****Time: 2 hours****Max. Marks: 75****Note: Missing Data, if any, may be suitably be assumed.****PART – A****Answer any seven questions.****(7x3=21 Marks)**

- 1 What is grade of service? Explain.
- 2 Distinguish between fixed channel assignment and dynamic channel assignment.
- 3 Mention three small scale fading effects of multipath in the radio channel.
- 4 What is 'log-distance path loss model' of mobile radio propagation?
- 5 What is self Jamming in CDMA?
- 6 Define FDD and TDD.
- 7 Draw the frame structure of GSM.
- 8 Briefly explain Digital Cellular Standard IS-95.
- 9 Compare 1G, 2G, 2.5G and 3G.
- 10 Write a short notes on Personal Area Networks.

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

- 11 a) Explain the handoff process. Discuss the handoff strategies that are used in 1G, 2G and 3G Cellular Communication systems.
b) Explain how micro zoning technique improves capacity and coverage in cellular systems.
- 12 a) Explain Longley-Rice model for outdoor propagation model.
b) Explain briefly various types of small scale fading.
- 13 a) Explain in detail Frequency Reuse concept.
b) Draw the Frame structure of GSM and explain GSM features.
- 14 a) Explain TDMA technique in detail and list out its advantages and disadvantages over other systems.
b) Explain CSMA technique in detail.
- 15 a) Draw the architecture of GSM and explain each sub-system in detail.
b) Write the various services offered by GSM.
- 16 a) Discuss different IEEE standards, specifications and applications of Wireless Local Area Network (WLAN).
b) Discuss the Radio interface specifications of CDMA 2000.
- 17 Write short notes on :
 - a) Interference and System capacity
 - b) Practical Link Budget Design
 - c) Pure ALOHA (Vs) Slotted ALOHA.

FACULTY OF ENGINEERING
BE 4/4 (M/P/AE) I-Semester (Backlog) Examination, March/April 2021

Subject: Operations Research

Time: 2 hours

Max. Marks: 75

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

PART – A

Answer any seven questions.

(7x3=21 Marks)

- 1 Define Operation Research.
- 2 What are the important applications of Linear Programming Problem?
- 3 Write the procedure to convert Prima LPP into Dual LPP.
- 4 What is sensitivity analysis?
- 5 What do you understand by a balanced and an unbalanced transportation problem? How an unbalanced problem is tackled?
- 6 Describe the steps in Hungarian method for solving the assignment problem.
- 7 Why is replacement of items required? Distinguish between individual replacement and group replacement policies.
- 8 Explain the rules to determine a saddle point.
- 9 Explain the sequence of steps in Johnson algorithm.
- 10 Write short note on multi-channel queue with infinite customer population.

PART – B

Answer any three questions.

(3x18 = 54 Marks)

- 11 Solve the following problem using the simplex method.

$$\text{Minimize } Z = 2x_1 + 9x_2 + x_3$$

Subject to constraints

$$\begin{aligned} x_1 + 4x_2 + 2x_3 &\geq 5, \\ 3x_1 + x_2 + 2x_3 &\geq 4, \\ x_1, x_2, x_3 &\geq 0 \end{aligned}$$

- 12 Solve the dual of the given problem.

$$\text{Maximize } Z = 2x_1 + 5x_2 + 6x_3$$

Subject to constraints

$$\begin{aligned} x_1 + 6x_2 - x_3 &\leq 3, \\ 2x_1 - 3x_2 + 7x_3 &\leq 6, \\ x_1, x_2, x_3 &\geq 0 \end{aligned}$$

- 13 The ABT transport company ships truckloads of food grains from three sources viz. X, Y, Z to four mills viz. A, B, C, D respectively. The supply and the demand together with the unit transportation cost per truckload on the different routes are described in the following transportation table. Assume that the unit transportation costs are in hundreds of dollars. Determine the optimum minimum shipment costs of transportation using MODI method.

	Mill				
Source	A	B	C	D	Supply
X	10	2	20	11	15
Y	12	7	9	20	25
Z	4	14	16	18	10
Demand	5	15	15	15	

..2..

- 14 Five operators have to be assigned to five machines. The assignment costs are given below. Operator A cannot operate machine III the operator C cannot operate machine IV. Find the optimal assignment.

		Machines				
		I	II	III	IV	V
Operators	A	5	5	--	2	6
	B	7	4	2	3	4
	C	9	3	5	---	3
	D	7	2	6	7	2
	E	6	5	7	9	1

- 15 Solve the following game :

		Players B			
		I	II	III	IV
Players A	I	6	4	8	0
	II	6	8	4	8
	III	8	4	8	0
	IV	0	8	0	16

- 16 Six job go on first machine A and then over machine B. The order of the completion of jobs has no significance. The following table gives the machine times in hours for six jobs and the machines.

Job No.	1	2	3	4	5	6
Time of Machine A	5	9	4	7	8	6
Time of Machine B	7	4	8	3	9	5

Find the sequence of the job for that machines and the total elapsed time to complete the job.

- 17 Arrival rate of a telephone booth are according to Poisson distribution with an average time of 9 minutes between two consecutive arrivals. The length of a telephone call is assumed to be exponentially distributed with mean 3 minutes.
- Determine the probability that a person arriving at the booth will have to wait.
 - Find the average waiting length.
 - What is the probability that an arrival will have to wait for more than 10 minutes before the phone is free?
 - What is the probability that a customer will have to wait for more than 10 minutes before the phone is available and the call is also completed?
 - Find the fraction of a day that the phone will be in use.
 - The telephone company will install a second booth when convinced that an arrival would expect to have to wait at least 4 minutes for the phone. Find the increase in flow of arrivals, which will justify a second booth.

FACULTY OF ENGINEERING**B. E. 4/4 (CSE) I – Semester (Backlog) Examination, March/April 2021****Subject: Principles & Applications of Embedded Systems****Time: 2 hours****Max. Marks: 75****Note: Missing Data, if any, may be suitably be assumed.****PART – A****Answer any seven questions.****(7x3=21 Marks)**

1. Write the characteristics of an instruction set.
2. Write the H/W architecture of typical computing platform.
3. Define Unified Cache Memory and its uses.
4. Define the words race condition and interrupt Latency.
5. What are the advantages of rate monotonic scheduling?
6. What is locator map? What are the uses of it?
7. Define instruction set Emulator.
8. Write uses of grid based distributed embedded system.
9. What is priority inversion? Write the uses of it.
10. Write the steps in 4-cycle Hand-shake Protocol used for Bus organization.

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

11. (a) What are the characteristics of embedded system? Explain.
(b) Explain Top-down and bottom up approach of an embedded system design process with example.
12. (a) Implement the following statement in ARM.

```

If (a>b)
{
X=5;
Y=c+d;
}

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(b) Explain cache mechanism and different types of Cache Misses and cache memory organization.
13. (a) Explain Hard real-time scheduling considerations with example. Explain various methods for saving power in RTOS.
(b) Explain the advantages and disadvantages of having more number of task in the system.
14. (a) Explain about evaluating operating system performance.
(b) Explain the effect of scheduling on cache with example.
15. (a) Write the goals of Embedded S/W testing process. Explain few basic techniques for testing.
(b) Explain about instruction set simulator. Which is the software that runs on host?
16. (a) Explain and I/O interface for copying the characters from input to output with interrupts and Buffers.
(b) What is Re-entrant function? What is the rules of Re-entrant function?
17. Write short notes on
 - (a) Software only monitors.
 - (b) EDF scheduling.

FACULTY OF ENGINEERING**B.E. 4/4 (ECE) I – Semester (New) (Backlog) Examination, March/April 2021****Subject: Embedded Systems (Elective – II)****Time: 2 hours****Max. Marks: 75****Note: Missing Data, if any, may be suitably be assumed.****PART – A****Answer any seven questions.****(7x3=21 Marks)**

- 1 Differentiate between a general purpose computing system and an embedded system.
- 2 List the design metrics of embedded system design.
- 3 Draw and explain the configuration of CPSR register
- 4 Describe the features of RISC processors
- 5 Enlist the advantages of serial communication over parallel communication.
- 6 Explain about IEEE 1394 bus standard
- 7 What is an IDE? List its features?
- 8 Differentiate between linker and locator
- 9 Mention the advantages of Instruction set simulator
- 10 How does a calling of interrupt routine help in testing a design?

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

- 11 a) Describe various hardware components of embedded systems with the help of a neat block diagram.
b) With a neat block diagram, explain the architecture of an embedded processor(SoC).
- 12 a) Draw the ARM CPU architecture, explaining the importance of barrel shifter in it.
b) Explain about the Modes of operation in ARM Core.
- 13 a) What is a CAN protocol? Mention its frame, advantages and applications.
b) Describe the TCP/IP protocol .
- 14 a) With the help of a neat diagram explain the design cycle of an embedded system
b) Draw the diagram of a native tool chain. Mention the requirement of cross assembler and cross compiler in the native tool chain when applied to embedded systems.
- 15 Describe the case study of a chocolate vending machine.
- 16 a) Explain the design process in embedded system.
b) With the help of examples, explain the data transfer instructions in ARM processor.
- 17 Write any Two :
a) USB Bus b) ROM Emulator c) Logic Analyser.

FACULTY OF ENGINEERING

B. E. 4/4 (ECE) I – Semester (Backlog) Examination, March/April 2021

Subject: System Automation & Control (Elective – II)

Time: 2 hours

Max. Marks: 75

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

PART – A

Answer any seven questions.

(7x3=21 Marks)

1. Explain linearity error.
2. Explain the steady state response of a system.
3. What is industrial automation?
4. Give the structural elements of industrial control.
5. Give the block diagram to show how mathematical models can be made.
6. Give the describing equation and energy stored/dissipated in the capacitor and resistance of the electrical system building blocks.
7. What is the overall transfer function of the negative feedback system with?
 $G(s) = 4/s(s+1)$ and $H(s) = 1/s$?
8. What do you mean by closed loop controller?
9. Draw the ladder diagram for NOR and XNOR.
10. Explain Motor amplifiers.

PART – B

Answer any three questions.

(3x18 = 54 Marks)

11. Explain in detail the types of automation systems.
12. (a) Explain in detail the general structure of a measurement system.
(b) Explain in detail the calibration process.
13. Explain in detail the mechanical system model and their building blocks.
14. Enumerate the different methods in which a control unit can provide a signal for correction.
15. (a) What are the common control functions in a motion control system and how is the trajectory calculated?
(b) What are the different motor technologies used in motion control?
16. (a) What are the various methods for measurement of temperature?
(b) Explain the temperature control in a heat exchanger.
17. Explain any two for the following:
 - (a) Basic structure of the PLC.
 - (b) Flow measurement.
 - (c) Electro-mechanical and hydraulic-mechanical systems.

FACULTY OF ENGINEERING
BE IV/IV (ECE) I-Semester (Backlog) Examination, March / April 2021

Subject: Internet of Things (Elective-II)

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 do you mean by Internet of Things?
- 2 List the MAC features of IEEE 802.15.4
- 3 What is the role of MQTT protocol in IOT?
- 4 Who are Venture Capitalists and what support do they extend to IOT start-up's.
- 5 Explain the Model-Template-View framework in DJANGO architecture.
- 6 Mention Characteristics of Big Data.
- 7 What is dynamic IP address assignment?
- 8 What are function blocks of IOT?
- 9 How is Amazon EC2 used as an IAAS Cloud service.
- 10 Define Latency in HTTP.

PART – B

Answer any three questions.

(3x18= 54 Marks)

- 11 (a) Discuss advantages and disadvantages and applications of IOT.
(b) Describe IOT protocol stack and architecture layers.
- 12 Write short notes on the following:
 - (a) Zigbee smart energy.
 - (b) XMPP
 - (c) One M2M
- 13 What is Constrained Application Protocol (COAP)? Discuss the messaging modes of COAP.
- 14 (a) Draw the IPv4 header frame format & explain each field in it.
(b) What software are used in CNC milling? Explain briefly.
- 15 (a) How is RAM allocation done in IOT devices?
(b) Elaborate how decoding is done in IOT devices using hardware emulators, JTAG and HyperTerminal.
- 16 (a) Mention the four IOT communication models.
(b) Describe link layer protocols relevant in context of IOT.
- 17 (a) What is stack overflow, how can it be avoided?
(b) What are the various techniques in debugging an Arduino.

FACULTY OF ENGINEERING**B. E. (Civil) VII – Semester (CBCS) (Main & Backlog) Examination, March/April 2021****Subject: Foundation Engineering****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. State the reasons for development of “Negative skin friction” in piles.
2. “All driven piles are displacement piles” Answer Yes (or) No and justify?
3. What is tilt & shift in sinking of well foundations?
4. Explain what is a Floating Caisson.
5. Explain the term “Resonance” in machine foundations.
6. Show the various components of a well foundation with neat sketch.
7. Sketch the typical distribution of increment of vertical stress (σ_z) on a vertical plane and note salient features on it.
8. Differentiate between shallow and deep foundations.
9. Show that the “(q_{nu})” of shallow foundation on cohesive soils ($\phi=0$) is independent of size and depth of footing.
10. Mention the objectives of geo-technical investigation.

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

- 11.(a) A. Derive an expression for the vertical stress at a point below GL due to a point load, Using Boussinesq’s theory duly stating the assumptions.
- (b) An over head water tank has a circular raft foundation of 12.0 m diameter, if the total wt of the structure including wt. of foundation and water is 2×10^5 kN, Calculate the vertical stress at a depth 3.0m below the foundation level.
- 12.(a) Explain the principal modes of shear failures with neat sketches duly explaining their characteristics.
- (b) Compute the safe bearing capacity of a rectangular footing of size 1.5m x 1.8m resting on homogeneous clay, at a depth of 1.2m below GL. The shear strength parameters of the soil are $C=45$ kN/m² & $\phi=0$ and average density of soil is 20 kN/m², consider a F.S of 3.0, $N_c=5.7$, $N_q=1$, $N_\gamma=0$.

- 13.(a) Discuss in detail about the construction of a Pneumatic Caisson, their Advantages and disadvantages.
- (b) A pre cast pile is driven with a drop hammer weighing 50 kN with fall of 1.50m. The average penetration of the last blow is 5 mm/ blows, determine the load carrying capacity of the pile as per Engineering News Formula?
- 14.(a) What do you understand by Tilt & Shift in well foundation & discuss the causes and remedies for Tilt & Shift?
- (b) Explain the types of Soil Samples and discuss about the design features affecting the sample disturbance?
- 15.(a) Define the term “vibration” and discuss about the vibration characteristics.
- (b) Discuss about the necessity of dewatering techniques related to foundation engineering and discuss the methods and their merits and demerits.
- 16.(a) Describe the various methods of soil exploration and mention the situations they are best suited.
- (b) Discuss the methods of Under pinning?
17. Write short notes on any TWO of the following.
- (a) Standard Penetration test (SPT).
- (b) Correction for construction period applicable to settlement of foundations.
- (c) Cofferdams.

FACULTY OF ENGINEERING

B.E. (ECE) VII – Semester (CBCS)(Main & Backlog) Examination, March/April 2021

Subject: Mobile & Cellular Communication (Elective – 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 Write the applications of wireless communications.
- 2 What are the channel assignment strategies?
- 3 What are the types of small scale fading?
- 4 What are the different types of signal propagation?
- 5 List the advantages of spread spectrum technologies.
- 6 What is reservation protocol?
- 7 List the advantages of GSM.
- 8 Give frame structure of GSM.
- 9 Write the features of 5G.
- 10 What is traffic routing?

PART – B

Answer any four questions.

(4x15 = 60 Marks)

- 11 a) Write about various hand off strategies.
b) Explain about interference and system capacity.
- 12 a) Explain Durkin's outdoor propagation model.
b) Write about free space propagation model.
- 13 a) Differentiate multiple access techniques.
b) Write about the various CSMA protocols.
- 14 a) Write a short note on GSM system architecture.
b) Differentiate DS-SS and FH-SS.
- 15 a) Write a short note on UMTS system Architecture.
b) Explain about personal communication systems.
- 16 a) Explain FDMA.
b) Explain trunking and grade of service.
- 17 a) Explain about manual and automatic electronic exchanges.
b) Write about cell tower antenna radiation pattern.

FACULTY OF ENGINEERING

BE VII - Semester (ECE) (CBCS) (Main & Backlog) Examination, March / April 2021

Subject: Speech Signal Processing

Time: 2 Hours

Max .Marks: 70

Missing data, if any, may be suitably assumed

PART – A

Answer any five questions.

(5x2=10 Marks)

- 1 List few applications of speech processing.
- 2 Is speech signal a stationary or non-stationary? Justify your answer.
- 3 What do you mean by windowing?
- 4 Give the expression for short time energy function.
- 5 What are the advantages of vector quantization?
- 6 Define pitch and formats w.r.t speech sounds?
- 7 What is the difference between speaker identification and speaker verification?
- 8 Give four applications of cepstral processing?
- 9 Explain the term co-articulation?
- 10 Describe in brief vector quantizer coder.

PART – B

Answer any four questions.

(4x15= 60 Marks)

- 11 (a) Explain source filter model for speech production.
(b) Classify speech sounds and explain.
- 12 (a) Explain how short time energy and short time magnitude function can be used to distinguish voiced, unvoiced and silent regions of a speech signal.
(b) A speech signal sampled at a rate of 20000 samples/sec (20khz). A segment of length 1024 samples is selected and a 1024-point FFT is computed. What is the frequency resolution (spacing in hertz) between the FFT values?
- 13 (a) Explain pitch period estimation using SIFT method.
(b) Explain ADPCM with a neat block diagram.
- 14 (a) Explain channel encoder and decoder for speech compression.
(b) Explain linear predictive synthesizers.
- 15 (a) Draw the block diagram of a text to speech synthesis system and explain the function of each block.
(b) Explain vocal tract model in articulatory speech synthesis.
- 16 (a) What are the problems in automatic speech recognition?
(b) Explain dynamic time warping with regard to speech recognition.
- 17 Write short notes on:
 - (a) Transform coding
 - (b) Hidden Markov Models

FACULTY OF ENGINEERING**B. E. (ECE) (CBCS) VII – Semester (Main & Backlog) Examination, March / April 2021****Subject: Electronic Measurements & Instrumentation (E – 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. Define Accuracy and Precision.
2. The expected value of the voltage across a resistor is 80V. However the measurement gives a value of 79V. Calculate (i) absolute error and (ii) percentage of resolution?
3. Differentiate between active and passive transducers.
4. How LVDT is used in displacement measurement?
5. Define absolute humidity and relative humidity.
6. List out the factors for selection of a microphone.
7. Draw and explain data acquisition system block diagram.
8. What are the applications of spectrum analyzer?
9. List out the applications of ultra sound in medicine.
10. What are the limitations of X-rays and how are these overcome by CT technique?

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

11. (a) Explain different types of errors and give example for each.
(b) Discuss in detail about IEEE standards of measurement.
12. Explain the operation of LVDT with a neat labeled diagram.
13. (a) What is Microphone? Explain about different types of microphones.
(b) Explain the operation of thermocouple with a neat diagram.
14. Explain the block diagram of a DSO, giving the waveforms at the output of each block. Also, explain how analog storage CRO is different from Digital storage CRO.
15. Draw the block diagrams for ultrasonic imaging system and magnetic resonance imaging system. Compare their operation.
16. (a) What is the difference between a phot-emissive, photoconductive and a photo voltaic cell? Name one application for each cell.
(b) Five sound sources of 62, 59, 65, 72, 80 dB are added together. Determine the resultant Sound Pressure Level (SPL).
17. Write short notes on:
 - (a) Strain gauges.
 - (b) Spectrum analysers.
 - (c) CT scanners.

FACULTY OF ENGINEERING**B.E. (ECE) VII-Semester (CBCS) (Main & Backlog) Examination, March/April 2021****Subject : Digital Signal Processor & Architecture (E-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 Define dynamic range and resolution.
- 2 What are the major features of DSP processors compared to General purpose processors?
- 3 What are the considerations taken for real time implementation?
- 4 What do you mean by Adaptive filtering?
- 5 Why special addressing modes are required in DSPs?
- 6 Discussion on bus architecture of DSP processor.
- 7 Describe any two application specific instructions.
- 8 What is the role of ARAU0 and ARAU1 in the architecture of TMS320C54x processor.
- 9 Briefly explain memory space organization.
- 10 How many address lines are required to access all locations of an 16K X 16 SRAM?

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

- 11 a) Discuss in brief the Q-Notation system and its importance.
b) Compare RISC and CISC CPUs.
- 12 a) Explain the concept of pipelining and how pipeline depth is measured?
b) Write the procedure of project creation in Code composer studio.
- 13 a) Explain about architectural features of basic DSP with various computational blocks.
b) Discuss on Data addressing capabilities of DSP processor.
- 14 a) Explain the addressing modes of TMS320C54x processor.
b) Describe the operation of the following instructions of TMS 320 C 54 xx processor, with an example. i) MAC; ii) RPT; 3) MPY.
- 15 a) Explain an interface between an A/D converter and the TMS320C54XX processor in the programmed I/O mode.
b) Explain the significance of External bus interfacing signals.
- 16 a) Describe briefly about sources of errors in DSP processor.
b) How interrupts are handled by C54x DSP processor.
- 17 Write short notes on
 - a) Voice synthesis and recognition
 - b) Direct Memory Access.

FACULTY OF ENGINEERING

B.E. VII – Semester (M/P/AE) (CBCS) (Main & Backlog) Examination, March/April 2021

Subject: Managerial Economics & 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. Recall opportunity cost concept.
2. Define Marginalism.
3. Illustrate direct and indirect demand.
4. What is monopoly?
5. Differentiate between out of pocket cost and book cost.
6. Define profit-volume ratio.
7. Tell about accounting rate of return method.
8. What is net working capital?
9. Give formula of liquidity ratios.
10. Is carriage outward a direct or indirect expense? State the reason.

PART – B

Answer any four questions.

(4x15=60 Marks)

11. a) State the significance of managerial economics in decision making in various fields.
b) Define Equi-marginal principle.
12. Define price elasticity of demand and discuss the types and uses of price elasticity of demand.
13. A firm with a required rate of return of 10 percent is considering a project that requires an initial outlay of Rs.15,500 and the cash inflows are given as follows:

Year	1	2	3	4	5
Cash inflow(Rs.)	3,000	4,000	6,000	5,000	4,000

Calculate the IRR and suggest whether the project is acceptable or not.

14. Calculate the profit-volume ratio and break-even point from the following details.
Fixed cost=Rs.3,00,000
Variable cost=Rs.20
Selling price per unit=Rs.30

..2..

15. Define working capital. Distinguish between permanent and temporary working capital.
16. What is perfect competition? Explain the features of a perfectly competitive market.
17. From the following balances of Gupta, prepare the Trading and Profit and Loss a/c as on 31.03.2004.

Particulars	Amount(Rs.)
Opening stock	20,000
Salaries	25,000
General expenses	2,000
Rent and Taxes	3,000
Purchases	90,000
Freight inward	2,500
Advertising	1,500
Sales	1,85,000
Discount allowed	1,800
Discount received	1,000

Adjustments:

1. Closing stock Rs.18, 000

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