Code No: 466/CBCS

FACULTY OF ENGINEERING

B.E. IV – Semester (CBCS) (Civil/ECE/AE) Examination, May/June 2018

Subject: Environmental Sciences

Time: 3 Hours **Max. Marks: 70**

Note: Answer all questions from Part A & Part B. Any FIVE questions from Part-B.

PART – A (2x10=20 Marks)

1) What is the importance of Environment?
2) What are the ill effects of water logging?
3) Ecosystem regulates itself. Justify the statement.
4) What are the significance of food chains and food webs in ecosystem?
5) What is Red Data Book?
6) Differentiate between a national park and sanctuary?
7) What is indoor Air Pollution?
8) How can we control Water Pollution?
9) How can we manage Solid Waste?
10) Enumerate various methods for control of Noise Pollution.

PART – B (5x10=50 Marks)

11 What are the steps taken by our government for environmental protection?

12 What are ecological pyramids? Explain why some of these pyramids are upright while others are inverted in different ecosystems.

13 Discuss with the help of any two case studies, how big dams have affected forests and the tribal.

14 What are the major sources of soil pollution? How does soil pollution affect the soil productivity? What measures can be taken to prevent soil pollution?

15 What are biochemical cycles? Explain with the help of a diagram the nitrogen cycle.

16 Explain the methods of reducing Air Pollution at source.

17 What are hotspots of biodiversity? Which are the hotspots found in India? Discuss their salient features.

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CODE NO: 470/CBCS

FACULTY OF ENGINEERING

BE (CBCS) (EEE) IV-Semester (Main) Examination, May / June 2018

Subject: Electrical Machines - I

Time: 3 Hours **Max. Marks: 70**

Note: Answer ALL questions in Part-A and any FIVE questions from Part-B

Part-A (10x2=20 Marks)

1. Define co-energy and explain its significance
2. Compare singly excited and doubly excited systems with examples.
3. Define back pitch, front pitch, commutator pitch and winding pitch.
4. List the methods of reducing cross magnetizing effects of armature reaction.
5. List the reasons for failure of voltage build up in a shunt generator.
6. What do you suggest for satisfactory parallel operation of dc series generators?
7. Define speed regulation of dc motor.
8. Discuss what happens if a dc motor switched on directly without starter.
9. Summarize the merits and demerits of Swinburne's test.
10. List the advantages and disadvantages of Hopkinson's Test.

Part-B (50 Marks)

11. a) Derive the expression for electromagnetic torque produced in a singly excited system. [5]

    b) The stator and rotor coils of a doubly excited electromechanical device have self and mutual inductances of L_{11} = 0.4mH, L_{22} = 0.2mH, $L_{12}=L_{21}=0.1\cos\theta$ mH where θ is the angle between the two coil axes. Derive the expression for torque when the coils are connected in series and carry the current $i = \sqrt{2}\mathrm{I}\sin\omega t$. [5]

12. a) Explain armature reaction, it's effects and methods to minimize them. [5]

    b) A 220 V, 8 kW dc generator has 8 poles and 400 lap connected armature conductors. Find the number of compensating conductors to be placed in each pole face to compensate armature reaction. Take ratio pole arc to pole pitch as 0.8. [5]

13. a) Classify DC generators according the excitation with neat circuit models and voltage equations. [5]

    b) A 4-pole DC compound generator has armature, series field and shunt field resistances of 1Ω, 0.5 Ω and 100 Ω respectively. The generator supplies load consisting of 40 lamps rated at 100W, 200V. Allowing 1 V per brush as contact drop calculate the generated emf for i) long shunt ii) short shunt connections. [5]

..2

14. a) Derive the torque equation of dc motor from fundamental principles. [5]
    b) A 200 V dc series motor is operating at a speed of 1000 rpm when drawing a line current of 20 A. The armature and series field resistances are 0.6 Ω and 0.3 Ω respectively. Calculate the resistance necessary to be connected in series with the armature to reduce the speed to 500 rpm at the same current. [5]

15. a) Explain Hopkinson's test with circuit diagram. [6]
    b) A shunt motor operating on 200 V mains takes 6A on no load. The armature and shunt field resistances are 0.5 Ω and 200 Ω respectively. Calculate the efficiency as a generator supplying a load of 5 kW. [4]

16. a) Derive torque/force expression using co-energy concept [5]
    b) Explain commutation and methods to improve commutation. [5]

17. Answer any two
    a) Explain Parallel operation of shunt generators. [5]
    b) Illustrate 4-point starter operation with diagram. [5]
    c) Describe Fields test on series machine. [5]

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CodeNo.476/CBCS

FACULTY OF ENGINEERING

B.E IV-Semester (CBCS)(Inst) (Main) Examination May / June 2018

Subject : Signal and Systems

Time : 3 Hours **Max. Marks : 70**

Note : Answer all questions from Part-A & Any five question from Part-B

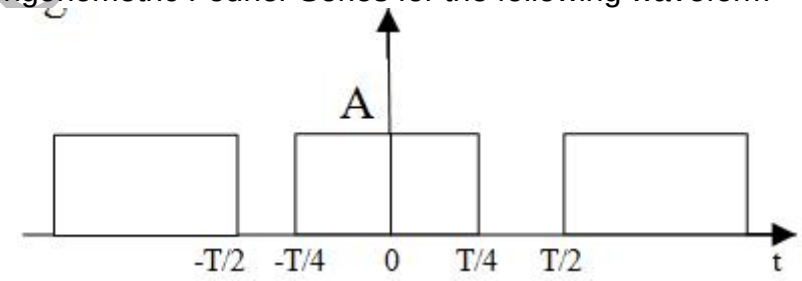
Part-A (20 MARKS)

1. Test the given signal for Time invariance 2
   $y(t) = at^2 x(t) + btx(t-4)$
2. Determine power of the signal $x(t) = 7\cos\left(20t + \frac{®}{2}\right)$ 2
3. Prove that signals $\sin(m\mu_0 t)$ and $\cos(n\mu_0 t)$ are orthogonal 2
4. Give the necessary and sufficient condition for convergence of Fourier series. 2
5. Find the Fourier Transform of Gate Function. 2
6. Explain the difference between Fourier Series and Fourier Transform. 2
7. State any two properties of Laplace Transform. 2
8. Find Laplace transform of signal $x(t) = e^{-2t}u(t) + e^{3t}u(t)$ 2
9. Find the Z-transform of causal signal $x(n) = \left\{2, \underset{\uparrow}{1}, 3, 5, 0, 7\right\}$ 2
10. Write any two properties of Region of Convergence (ROC) of Z Transform. 2

Part-B (50 MARKS)

11. a) Find the convolution of $x_1(n)$ and $x_2(n)$ for the given sequences 5
    $x_1(n) = \{5,4,3,2,1\}, x_2(n) = \{2,2,2\}$
    b) Explain the classification of systems with examples 5

12. Find the Trigonometric Fourier Series for the following waveform 10



13 .a) Prove the Time domain Integration property of Fourier Transform. 4
    b) Determine the convolution of the following signal using Fourier Transform. 6
    $x_1(t) = e^{-2t}.u(t)$ and $x_2(t) = e^{-3t}.u(t)$

14. a) Using Initial value Theorem of Laplace Transform, find the initial value of the function 5
    $X(s) = \frac{s+4}{s^2+3s+5}$

..2

b) Determine the Inverse Laplace Transform of 5

$$G(s)=\frac{s}{(s+3)(s^2+4s+5)}$$

15. a) Find the Z-transform and ROC of the following function 4

$$x(n)=3\left(\frac{5}{7}\right)^n u(n)+2\left(-\frac{1}{3}\right)^n u(n)$$

b) Find the causal signal $x(n)$ if its Z-transform is given by 6

$$X(z)=\frac{z}{2z^2-3z+1},|z|>1$$

16. a) Consider a stable LTI system characterized by the differential equation 6

$\frac{dy(t)}{dt}+2y(t)=x(t)$. Find its impulse response.

b) Find the Z-transform of $x(n)=n.u(n)$ 4

17. Write Short notes on 10

a) Sampling Theorem and

b) Complex Fourier Spectrum.

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Code No.486/CBCS

FACULTY OF ENGINEERING

B.E. (M/P) IV-Semester (CBCS) (Main) Examination May/June 2018

Subject : DESIGN OF MACHINE ELEMENTS

Time: 3 hours **Max. Marks: 70**

Note: Answer all questions from Part A & any five questions from Part B

Part-A (10x2=20 Marks)

1. How can you differentiate between Strength and rigidity?
2. Define the term 'Notch Sensitivity'.
3. Draw neat sketches of different Keys and state its application.
4. Discuss on bolts of uniform Strength.
5. Differentiate between differential screw and compound screw.
6. Why are square threads preferable to V- threads for power transmission?
7. What are the advantages of chain drive over belt drive?
8. Explain briefly a protective type flange coupling with help of the neat sketch.
9. Explain briefly about S-N diagram.
10. Define the term 'Factor of safety'.

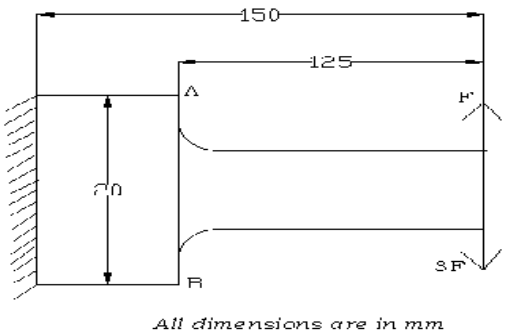
Part-B (5x10=50 Marks)

11. A shaft is made of mild steel of yield strength 700MPa is subjected to static loads consisting of bending moment 10kN-m and a torsional moment 30kN-m. Find the diameter of the shaft using the following theories,
    a) Maximum principal stress theory
    b) Maximum shear stress theory
    c) Maximum principal strain theory
    d) Maximum strain energy theory
    e) Maximum distortion energy theory

    Assuming a factor of safety of 2. Take E= 210GPa and Poisson's ratio =0.25

12. A cantilever beam made of steel of circular cross section of diameter 13 mm as shown in figure, is subjected to a load which various from –F to 3F. Determine the maximum load that this member can withstand for an indefinite life using a factor of safety as 2. The theoretical stress concentration factor is 1.42 and the

    Assume the following values
    Ultimate stress = 550MPa
    Yield stress = 470MPa
    Endurance limit stress = 275MPa
    Size factor =0.85
    Surface finish factor = 0.89



All dimensions are in mm

13. A shaft is transmitting 100kW at 160rpm .Find a suitable diameter for the shaft. If the maximum torque transmitted exceeds the mean torque by 25%, take maximum allowable shear stress as 70MPa.

14. Design and draw a Socket and Spigot Cotter joint support a load of 30kN in tension. The material used is mild steel for which the following allowable stresses may be used. The load is applied statically
    Tensile stress = 50MPa; Shear stress = 35MPa; crushing stress = 90MPa

15. A plate 100 mm wide and 12.5 mm thick is to be welded to another plate by means of parallel fillet welds. The plates are subjected to an axial load of 40 kN. Find the length of the weld so that the maximum stress does not exceed 54 kN/mm^2 if the joint is under
    a) Static loading b) Fatigue loading
    Take stress concentration factor for parallel Fillet welding is 2.7

16. Two lengths of steel plates having thickness 12.5 mm and width 200 mm are to be connected by means of a butt joint with double cover plates. Design the lozenge joint if the permissible stresses are 160MPa in crushing, 80MPa in tension and, 65MPa in shear. Make a sketch of the joint.

17. Write short notes on
    a) Gasket joints
    b) Locking devices for nuts
    c) Miner's rule
    d) Preferred numbers

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CODE NO: 496/CBCS

FACULTY OF ENGINEERING

BE IV-Semester (CBCS) (CSE) (Main) EXAMINATION, May/June 2018

Subject: Microprocessors & Interfacing

TIME: 3 HOUR **MAX. MARKS: 70**

Note: Answer All Questions From Part – A, & Any Five Questions From Part-B

Part – A (20 Marks)

1. Enlist Differences the between 8085 and 8086 Microprocessor instruction set. 2
2. Draw and discuss flag registers of 8085 in brief 2
3. Show the Rotate instructions of 8085? 2
4. What do you understand by 'opcode'? 2
5. What are Assembler directives? 2
6. What is stack and stack pointer? How is it used in Assembly Language Programming 2
7. Generate the control word to Set PORT-C7 bits of 8255 2
8. List the advantages of memory segmentation of 8086 2
9. Differentiate between Macros and procedures 2
10. Explain the physical address formation in 8086 2

Part – B (50 Marks)

11. Explain the interfacing of a stepper motor to 8085 microprocessor with necessary circuit diagram. Write an ALP to rotate the stepper motor clockwise direction 10
12. Explain the block diagram of 8259 Programmable interrupt controller. What are its features? Explain the interrupt operation of 8259 in the simplest format. 10
13. With the help of block diagram explain the internal architecture of IC 8255 and describe its working in IO mode. 10
14. What do you understand by the term 'Addressing mode'? Explain the Addressing modes supported by 8086 by giving suitable examples. 10
15. Determine the physical address resulting from the following instructions: 10
    a. i)MOV DL,[BP+SI]
    b. ii) MOV DI,[BX+100h]
    c. iii) SUB BX,AX
    d. iv) MOV[BP+DI+5],AH
    e. v) MOV AL,[5036h]
    Where BP=7000h,SI=0350h,SS=8000h,BX=4FFFh, DS=2000h, DI=6A00h.
16. With the help of block diagram explain the internal architecture of IC 8257 DMA controller. 10
17. Write Short notes on: 10
    a. Peripheral mapped I/O and memory mapped I/O.
    b. Data transfer using DMA.

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Code No. 242 / S

FACULTY OF ENGINEERING

B.E. 4/4 (Civil) I – Semester (Suppl.) Examination, May / June 2018

Subject: Pre-Stressed Concrete (Elective – I)

Time: 3 Hours **Max.Marks: 75**

Note: Answer all questions from Part A & any five questions from Part B.

PART – A (10x2.5 = 25 Marks)

1 Distinguish between partial and fully pre-stressing.
2 Write the equations for finding stresses developed at the top and bottom fibres of the beam with eccentric pre-stressing forces.
3 Explain the mechanism of shear failure in the beams.
4 Explain the load balancing concept with suitable example.
5 What are the factors influencing short term and long term deflections?
6 Give the deflection equation for trapezoidal tendon profile.
7 Define equivalent prism.
8 List out different type of shear cracks which occur in pre-stressed concrete. Also give the equation to calculate the ultimate shear resistance capacity.
9 Write a note on end zone reinforcement in end block.
10 Explain primary moment with reference to analysis of pre-stressed concrete continuous beams.

PART – B (5x10 = 50 Marks)

11 A post tensioned concrete beam, 150mm. Wide and 400 mm deep is pre-stressed by four cables each with a cross sectional area of 80 mm^2 and with an initial stress of 1200 N/mm^2. All four cables are straight and located at 110 mm from the soffit of the beam. If the modular ratio is 6, calculate the loss of stress in the four cables due to elastic deformation of concrete for only the following cases.
a) Simultaneous tensioning and anchoring of all the four cables and
b) Successive tensioning of four cables, one at a time. 10

12 A pre-stressed concrete beam with a rectangular section 200 mm wide by 300 mm deep supports a uniformly distributed load of 4 kN/m, which includes the self weight of the beam. The effective span of the beam is 8 m. The beam is concentrically pre-stressed by a cable carrying a force of 200 kN. Locate the position of the pressure line in the beam. 10

13 A PSC T-beam has a flange 1000 mm wide and 200 mm thick. The web is 200 mm thick and 1000 mm deep. At a particular section the beam is subjected to an ultimate moment and shear force of 2500 KN-m and 200 KN respectively. Calculate the flexure shear resistance and design suitable shear reinforcement at the section using the following data: 10
Effective depth = 1100 mm
Cube strength of concrete = 40 MPa
Effective prestress at the extreme tensile face of beam = 15 N/mm^2
Second moment of area of cross section = 7.533×10^{10} mm^4
Area of prestressing steel = 2300 mm^2
Tensile strength of tendons = 1600 N/mm^2
Effective stress in tendons after all losses = 1000 N/mm^2.

..2

14 A rectangular concrete beam 300 mm wide, 600 mm deep supports two concentrated loads of 20 kN each at third point of a span of 6 m.
   a) Suggest a suitable cable profile. If eccentricity of the cable profile is 100 mm for middle third portion of the beam, calculate the prestressing force required to balance the bending effect of the concentrated loads neglecting the self weight.
   b) For the same cable profile find effective force in cable if the resultant stress due to self wt., imposed load, and prestressing force is zero at the bottom fiber of mid span section (Assume density of concrete = 24 kN/m^3). 10

15 The end block of prestressed concrete is of size 200 mm x 300 mm, an effective prestressing force of 300 kN is transmitted. The distribution plate is of size 150 mm wide and 150 mm deep concentrically loaded at the ends. Calculate the maximum tensile force and bursting tension. Use IS method. 10

16 A concrete beam with cross-sectional area of $30x10^3$ mm^2 and the radius of gyration is 60 mm is prestressed by a parabolic cable carrying an effective stress of 1000 N/mm^2. the span of the beam is 8 m. The cable, composed of 6 wires of 8 mm diameter, has an eccentricity of 50 mm at the centre and zero at the supports. Neglecting all losses, find the central deflection of the beam as follows: 10
   a) Self weight + prestress
   b) Self wright + prestress + live load of 2 kN/m.

17 Write short notes on the following:
   a) Design of continuous beams according to IS specifications. 5
   b) Design of prestressed concrete members under flexure. 5

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Code No. 244 / S

FACULTY OF ENGINEERING

B.E. 4/4 (Civil) I – Semester (Suppl.) Examination, May / June 2018

Subject: Operating Research (Elective – I)

Time: 3 Hours **Max.Marks: 75**

Note: Answer all questions from Part A. Answer any five questions from Part B.

PART – A (25 Marks)

1 Discuss the applications of linear programming methods in cost and time optimization in the case of construction projects. 3

2 When do you prefer sensitivity analysis? 3

3 What is a balanced transportation problem? 3

4 What are the situations which make the replacement of items necessary? 3

5 Briefly explain the important characteristics of queuing system. 3

6 Give four applications of queuing theory. 2

7 Explain the use of artificial variables in L.P. 2

8 What do you understand by duality in L.P? 2

9 What are the common methods to obtain an initial basic feasible solution for a transportation problem? 2

10 Is it necessary that a game should always possess a saddle point? 2

PART – B (5x10 = 50 Marks)

11 A building contractor produces two types of house – detached and semi-detached houses. The customer is offered several choices of architectural design and layout for each type. The proportion of each type of design sold in the past is shown in table. The profit on a detached house and a semi-detached house is Rs. 3,00,000/- and Rs. 2,40,000/- respectively.

Choice of Design	Detached	Semi-detached
Type A	0.1	0.33
Type B	0.4	0.67
Type C	0.5	--

The builder has the capacity to build 400 houses per year. However, an estate of housing will not be allowed to contain more than 75% of the total housing as detached. Further more, because of the limited supply of bricks available for type B designs, a 200 house limited with this design is imposed. Formulate the above problem into a LPP model to maximize the profits.

..2

12 A contractor has been successful in obtaining five new projects. After a careful consideration, five managers are selected and their skills assessed against each project. Each manager is scored on a points scale as shown in table ranging from 0 to 100. Which managers should be allocated to which projects, if the company wishes to distribute them in the most effective way?

Projects	Manager 1	2	3	4	5
A	43	78	72	50	63
B	41	28	91	37	45
C	74	42	27	49	39
D	36	11	57	22	25
E	13	56	53	31	17

13 Analyse the following LPP using Dual simplex method.

Maximize $Z = 5x_1 + 14x_2 + 24x_3 + 20x_4$

Subject to $x_1 + 6x_2 + 12x_3 + 8x_4 \leq 8$

$3x_1 + 3x_2 + 18x_3 + 6x_4 \leq 6$

$0 \leq x_j \leq 1$ for $j = 1, 2, 3, 4$.

14 The purchase price of a small electricity generating plant is Rs. 20,00,000. The operating costs based on the annual average estimated hours of operation are Rs. 80,000 in the first year, when manufacturers warranties operate, and Rs. 1,20,000 in the second year, rising by Rs. 30,000 each year thereafter. The resale value of the plant can be assumed to be as predicted in table. The cost of capital is 15%. Calculate the optimum replacement age.

Predicted Resale values

Year	Predicted Resale Values
1	18,00,000
2	16,00,000
3	15,00,000
4	12,00,000
5	8,00,000
6	5,00,000
7	2,00,000

15 Suppose an item held in inventory is replenished according to the rule “when the inventory level falls below 1, order 10 items”. Assume that the current level of inventory is 3, that items are demanded one at a time, and that the time between demands is exponentially distributed with a mean rate of two per week.

What is the probability distribution of the number of items demanded in a two week period?

What is the probability that no replenishment will take place during the coming week?

16 Solve by simplex method

Maximize $Z = x_1 - 2x_2 + 3x_3$

Subject to constraints $x_1 + x_2 + x_3 \leq 7$

$x_1 - x_2 + x_3 \leq -2$

$3x_1 + 2x_3 \geq 5$

$x_2 - x_3 \geq 1$ and

$x_1, x_2, x_3 \geq 0$

17 At what average rate must a clerk at a supermarket work in order to ensure a probability of 0.90 that the customer will not have to wait longer than 12 minutes? It is assumed that there is only one counter, to which customers arrive in a Poisson fashion at an average rate of 15 per hour. The length of service by the clerk has an exponential distribution.

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Code No. 243 / O

FACULTY OF ENGINEERING

B.E. 4/4 (Civil) I – Semester (Old) Examination, May / June 2018

Subject: Geographical Information Systems (Elective – I)

Time: 3 Hours **Max.Marks: 75**

Note: Answer all questions from Part A & any five questions from Part B.

PART – A (25 Marks)

1 List the salient features of UTM projection. (3)

2 List the applications of GIS in agriculture. (2)

3 Illustrate the spatial and non-spatial data types of a geographic entity as an example. (3)

4 List four advantages of raster data structure. (2)

5 List the classification of GIS models. (3)

6 List the various types of map transformations. (2)

7 Give a diagrammatic representation of the electromagnetic spectrum. (2)

8 Differentiate between active remote sensing and passive remote sensing with suitable examples. (3)

9 Why are neighbourhood operations used in GIS and give examples of the same? (3)

10 What are the components of data quality in GIS? (2)

PART – B (50 marks)

11 a) Explain the history of development of GIS along with a list of the standard GIS packages in use. (5)

b) Explain how GIS can be used in land use planning. (5)

12 a) Describe in detail about various vector formats used in GIS. (5)

b) What is data compression and describe in detail about various types of data compression and list the algorithms used. (5)

13 a) Differentiate between vector data analysis and raster data analysis. (5)

b) Explain the various data editing and query functions used in GIS. (5)

14 a) Describe the various connectivity functions used in GIS along with examples where they can be used in real life. (5)

b) What is cartographic modeling and explain the procedure for cartographic modeling by GIS. (5)

..2

15 a) Explain the interaction of electromagnetic radiation with the Earth's surface with the help of a neat sketch. (5)

b) What is watershed modeling and list the various areas where it finds applications in conjunction with GIS. (5)

16 a) Give the detailed clarification of GIS analysis. (5)

b) What do you understand by overlay and neighbourhood operations? (5)

17 Write short note on the following:

a) Types of output data. (5)

b) Knowledge based systems. (5)

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Code No. 507/N/S

FACULTY OF ENGINEERING

B.E. 4/4 (CE/EE/Inst/M/P) I - Semester (Suppl.) Examination, May / June 2018

Subject : Entrepreneurship. (Elective-I)

Time : 3 Hours **Max. Marks: 75**

Note: Answer all questions from Part-A & any five questions from Part-B.

PART – A (25 Marks)

1. Mention the different forms of enterprises (2)
2. Mention the objectives of small scale industries (2)
3. Differentiate between manager and an entrepreneur (3)
4. Who are first generation entrepreneurs in India. (2)
5. What is profitability analysis (2)
6. How do you analyse the market for project formulation (2)
7. Discuss about significant features of marketing analysis. (3)
8. Define a project and mention different parameters to be considered in project formulation (3)
9. What is behaviour? And explain the role of motivation in behaviour of an entrepreneur. (3)
10. Define personality and list out its various attributes. (3)

PART – B (5x10=50 Marks)

11.a) List out various opportunities and challenges of entrepreneurs in Indian context. (5)

b) Explain the role of entrepreneurs in developing the economical status of a country. (5)

12. a) Explain in detail about women entrepreneurs by highlighting the favourable conditions for them in Indian context. (5)

b) Define an Idea and elaborate various methods used for Idea generation. (5)

13. What is project formulation? Explain in detail about marketing, financial and technical analysis in project formulation. (10)

14. Discuss in detail about the concept and salient features of PERT and CPM techniques and explain their role in helping an entrepreneur in successful completion. (10)

15. a) What is leadership? How many entrepreneur develops leadership qualities required to be successful in his profession? (5)

b) Explain in detail about Time management matrix. (5)

16. a) Discuss about the concept of assessment of text burden and how it will be helpful to an entrepreneur in planning and managing finance effectively. (5)

b) "Entrepreneurs are made not born". Give your views with proper justification .(5)

17. Write short notes on any three of the following: (10)
    a) Partnership firm
    b) Large scale industries
    c) Human aspects in project management
    d) Change behaviour

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Code No: 260/S

FACULTY OF ENGINEERING

B. E. 4/4 (EEE) I-Semester (Suppl.) Examination, May / June 2018

Subject: HVDC Transmission (Elective-1)

Time: 3 Hours **Max. Marks: 75**

Note: Answer all questions from Part-A, & Answer any FIVE Questions from Part-B.

PART-A (25 Marks)

1 Name the different kinds of DC links.
2 Classify the different types of costs in a transmission link.
3 What is the effect of overlap?
4 Define pulse number.
5 Write the basic equation of control.
6 What are the limitations of manual control?
7 Draw combined characteristics of rectifier and inverter and explain operation of DC link.
8 Mention the source of harmonics.
9 Compare series and parallel MTDC system.
10 Draw a typical MTDC system.

PART-B (50 Marks)

11 (a) Discuss the different factors that favor DC transmission.
(b) With a neat schematic diagram, name the various apparatus required for HVDC station and explain the purpose of each.

12 Draw the circuit diagram of voltage and current waveforms of a 3-phase, 6 pulse uncontrolled bridge rectifier and derive the expression for
(i) Average DC voltage
(ii) Total VA rating of valves abd transformer.
What are the advantages of Graetz's circuit over other six pluse converters?

13 (a) With a neat sketch, explain the working of constant-minimum ignition angle control.
(b) Differentiate constant current control with constant voltage control.

14 (a) Explain the sequence of converter control action and bi-polar to mono-polar transfers during DC line fault clearing in a bipolar HVDC system.
(b) State the various abnormal operating conditions in a thyristor converter valve.
15 (a) Classify the different methods for AC-DC load flow and explain briefly about each of them.
(b) Explain the per unit system for DC quantities.
16 (a) What is reactive power? Name the source of reactive power.
(b) With neat sketches, explain about any two types of converter faults.
17 Write short notes on the following:
(i) Commutation Failure (ii) Harmonics.

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Code No: 252/S

FACULTY OF ENGINEERING

B. E. 4/4 (EEE) I-Semester (Suppl.) Examination, May / June 2018

Subject: Power Quality (Elective-I)

Time: 3 Hours **Max. Marks: 75**

Note: Answer all questions from Part-A, & Answer any FIVE Questions from Part-B.

PART-A (25 Marks)

1 Bring out the difference in harmonics, distortion and transients. [3]
2 Draw the flow chart for power quality assessment. [2]
3 Why the standards should be used. What are the organizations that define the standard for Power quality? [2]
4 What are the indices used to evaluate harmonics. [2]
5 Define phase angle jumps and write their significance. [3]
6 What are the different types of sag? [3]
7 Differentiate between faults and trips. [2]
8 Draw the lock diagram of an ASD. [2]
9 Explain the importance if data collection, Organization and analysis in PQ. [3]
10 How can we characterize the voltage sag [3]

PART-B (50 Marks)

11 Describe in detail the classification of voltage sags in meshed systems for short circuit faults. [10]

12 What is the effect of transformer connection on voltage sag? [10]

13 What is effect of voltage sag on Induction Motor in detail? [10]

14 Draw the waveforms of any seven P.Q problems to a proper scale. [10]

15 What is the impact of capacitance on the ASD's? [10]

16 Write a brief note on the mitigation equipment used in a facility to improve the power quality. [10]

17 Explain how resonance in power system equipment results in harmonic distortion in current and voltage. [10]

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Code No. 255 / S

FACULTY OF ENGINEERING

B.E. 4/4(EEE)I-Semester (Supplementary) Examination, May / June 2018

Subject : High Voltage Engineering (Elective-I)

Time : 3 hours **Max. Marks : 75**

Note : Answer all questions from Part-A & any Five Questions from part-B

PART – A

1. State Paschen's law. [2]
2. List out the methods used for generation of high ac voltages. [2]
3. What are the components of a multi stage impulse generator? [2]
4. Draw the diagram of current transformer and electro-optical system for high a.c current measurement. [2]
5. Draw the schematic diagram of a typical test plant of a circuit breaker. [2]
6. Define Time lag for breakdown of gas. [3]
7. Mention the advantages of electrostatic generator. [3]
8. Define, Chopped wave and Impulse ratio for flashover. [3]
9. Mention the advantages of Chubb-Fortescue method. [3]
10. Explain the partial discharge testing of power transformers. [3]

PART – B

11. Explain briefly various theories of breakdown in liquid dielectrics. [10]

12. Explain clearly the basic principle of operation of an electrostatic generator. Describe with neat diagram the principle of operation, application and limitations of Van-de Graff generator. [10]

13. Give the complete analysis of circuit 'b' and derive the condition for physical realization of wave front and wave tail resistances. [10]

14. a) Discuss and compare the performance of resistance and capacitance potential divides for measurement of impulse voltage. [5]
    b) Explain with neat diagram how rod gaps can be used for measurement of high voltages. [5]

15. a) What is the criteria used in selecting the ratings of the testing equipment for hv laboratories? [5]
    b) Explain the various tests to be performed on power transformers. [5]

16. a) Discuss any three methods of measuring high impulse currents. [5]
    b) Derive an expression for voltage efficiency of a single stage impulse generator. [5]

17. Write short notes on the following : [10]
    a) Townsend's Ionization Coefficients
    b) Series resonant circuit

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Code No: 258/S

FACULTY OF ENGINEERING

BE 4/4 (Inst.) I-Semester (Suppl.) Examination, May / June 2018

Subject: Automation in Process Control (Elective-I)

Time: 3 Hours **Max. Marks: 75**

Note: Answer all questions from Part-A & Answer any FIVE Questions from Part-B.

PART-A (25 Marks)

1	What is meant by digital signal conditioning?	[2]
2	What are the guidelines to be followed in selecting an add-on-card?	[3]
3	Mention the two mode of working of RTU.	[2]
4	Draw distributed SCADA structure.	[3]
5	Draw the block diagram of DDC.	[3]
6	What are different layers of computer network?	[2]
7	Explain computer control of liquid level system.	[3]
8	Give the flow sheet of Plastic injection moulding process.	[2]
9	What are smart sensors? Give the advantages of using it.	[3]
10	Draw the diagram of smart control valve positoner.	[2]

PART-B (5x10=50 Marks)

11 (a) Explain the concept involved in data acquisition system using PC add-on card. [5M]

(b) Write the guidelines in selecting the Input and Output devices. [5M]

12 (a) Draw the block diagram of SCADA and explain the basic function carried out by the SCADA system. [5M]

(b) Compare SCADA, PLC, DCS and Smart instruments. Also write the applications of SCADA system in process control. [5M]

13 (a) Explain three kinds of communication Network protocol in DCS. [5M]

(b) What are LCU'S and how are they related to SCADA RTU'S. [5M]

14 (a) With a neat diagram, explain the continuous actuators in control systems? [5M]

(b) Explain with suitable diagram computer control heat exchanger. [5M]

15 Explain main features of field buses FIP and PROFIBUS in detail [10M

16 (a) Discuss briefly IEEE-GPIB. [5M]

(b) Explain peer-to-peer based network. [5M]

17 (a) Write short notes on Plug-in-cards. [5M]

(b) Write short notes on HART protocol. [5M]

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Code No: 267/O

FACULTY OF ENGINEERING

B.E. 4/4 (ECE) I-Semester (Old) Examination, May/June 2018

Subject: Optical fiber Communication (Elective – I)

Time: 3 Hours **Max. Marks: 75**

Note: Answer All Questions From Part – A, any FIVE Questions From Part - B

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PART-A [25 Marks]

1. What are the advantages of Optical Fiber Communication? (2)
2. Draw the diagrams of different fiber optic structures (2)
3. Compute the numerical aperture and hence the number of modes supported by a 50 « um/125 « m step index fiber with n 1=1.48 and n2=1.46 at a wavelength of 120 nm? (2)
4. Discuss about the material dispersion (3)
5. Distinguish between intra-modal and inter-modal dispersion (2)
6. Estimate the peak emission wavelength in μm, the energy band-gap is 0.97 eV, (3)
7. What is the need for double hetrojunction structure? (2)
8. What are the advantages of LASER over LED (3)
9. Discuss about quantum limit (3)
10. Explain noise affects on system performance (3)

PART-B [50 Marks]

11. a) Discuss about mode theory for circular waveguides (6)

b) A silica optical fiber with a core diameter large enough to be considered by ray theory analysis has a core refractive index of 1.50 and a clad refractive of 1.47

Determine:

i) the critical angle at the core – cladding interface

ii) the numerical aperture for the fiber

iii) the acceptance angle in air for the fiber (4)

12. a) Explain the different types of bending losses in optical fiber (5)

b) Discuss the pulse broadening in guided index fibers (5)

13. a) Explain the operation of DFB and DFR LASER (7)

b) What is the significance of external quantum efficiency (3)

14. a) Discuss about preamplifiers (6)

    b) Give comparison between PIN diode and Avalanche photo diode (4)

15 Explain about link power budget and system rise time budget analysis (10)

16. a) Discuss about absorption and scattering loss in optical fiber (5)

    b) Discuss about mode coupling in optical fiber (5)

17. Write short notes on:

    a) Fiber slicing (5)

    b) SONET/SDH Network (5)

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Code No. 510/N/S

FACULTY OF ENGINEERING

BE 4/4 (ECE) I-semester (New) (Suppl) Examination, May/June 2018

Subject: Optical Communication (Elective-I)

Time: 3 Hours **Max. Marks: 75**

Note: Answer all questions from Part A any five questions from Part B.

PART-A (25 Marks)

1. What are the advantages of optical fiber communication? 3
2. Which three bands of wavelength are used for optical fiber communication? 2
3. Compare step index and graded index fibers. 3
4. Differentiate between inter and intra modal dispersion. 2
5. Draw the schematic of high radiance surface emitting LED. 3
6. Define internal quantum efficiency of an optical source. 2
7. Define responsivity of photo detectors. 2
8. What are the advantages of APD over PIN diodes? 3
9. What are different error sources in optical communication system? 3
10. What are the applications of WDM. 2

PART-B (5X10=50 Marks)

11. a) With a neat sketch explain the elements of a fiber optic communication link 7
    b) Differentiate between single mode and multi mode fibers. 3

12. a) Explain briefly different types of losses observed in optical fibers. 6
    b) If the core layer of an optical fiber is made from silica with refractive index 1.45 and if the refractive index of the cladding layer is 1% less than that of the core, calculate
        i) Refractive index of cladding
        ii) Critical angle
        iii) Max. acceptance angle
        iv) Numerical Aperture 4

13. a) What is the need for double hetero – junction structure in optical sources. 4
    b) Sketch and explain Fabry – Perot resonator cavity of a laser diode. 6

14. a) Explain the principle and construction on reach through APD with a neat sketch 6
    b) Explain briefly the three different mechanical misalignments that can occur between two joined fibers. 4

15. a) Elaborate on the structure of SONET/SDH protocols. 6
    b) Write a short note on wavelength Division Multiplexing with a neat diagram 4

16. a) Draw Point to point link structure and explain its working 5
    b) Write short notes on Erbium Doped Fiber amplifiers. 5

17. Write short notes on any TWO of the following:
    a) Fiber Splicing 5
    b) Optical Receiver 5
    c) Linearly Polarized modes

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Code No.514/N/S

FACULTY OF ENGINEERING

B.E. 4/4 (E.C.E.) I Sem.(New) (Suppl.) Examination, May / June 2018

Subject : Artificial Neural Networks (Elective-I)

Time : 3 Hours **Max. Marks: 75**

Note: Answer all questions from Part-A & any five questions from Part-B.

PART – A (25 Marks)

1. Differentiate original Neuron with Artificial Neuron model. (3)
2. Define activation function & give the different activation functions used in Neural Networks. (3)
3. Write any 2 basic learning laws. (2)
4. What are the different categories of learning methods ? (3)
5. What is “Recall” in a Neural Network ? (2)
6. Write short notes on Hetero-Associative Neural Networks. (2)
7. With a neat diagram, briefly explain multi-layer feed forward Neural Network. (3)
8. Write the Back Propagation learning law and its limitations. (2)
9. Define Boltzman learning law. (3)
10. Briefly explain about stochastic Neuron. (2)

PART-‘B’(50 Marks)

11. a) Explain in detail the topology, algorithm & applications of perceptron Neuron model. (6)
    b) Implement ‘AND’ logic gate using perceptron Neuron model. (4)

12. Derive and explain the shunting activation model in detail. (10)

13. a) Explain in detail pattern clustering task with example. (5)
    b) Explain in detail feature mapping task with example. (5)

14. State and prove perception convergence theorem. (10)

15. Explain in detail perception Neural Network solution for XOR problem. (10)

16. With neat diagrams, explain in detail about :- (10)
    a) Linear Auto-Associative feed forward Neural network.
    b) Linear Auto-Associative feed back Neural network.

17. Explain in detail Hopfiled Neural Network with its topology, energy Function and capacity. (10)

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Code No. 281/S

FACULTY OF ENGINEERING

B.E. 4/4 (M/P/AE) I - Semester (Suppl.) Examination, May / June 2018

Subject : Automobile Engineering (Elective – I)

Time : 3 Hours **Max. Marks: 75**

Note: Answer all questions from Part-A & any five questions from Part-B.

PART – A (25 Marks)

1 Indicate different types of hybrid vehicles.
2 What is piston clearance? Why it is necessary?
3 Define friction. Why it occurs ? What are its effects?
4 What is the purpose of the battery in automobile?
5 List the components of steering system.
6 Define sprung and unsprung masses.
7 Explain the function of the drum in the brake mechanism.
8 Make a sketch of clutch and name essential parts.
9 List the quantities to be measured during engine testing.
10 Write any two areas in the automobile which can emit pollutants into the atmosphere.

PART – B (50 Marks)

11 (a) What is piston slap? What causes this? What are the methods used by Engine designers and manufacturers to reduce piston slap. (5)
(b) Sketch and explain the construction and operation of zenith carburetors. (5)

12 (a) With the help of neat sketch explain dry samp lubrication system. (5)
(b) Describe with diagram, the operation of magneto ignition system. (5)

13 (a) Differentiate between tubed and tubless tyres. (5)
(b) Discuss various factors of wheel alignment. (5)

14 (a) Discuss the construction and working details of the tendon master cylinder. (5)
(b) With the help of neat sketch explain the construction and operation of a constant mesh Geas box. (5)

15 (a) Describe various pollutants emitted by an automobile. (5)
(b) What are the pollution control techniques used in practice? (5)

16 (a) Explain briefly the construction of the propeller shaft. (5)
(b) Sketch and explain any one type of centrifugal clutch. (5)

17 Write short notes on the following:
(a) Leaf spring
(b) Electronic fuel injection

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Code No. 283 / S

FACULTY OF ENGINEERING

B.E. 4/4 (Mech.) I – Semester (Suppl.) Examination, May / June 2018

Subject: Non-Conventional Energy Sources (Elective-I)

Time: 3 Hours **Max.Marks: 75**

Note: Answer all questions from Part A & any five questions from Part B.

PART – A (25 Marks)

1 Explain solar radiation and Geometry.
2 What are the applications of wind energy?
3 Explain thermoelectric power.
4 Explain how biomass becomes a source of energy.
5 Sketch an open cycle OTEC system and explain.
6 Classify the methods of solar storage.
7 How do you maintain stable density gradient in solar pond?
8 What are the advantages of well head power generation units?
9 Write a note on the difference between tidal and wave power.
10 Discuss what is pro-commercial plant.

PART – B (50 Marks)

11 Enumerate the different types of concentrating type collectors used for solar energy.

12 Wind at one standard atmospheric pressure and 150C has a velocity of 10 m/s. The turbine has a diameter of 120m and its operating speed is 40 RPM at maximum efficiency.
Calculate
i) Total power density in the wind stream
ii) The total power produced
iii) The torque and the axial thrust

13 What is the basic principle of ocean thermal energy conversion and what are the main types of OTEC power plants?

14 Give a brief note on prospects of geothermal energy is context to Inida.

15 Write down the application of geothermal energy at different temperatures. Name some important geothermal provinces and places where hot springs occur in Inida.

16 What are the advantages and disadvantages of biological conversion of solar energy?

17 Write short notes on the following:
a) GASIFIERS
b) Working of KVIC Digester
c) PYROLYSIS

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Code No. 285 / S

FACULTY OF ENGINEERING

B.E. 4/4 (M/P/AE) I – Semester (Suppl.) Examination, May / June 2018

Subject: Composite Materials (Elective – I)

Time: 3 Hours **Max.Marks: 75**

Note: Answer all questions from Part A. Answer any five questions from Part B.

PART – A (25 Marks)

1 Classify the composite materials. (3m)

2 What are the characteristics of fibers? (2m)

3 Define the following:

i) Degree of cure.

ii) Gel time. (3m)

4 What is meant by pultrusion process? (2m)

5 Compare and contrast between homogeneous and isotropic. (3m)

6 Explain Halpin-Tsai equation and its assumptions. (2m)

7 Condense the following expanded laminated codes

i) [0/45/-45/-45/45/0]

ii) [0/90/60/90/0] (3m)

8 Explain the interlaminar stresses in laminates. (2m)

9 Name the modes of failure in unidirectional composite under longitudinal tensile load. (3m)

10 What is Tsai- Wu failure theory? (2m)

PART – B (50 Marks)

11 What are the characteristics of metal matrix composites? Explain briefly about the applications of MMC. (10m)

12 Explain the following with neat sketches.

i) Injection moulding (5m)

ii) Filament winding process. (5m)

13 Determine the modulus of elasticity of FRP in the fiber direction and in transverse directions, with proper representative sketches. Use Mechanics Of Materials Approach. (10m)

14 a) Define Quasi- isotropic laminate. (4m)

b) For an orthotropic UD laminate, engineering properties along the principle axis: E_1 =150GPa, E_2=50GPa; γ_{12}=0.2 and G_{12}=5GPa. Determine the reduced stiffness matrix elements. (6m)

15 Longitudinal axis of a orthotropic lamina makes an angle of 45° with the x-axis it is subjected to the following stresses σ_x=20MPa; σ_y=0; τ_{xy}=20MPa using maximum work theory, predict the failure of the lamina with F_{1t}=500MPa, F_{2t}=10MPa; F_{2c}=75MPa; F_{1c}=350MPa; F_{12}= 35MPa. (10m)

16 a) Write short notes on matrix materials. (5m)

b) Differentiate between thermosetting and thermoplastic materials. (5m)

17 A lamina is made up of 4 graphite epoxy plies each 1mm thick. They are stacked and bonded to form a laminate $[(0/90)_s]$. Obtain [A], [B] and [D] matrices for zero degree. (10m)

$$[Q] = \begin{bmatrix} 150732 & 2713 & 0 \\ 2713 & 10048 & 0 \\ 0 & 0 & 6000 \end{bmatrix} \text{ N/mm}^2.$$

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Code No. 288 / S

FACULTY OF ENGINEERING

B.E. 4/4 (Prod.) I – Semester (Suppl.) Examination, June 2016

Subject: Total Quality Management (Elective – I)

Time: 3 Hours **Max.Marks: 75**

Note: Answer all questions from Part A. Answer any five questions from Part B.

PART – A (10x2.5 = 25 Marks)

1 What are quality goals?

2 What is Hertzberg 2 factor theory?

3 What is value engineering?

4 What is failure pattern of complex products?

5 Explain attribute charts.

6 What is 'F' test and 'T' test?

7 Explain 'producer's risk' and 'purchaser's risk'.

8 What is quality improvement plan?

9 What are the parameters to measure customer dissatisfaction?

10 Define TQM.

PART – B (5x10 = 50 Marks)

11 a) Explain quality circles. 5
b) Explain Pareto analysis. 5

12 a) Explain design for reliability, safety, cost and product performance. 5
b) Explain cause and effect diagram. 5

13 a) Explain Chi square test. 5
b) Explain techniques for online quality. 5

14 a) Differentiate between QIS and MIS. 5
b) Explain the concept of POKAYOKE. 5

15 a) Explain 'Weibull analysis'. 5
b) Explain Kanseri engineering. 5

16 a) Explain supplier quality rating plans. 4
b) Explain Taguchi tolerance design and tolerance. 6

17 Write short notes on:
a) Theory X, Y & Z. 5
b) Analysis of variance (ANOVA). 5

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Code No. 295 / S

FACULTY OF ENGINEERING

B.E. 4/4 (AE) I – Semester (Suppl.) Examination, May / June 2018

Subject: Production and Operations Management (Elective-I)

Time: 3 Hours **Max. Marks: 75**

Note: Answer all Questions from Part-A, & any Five Questions from Part-B.

PART – A (25 Marks)

1. Differentiate plant location from plant layout.
2. Explain the demand patterns in forecasting.
3. Distinguish between Job shop, batch and continuous production.
4. Briefly explain moving average method
5. Explain features 2 ERP package
6. Briefly explain Fulkerson's rule.
7. Sketch inventory modes with no stock
8. What is the importance of inventory control?
9. What are problems with CPM in Project network
10. Explain briefly the differences between PERT and CPM

PART – B (50 Marks)

11. Define Plant Layout & its types with an examples
12. Calculate the trend value from the following data using the least squares method and estimate sales for the year 1998.

Year	1991	1992	1993	1994	1995	1996
Sales Rs. crore	25	35	40	45	43	52

13. (a) Explain objectives and strategies in aggregate planning.
    (b) Explain master production scheduling.
14. What is Network scheduling? Explain different techniques for project scheduling?
15. What are Inventory Control Records and Establish order cycles?
16. Explain Four Basic Elements of Project Management
17. Explain the following Project Planning Techniques
    (a). Gantt Chart
    (b). PERT
    (c). CPM

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Code No. 300 / S

FACULTY OF ENGINEERING

B.E. 4/4 (CSE) I – Semester (Suppl.) Examination, May / June 2018

Subject: Software Project Management (Elective – I)

Time: 3 Hours **Max.Marks: 75**

Note: Answer all questions from Part A & any five questions from Part B.

PART – A (25 Marks)

1 Give any two formal definitions of Project Management? (3)
2 What is work break down structure? What is its role in SPM? (3)
3 What is Programme Management? (2)
4 Differentiate between iteration and increment. (3)
5 List the various stages of team development. (3)
6 What are the functions of a project manager? (3)
7 What is round trip engineering? (2)
8 What is vision document? Why is it needed? (2)
9 What is artifact and artifact set? (2)
10 What is architecture baseline? (2)

PART – B (5x10 = 50 Marks)

11 a) What are the five basic parameters of cost estimation model? (5)
b) Explain the predominant cost estimation model with a diagram. (5)

12 a) Discuss the five Staffing principles proposed by Barry Boehm. (5)
b) Discuss the top five principles of modern process. (5)

13 a) Discuss the primary objectives, and essential activities of Construction and Transition Phase. (5)

b) Discuss the following management artifacts:
i) Business Case
ii) Work breakdown Structure (5)

14 a) Compare and contrast the software architecture from management and technical perspective. (5)
b) List and explain the seven top-level workflows of a software process. (5)

15 a) Describe briefly the project level organization structure with a diagram (5)

b) Describe the process of change management in the context of SCO, CCB and configuration baseline. (5)

16 a) What is periodic status assessment? (5)

b) What is process improvement? How can CMM help you in process improvement? (5)

17 a) List the seven core metrics and describe the purpose of each metric. (5)

b) Discuss the concept, purpose and five distinct processes in ISO 12207. (5)

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Code No. 305 / S

FACULTY OF ENGINEERING

B.E. 4/4 (CSE) I – Semester (Suppl.) Examination, May / June 2018

Subject: Artificial Intelligence

Time: 3 Hours **Max.Marks: 75**

Note: Answer all questions from Part A & any five questions from Part B.

PART – A (25 Marks)

1	What is multiple accesses type? List its classification.	2
2	Compare the features of Phase Shift keying and Advanced Phase shift keying.	3
3	Write the functionality of the mobile services of GSM.	2
4	Differentiate between GEO and LEO.	3
5	Write the features of Bluetooth.	2
6	Write the differences between Infrastructure and Adhoc networks.	3
7	What is Mobile IP?	2
8	Write the role played by DHCP in mobility.	3
9	How does Java Card's supports in mobility.	2
10	Write the features of palm OS.	3

PART – B (5x10 = 50 Marks)

11	a)	Differentiate Direct Sequence and Frequency Hop Spread spectrum, with the help of an example.	6
	b)	Write different strategies used for signal propagation.	4
12		Describe the functional architecture of a GSM system for signaling, with the help of a diagram.	10
13	a)	Explain any three classical TCP improvements.	5
	b)	Write in detail about route optimization for mobile IP network.	5
14	a)	Discuss the protocol architecture of WAP.	5
	b)	Discuss the features of Windows.	5
15	a)	Discuss Bluetooth security components using a block diagram.	5
	b)	Discuss the architecture of HYPERLAN.	5
16	a)	Discuss how Mobile Terminated Call (MTC) and Mobile Originated Call (MOC) is used to maintain a connection with a mobile proxies.	6
	b)	Write about performance enhancement proxies.	4
17		Write short notes on the following:	
	a)	Digital Video Broadcasting	4
	b)	Cellular systems	3
	c)	CODA file system	3

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Code No. 315

FACULTY OF INFORMATICS

B.E. 4/4 (IT) I-Semester (Suppl.) Examination, May / June 2018

Subject : Software Reuse Techniques (Elective-III)

Time : 3 hours **Max. Marks : 75**

Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.

PART – A (25 Marks)

1	What are the benefits of software reuse?	2
2	Define design pattern. What is its need?	2
3	What is creational design pattern? Give examples.	2
4	What is the intent, participants and known uses of builder pattern?	3
5	Define behavioural patterns and list them.	2
6	What is the intent of singleton pattern and draw the structure of it?	3
7	Draw the structure and participants of proxy pattern.	3
8	Draw the structure of Pipe and Filter pattern and mention the participants in it.	3
9	Write the intent and context of black board pattern.	3
10	Define object oriented reuse engineering.	2

PART – B (5 x 10 = 50 Marks)

11	a) Describe how to specialize some components before reuse.	5
	b) Explain how component systems export components via facades.	5
12	Explain detail about abstract factory pattern.	10
13	Write the intent, motivation, structure, participants and known uses of the following patterns. a) Composite b) Decorator	5+5
14	Describe in detail about the chain of responsibility pattern.	10
15	Write the intent, motivation, structure and know-uses of the following patterns. a) Iterator b) Vector	5+5
16	Describe in detail about blackboard pattern.	10
17	Write short notes on the following : a) Model-view-controller pattern b) Reuse Driven software Engineering.	5+5

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Code No. 316 / S

FACULTY OF INFORMATICS

B.E. 4/4 (IT) I-Semester (Suppl.) Examination, May / June 2018

Subject : Grid Computing (Elective-III)

Time : 3 hours **Max. Marks : 75**

Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.

PART – A (25 Marks)

1	Distinguish between Grid Computing and Cluster Computing.	2
2	Distinguish between enterprise grid and partner grid.	2
3	What is check pointing? Give an example.	3
4	Write briefly about SAML.	3
5	What is end point reference? Give an example.	3
6	Give the relationship between OGSA, GT4, WSRF and web services with a diagram.	3
7	What is an MPI communicator? Give an example.	3
8	Write briefly about SSL protocol.	2
9	Write briefly about CAS.	2
10	Explain the purpose of the following parameters of MPI. i) MPI_COMM_SIZE ii) MPI_COMM_RANK	2

PART – B (50 Marks)

11	a) What is File staging? Explain how file staging is specified using JSDL. b) Explain the functions of the GRAM component of Globus Toolkit.	5 5
12	Explain the following :. a) GSI Authentication b) GSI Authorization	10
13	Explain the working of following features of WSRF/GT4 services : a) Lifecycle mechanisms b) Index Service c) Notifications	 3 5 2
14	Explain the working of the following MPI routines. i) Point-to-point message passing routines ii) Collective message passing routines	10
15	Explain the need for a scheduler in Grid Computing. Explain how scheduling is carried out in Condor.	10
16	What are Web Service Containers? Explain the process of building and deploying a web service.	10
17	Write short notes on the following : a) DRMAA b) Grid Portals	 5 5

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CODE NO: 496/CBCS

FACULTY OF ENGINEERING

BE IV-Semester (CBCS) (CSE) (Main) EXAMINATION, May/June 2018

Subject: Microprocessors & Interfacing

TIME: 3 HOUR **MAX. MARKS: 70**

Note: Answer All Questions From Part – A, & Any Five Questions From Part-B

Part – A (20 Marks)

18. Enlist Differences the between 8085 and 8086 Microprocessor instruction set. 2
19. Draw and discuss flag registers of 8085 in brief 2
20. Show the Rotate instructions of 8085? 2
21. What do you understand by 'opcode'? 2
22. What are Assembler directives? 2
23. What is stack and stack pointer? How is it used in Assembly Language Programming 2
24. Generate the control word to Set PORT-C7 bits of 8255 2
25. List the advantages of memory segmentation of 8086 2
26. Differentiate between Macros and procedures 2
27. Explain the physical address formation in 8086 2

Part – B (50 Marks)

28. Explain the interfacing of a stepper motor to 8085 microprocessor with necessary circuit diagram. Write an ALP to rotate the stepper motor clockwise direction 10
29. Explain the block diagram of 8259 Programmable interrupt controller. What are its features? Explain the interrupt operation of 8259 in the simplest format. 10
30. With the help of block diagram explain the internal architecture of IC 8255 and describe its working in IO mode. 10
31. What do you understand by the term 'Addressing mode'? Explain the Addressing modes supported by 8086 by giving suitable examples. 10
32. Determine the physical address resulting from the following instructions: 10
    a. i)MOV DL,[BP+SI]
    b. ii) MOV DI,[BX+100h]
    c. iii) SUB BX,AX
    d. iv) MOV[BP+DI+5],AH
    e. v) MOV AL,[5036h]
    Where BP=7000h,SI=0350h,SS=8000h,BX=4FFFh, DS=2000h, DI=6A00h.
33. With the help of block diagram explain the internal architecture of IC 8257 DMA controller. 10
34. Write Short notes on: 10
    a. Peripheral mapped I/O and memory mapped I/O.
    b. Data transfer using DMA.

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