

PURBANCHAL UNIVERSITY

2017

Bachelor in Information Technology (B.I.T.)/First Semester/Final

Time: 03:00 hrs.

Full Marks: 60 /Pass Marks: 24.

BIT170CO: Fundamentals of Information Technology (New Course)

Candidates are required to give their answers in their own words as far as practicable.

Figure in the margin indicate full marks.

Group A

Answer TWO questions.

2×12=24

1. What do you mean by computer? List and explain the different components of the computer with its block diagram.
2. What is computer network? Explain different network topologies with its advantages and disadvantages.
3. What are the new technologies used on Information Technology? Explain with examples.

Group B

Answer SIX questions.

6×6=36

4. What is operating system? Discuss operating system function in detail.
5. List all the input and output devices and explain keyboard and printer in brief.
6. What is DBMS? What are the different types of DBMS? Explain with example.
7. Describe the different types of multimedia tools.
8. What is computer crime? What are the different types of information protection technique?
9. What is the use of IT in Engineering and Medicine? Explain in details.
10. Explain distributed system with its characteristics.
11. Write short notes on any TWO:
(a) OLAP (b) www (c) SRAM

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Group A

Answer TWO questions.

2×12=24

- 1(a) What is processor and microprocessor? Explain CPU and memory work. 1+5
- (b) List different types of input and output devices. Describe the factors that quality of monitor depends on. 1+5
- 2(a) What is centralized and distributed data processing? Discuss the advantages and disadvantages of distributed data processing. 2+5
- (b) What is virtual reality? How does multimedia help in achieving virtual reality? 1+4
- 3(a) Is an operating system more important for computer? If Yes/No, give causes. 6
- (b) What is database management system? Why do you need DBMS? Describe. 6

Group B

Answer SIX questions.

6×6=36

- 4 What is printer? Write difference between impact and non-impact printer. 1+5
- 5 What is compiler and explain the compilation process? How does compiler differ from interpreter? 1+1+4
6. What is data processing and file processing? Write the difference between sequential and direct access file processing. 1+5

(2)

7. ✓ What do you mean by computer N/W, N/W topology and N/W architecture? Discuss about the two types of N/W architecture. 2+4
8. ✓ List the new technology in information system. Discuss the advantages and uses of data warehouse. 2+4
9. ✓ What do you mean by computer crime? What methods can an organization use to maintain privacy and security of its information? 2+4
10. ✓ Write short notes on any TWO. 3+3
- (a) Working of Hard disc
 - (b) Difference between SRAM and DRAM
 - (c) ✓ Need of modulation.

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2017

Bachelor in Information Technology (B.I.T.)/First Semester/Final

Time: 03:00 hrs.

Full Marks: 80 /Pass Marks: 32

BIT105SH: Technical Communication (English) (New Course)

Candidates are required to give their answers in their own words as far as practicable.

Figures in the margin indicate full marks.

Answer ALL questions.

1. Read the following passage and answer the following questions: 15

With the recent growth of mass media technology advertising has begun to play a significant role in the national economy. Thousands of people are working to promote the sale of each new product or to boost the sale of a product already in the market. In fact, advertising as an industry now enjoys a respectable status and is regarded by many as a service to society. The avowed purpose of advertising is to inform the audience and to influence it to buy a particular product. The customer is made aware of goods and services available, their merits, uses and value. Thus, advertising helps him in choosing what he actually needs to what he should have to add to his comfort and improve his standard of living.

But the sale of a product does not depend on advertising alone. The quality of a product must be good and its price within the reach of those for whom it is intended. If exaggerated claims are made or the price is too high, advertising, however powerful, will not prove effective. India's advertising industry is about 75 years old. The British firms in India were the first to make use of advertising for marketing proposes in the beginning of the twentieth century. The advertising agencies opened by them gave an opportunity to the Indian staff to get training and set up their own establishments in due course. The first Indian advertising agency B. Dattaram and Company started functioning in 1903.

When India became free, five-year plans were launched, economic activities increased at a tremendous pace. Many new industries were set up and gradually a large number of products which were imported earlier, began to be manufactured in the country. Under these circumstances naturally advertising received a big boost. Now hordes of specialist agencies have come into existence to look after particular aspects of the advertising industry.

Questions:

- (a) What is the main function of advertising?
 - (b) What factors have contributed to the growth of advertising as an industry?
 - (c) Why advertising is considered an important activity of modern society?
 - (d) Why did the advertising industry in India get a boost after Independence?
 - (e) Does advertising sometimes exercise a harmful influence on our society? Elaborate your answer with examples.
2. Mark the Primary Stress of the following words. 5
- (i) Condition (b) ago (c) Conduct(n) (d) himself (e) lady doctor
(f) behind (g) recommend (h) submit (i) reason (j) cover
3. Decide the tone pattern of the following sentences: 5
- (a) I invited Mr. Thapa last night
(b) Where do you work?
(c) Did he get the book which he was looking for?
(d) I am unmarried, aren't I?
(e) Ram was sleeping and his sister was cooking.
4. Supply the correct forms of verbs in the brackets and rewrite the sentences: 5
- (a) The horse and carriage (are/is) ready.
(b) Each of the wounded soldiers (was/were) given first aid.
(c) Dick, together with his friends (was/were) drowned.
(d) If I were you, I (go) there.
(e) Twenty miles (is/are) a long distance
5. Answer any TWO of the following questions. 2×10=20
- (a) Suppose you are the production manager in a reputed software manufacturing company. Your general manager has instructed you to submit a report about production constraints. Write a clear, smoothly connected report, highlighting the problem, factor involved in the problem.

(3)

- (b) As the secretary of your club, prepare a notice inviting the executive committee members to the 7th regular meeting with the agenda to be discussed.
- (c) What are the fundamentals of effective writing? Explain.
6. Write an essay on any ONE of the following topics.
- (a) Laser Technology
 - (b) Technology and satisfaction
7. Write a job application along with resume on the post of Officer in a reputed software company.
8. Write shorts on any TWO:
- (a) Facial expression
 - (b) Extensive reading
 - (c) Length



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Full Marks: 80 /Pass Marks: 32

BIT120EL: Basic Electrical System and Circuits (New Course)

Candidates are required to give their answers in their own words as far as practicable.

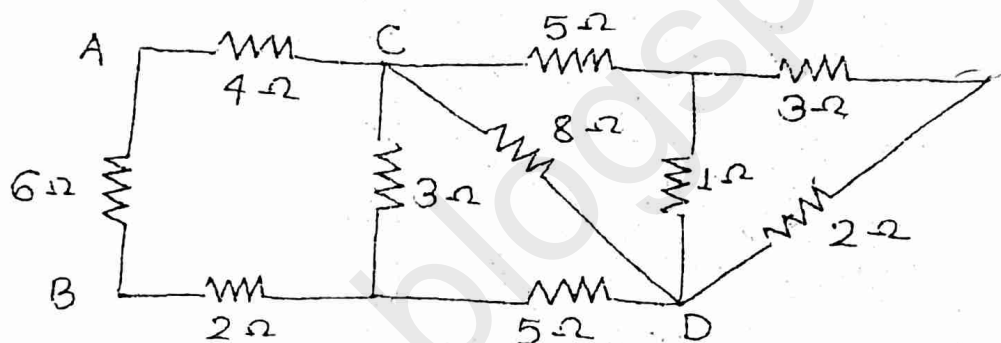
All questions carry equal marks. The marks allotted for each sub-question is specified along its side.

Group A

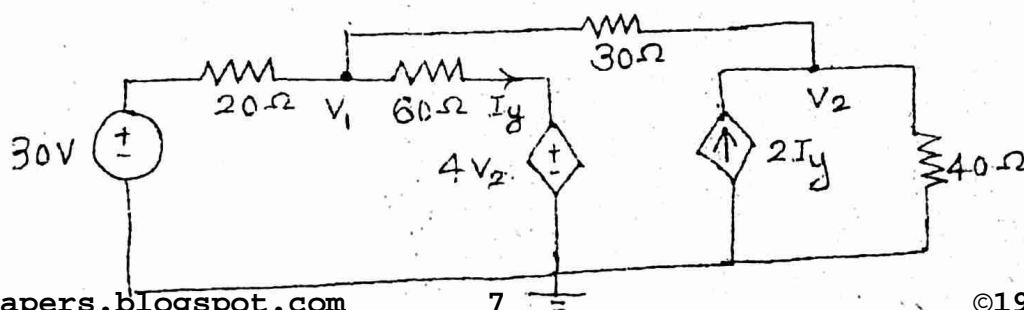
Answer TWO questions.

2×12=24

- 1(a) Define equivalent resistance. Find the equivalent resistance as seen from terminal (i) AB, (ii) CD? 2+2.5+2.5

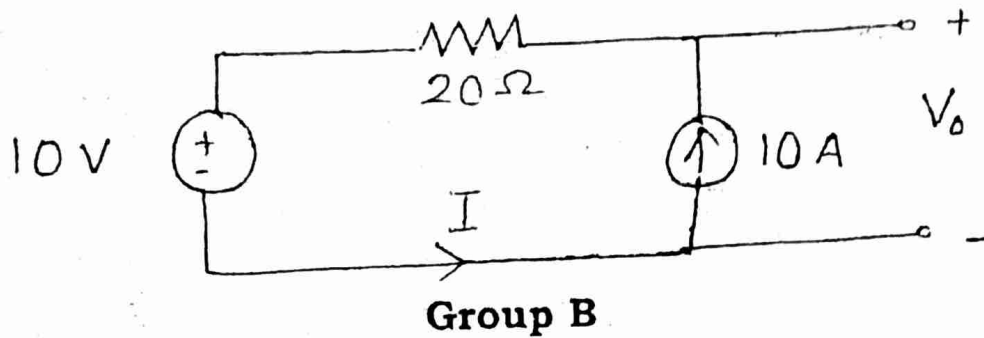


- (b) Define temperature coefficient of resistance. At 20°C, two coils C_1 and C_2 connected in series have respectively resistance of 800Ω and 600Ω and their respective temperature coefficients are 0.001 and 0.003°C⁻¹. Find resistance of combination at 50°C and effective temperature coefficient of combination at 50°C. 1+2+2
- 2(a) Differentiate between voltage source and current source showing their V-I characteristics. 6
- (b) State and explain Kirchhoff's laws. 6
- 3(a) Use Nodal analysis method to determine current through 30Ω resistance. 7



(b) Obtain the value of V_o and I using superposition theorem.

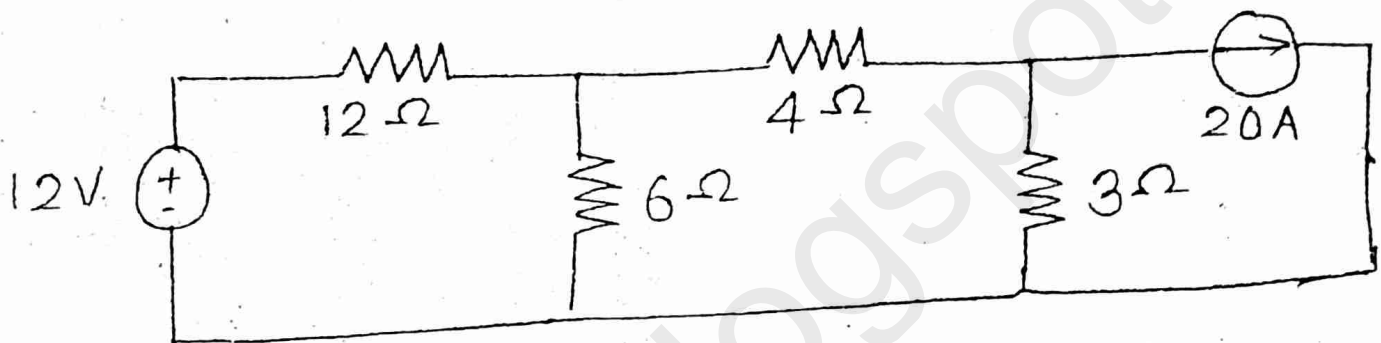
5



Answer SEVEN questions.

7×8=56

4. User Thevenin's theorem to calculate current flowing through 6Ω resistance. 8



5. Derive the expression for equivalent resistance of three resistors connected in (i) series (ii) parallel. 8

6. State Faraday's law of electromagnetic induction. Derive the equation of single phase alternating emf and hence draw its wave form. 8

7. A series circuit consists of a resistance of 10Ω , inductance of $1H$ and a capacitance of $100\mu F$ across a $220V$, $50Hz$ supply calculate: 8

- (a) Impedance (b) rms value of current
(c) Apparent power (d) Admittance

8. Two impedances $Z_1=(10+j15)\Omega$ and $Z_2=(8-j6)\Omega$ are connected in parallel. If the total current in the circuit is $10A$, find power consumed by each branch and draw phasor. 3+3+2

9. A balanced Y connected load of $(8+j6)\Omega$ is connected to a 3ϕ , $400V$ supply. Find current, power factor, active power, reactive VA and total VA. 3+2+1+1+1

(3)

10. If $R=20\Omega$, $L=2\text{mH}$ and $C=1\mu\text{F}$ calculate resonant frequency following.
- (a) When R , L and C are in series
 - (b) When R , L and C all are in parallel
- 11 Write short notes on any TWO:
- (a) Ohm's law
 - (b) Average and RMS value
 - (c) Electromagnet



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Full Marks: 80 / Pass Marks: 32

BIT101SH: Mathematics-I (New Course)

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Group A

Answer ALL questions.

10×2=20

1. Change to rectangular co-ordinates for $\left(3, \frac{\pi}{4}\right)$.
2. Define Skew-Symmetric matrix with an example.
3. Find the eccentricity of the ellipse $4x^2 + 9y^2 = 36$.
4. Obtain the parametric equation of the line joining the points $P_1(1, 1, 0)$ and $P_2(0, 2, 3)$.
5. Find the unit vector which is perpendicular to the two vectors $\vec{a} = 2\vec{i} + \vec{j} + 2\vec{k}$, $\vec{b} = 3\vec{i} + \vec{j} + \vec{k}$.
6. Evaluate: $\lim_{x \rightarrow 0} \frac{a^x - 1}{x}$.
7. Find the radius of curvature at the point (x, y) of the curve $y^2 = 4ax$.
8. Find the area bounded by $y = \sin x$, the x-axis and the ordinates at $x=0$ and $x=2\pi$.
9. Evaluate $\iint_R xy \, dx \, dy$. Where R is the positive quadrant of the circle $x^2 + y^2 = a^2$.
10. Verify Euler's theorem for the function $f(x, y) = x^3 + 3x^2y + 5xy^2 - y^3$.

Group B

Answer EIGHT questions.

8×5=40

11. Change to spherical polar and cylindrical polar co-ordinates for

13. Find the equation of the plane through the point (2,-3,4) and parallel to the plane $2x-6y-7z=6$.
14. Find the image of the point (1,2,5) in the plane $2x-y-z+3=0$.
15. Solve the following system of linear equations; by using matrix inversion method:
- $$\begin{aligned} 4x + 9y - z &= 14 \\ 5x + 8y - 2z &= 28 \\ x + 2y - z &= -1 \end{aligned}$$
16. Evaluate $\int_0^{\sqrt{2-x^2}} \int_x^{\sqrt{2-x^2}} \frac{xdydx}{\sqrt{x^2+y^2}}$ by changing the order of integration.
17. Find the maximum and minimum values of the function $f(x)=2x^3-15x^2+36x+10$.
18. Prove that $x/a+y/b=1$ touches the curve $y=be^{-x/a}$ at the point where the curve crosses the axis of y.
19. If $x^y = e^{y-x}$ prove $\frac{dy}{dx} = \frac{2 - \log x}{1 - \log x}$.
20. Find the entire length of the curve $x^{2/3} + y^{2/3} = a^{2/3}$.

Group C

Answer FOUR questions.

4×5=20

21. Find the asymptotes of the curve $y^3 - x^2y + 2y^2 + 4y + x = 0$.
22. Expand $e^{\sin x}$ by Maclaurin's theorem upto the term containing x^4 .
23. The ellipse $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ is revolved about x-axis. Find the volume of the solid thus generated.
24. If $u = \sin^{-1}\left(\frac{x^2 + y^2}{x + y}\right)$. Show that $x \frac{\partial u}{\partial x} + y \frac{\partial u}{\partial y} = \tan u$.
25. Show that $[\vec{a} + \vec{b} \quad \vec{b} + \vec{c} \quad \vec{c} + \vec{a}] = 2[\vec{a} \quad \vec{b} \quad \vec{c}]$.
26. Find the equation of line of intersection of two planes $3x+y+2z=2$ and $x+2y+4z=8$.

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BIT190MS: Principles of Management (New Course)

Candidates are required to give their answers in their own words as far as practicable.

Figure in the margin indicate full marks.

Group A

Answer TWO questions.

2×12=24

1. As a successful manager of an esteemed organization, how would you define management and also indentify the skills of management? Express your views with examples.
2. Explain the significance and different functions of human resource management.
3. What is decision making? What is the rational process of decision making? Explain.

Group B

Attempt EIGHT questions

8×7=56

4. What is system theory of management? Explain the features of system theory.
5. Define planning and discuss the different types of planning.
6. What is meant by organizing? Explain the different types of organizing.
7. Explain the various types of communication with example.
8. What are the major components of the control process? Discuss.
9. What is democratic leadership? State its merits and demerits.
10. Briefly explain the techniques of co-ordination.

11. What do you mean by job analysis? Define its components.

(2)

12. Differentiate between decentralization of authority and centralization of authority.
13. Write short notes on any TWO:
- (a) SWOT analysis
 - (b) TQM
 - (c) Technique of monitoring
 - (d) Significance of management for IT students

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Time: 03:00 hrs.

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BIT175CO: Computer Programming in C (New Course)

Candidates are required to give their answers in their own words as far as practicable.

Figure in the margin indicate full marks.

Group A

Answer TWO questions.

2×12=24

- 1(a) What are the different rules for naming variables? Write an Algorithm and flowchart to find the greatest number among three numbers. 3+4
- (b) Write a program to generate Fibonacci series upto N terms. 5
- 2(a) Why do we need to store data into the file? Write a program to draw a Right Angle Triangle and set the line color as RED. 2+4
- (b) Define pointer with syntax. Write a program, using pointer, to find transpose of a given matrix. 1+5
- 3(a) Discuss structure with syntax. 2
- (b) Write a program using structure to read Name, Age, Address and Telephone number of N persons and sort them in ascending order by Name and display all the person's detail whose age is greater than 25. 10

Group B

Answer SEVEN questions.

7×8=56

4. What is operator? List different types of operators supported in C. Explain in detail the basic Structure of 'C' programming. 1+2+5
5. Write a program to input average marks of student and show the grade as the following conditions. 8

Marks	Grade
0-39	F
40-49	D

6. Differentiate between call by value and call by reference. Write a program to swap two variables showing the example of call by reference. 4+4
7. Write a program to determine whether the given number is palindrome or not. 8
8. Explain primary data types. Discuss unformatted input functions. 4+4
9. Discuss memory management functions. Write a program to find the sum of elements of a given array, using DMA. 3+5
10. Define and list the different types of Array with syntax. Write a program to the following pattern: 3+5

```

1
1 2
1 2 3
1 2 3 4
1 2 3 4 5
1 2 3 4 5 6

```

11. Write short notes on any TWO: 4+4
 - (a) String handling functions
 - (b) Difference between Structure and Array
 - (c) Opening Modes of File

