

PURBANCHAL UNIVERSITY

2018

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

Time: 03:00 hrs.

Full Marks: 80/Pass Marks: 32

BIT102SH: Mathematics-II (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 ALL questions.

10×2=20

1. State the order and degree of the differential equation

$$\sqrt{\frac{d^3y}{dx^2}} = \frac{dy}{dx}$$

2. Show that $(xe^{xy} + 2y)\frac{dy}{dx} + ye^{xy} = 0$ is exact differential equation.

3. Solve $(x+1)dy + (y-1)dx = 0$.

4. Find the Laplace transform of $t \sin t$.

5. Find the inverse Laplace transform of $\frac{1}{s(s+4)}$.

6. Define odd and even function.

7. Obtain a partial differential equation by eliminating, a and b from the relation $z = (x-a)^2 + (y-b)^2$.

8. Show that the derivative of $f(z) = \bar{z}$ does not exist everywhere.

9. What is singularity? Write its types.

10. Find the points at which the function $f(z) = \frac{\cos z}{z^2 + 1}$ is not analytic.

(2)

Group B

Answer EIGHT questions.

8×5=40

11. Solve the differential equation: $\frac{dy}{dx} = \frac{2xy}{x^2 - y^2}$.

12. Find the complete solution of the differential equation.

$$\frac{d^2y}{dx^2} + 4\frac{dy}{dx} + 4y = e^{3x} + \cos 5x.$$

13. Define Laplace transform and find the Laplace transform of

(a) $3\cos 2t - \sin 2t$ (b) $3t^2 + 2e^{-t}$

14. Find the inverse laplace transform of $\frac{1}{(s-2)(s-3)^2}$.

15. Find the Fourier sine series for the function $f(x) = x^2$ in the interval $0 < x < 3$.

16. Find the Fourier series for the function defined by

$$f(x) = \begin{cases} 1; & 0 \leq x \leq \pi \\ -1; & \pi \leq x \leq 2\pi \end{cases}$$

17. Solve: $\frac{\partial^2 u}{\partial x^2} + 4\frac{\partial^2 u}{\partial y^2} = 0$.

18. Write Cauchy- Riemann equations and verify them for the function $f(z) = z^2$.

19. Find an analytic function whose real part is $u(x,y) = e^x (x \cos y - y \sin y)$.

20. Find the Laurent series of $\frac{1}{(1-z)(z+2)}$.

Group C

Answer FOUR questions.

4×5=20

21. Solve: $\frac{d^2y}{dx^2} - 2\frac{dy}{dx} + 4y = e^x \sin x$.

(3)

22 Find the general solution using laplace transform of the differentiation equation $y''(t) + 9y(t) = \cos 2t$ with initial conditions $y(0)=1$ and $y'(0) = 0$.

23. Expand $f(x)=x$ as a cosine series in the interval $[0,\pi]$ and hence

deduce $1 + \frac{1}{3^2} + \frac{1}{5^2} + \dots = \frac{\pi^2}{8}$.

24. A rod 1-cm long with insulated lateral surface is initially at temperature 0°C throughout. If one end is kept at 0°C and the other at 100°C , find the temperature $u(x,t)$ where x is measured from the end at 0°C .

25. Find the Residue of $f(z) = \frac{\cos z}{z^3}$ at its poles.

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2018

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

Time: 03:00 hrs.

Full Marks: 80/Pass Marks: 32

BIT173CO: Digital Logic (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.

$2 \times 12 = 24$

1. Prove the Universality of NAND & NOR Gates. Implement the Boolean Function $F = XY + X'Y' + Y'Z$ using Only NAND gates 12
2. Perform a complete design of a BCD to Excess - 3 Code Convertor. 12
3. Design a synchronous counter using J-K Flip Flop's that has following sequence: 000, 001, 010, 011, 100 and repeat. The undesired (Unused) States 101, 110, 111 must always go to 000 on the next clock pulse. 12

Group B

Answer SEVEN questions.

$7 \times 8 = 56$

4. Perform the following conversions:
 - (a) $(101110101)_2 \rightarrow (?)$ excess 3 code.
 - (b) $(175.175)_{10} \rightarrow (?)_2$.
 - (c) $(B2F.35)_{16} \rightarrow (?)_{10}$.
 - (d) $(888.0625)_{10} \rightarrow (?)_8$
5. Simplify the Boolean function in (a) Sum of Product and (b) Product of Sum $F(A,B,C,D) = \Sigma(0,1,2,5,8,9,10)$.
6. A combinational circuit having three inputs generates the High output only when the majority of inputs are High and the Output remains low if the majority of inputs are Low. Preform the combinational logic circuit design following the design procedure.
7. Describe 2 bit Magnitude Comparator with logic circuit.
8. State & Prove De-Morgan's Theorem and verify with truth table.

(2)

9. What are adders? Use truth tables and K-maps, show a full adders that can be realized using only half adder and an OR gate.
10. Design a combinational circuit using a ROM. The Circuit accepts a 3 bit number and generates an output binary number equal to the square of the input number.
11. Explain the concept of a Flip flop as a basic memory element. Differentiate between synchronous & Asynchronous sequential with example.
12. Describe T Flip flop with logic diagram, graphic symbol, characteristic table and characteristic equation.

PURBANCHAL UNIVERSITY

2017

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BIT173CO: Digital Logic (New Course)

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Figure in the margin indicate full marks.

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Group A

Answer TWO questions.

$2 \times 12 = 24$

- 1(a) Differential between combinational and sequential logic with example. 4
- (b) Define half adder. Design full adder using two half adder and OR gate. 8
2. What is magnitude comparator? Design a 4-bit magnitude comparator with necessary logic diagram and explain it. 12
3. What do you mean by shift registers? With necessary diagrams explain the various types of shift registers. 12

Group B

Answer SEVEN questions.

$7 \times 8 = 56$

4. Perform the following conversions:
- (a) $(0.95)_{10} = (\dots)_8$.
- (b) Add +32 with -50 using 2's compliment method.
- (c) $(725.63)_8 = (\dots)_{16}$.
- (d) $(1011001001.0011100101)_2 = (\dots)_{16}$
5. Why NAND and NOR gates are known as universal gate? Implement the following expression using NAND gate only:
 $F(W,X,Y,Z) = \sum m(1,2,7,11,15) + \sum d(0,3,5)$.
6. What do you mean by m-term and max-term? State the De Morgan theorem and Duality theorem.
7. Implement the following Boolean expression using combinational circuit

(2)

8. Define flip-flop. Explain the working of RS flop-flop.
9. Design a circuit which can perform both parallel addition and subtraction.
10. Design a combinational circuit that accepts 3 bit binary number and generates an output binary which is square the input number.
11. Write a short notes on any TWO: $2 \times 4 = 8$
- (a) Master-slave flip-flop
 - (b) Multiplexer
 - (c) IC digital logic families



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Group A

Answer TWO questions.

$2 \times 12 = 24$

- | | |
|--|-----|
| 1(a) Describe full subtractor circuit with truth table, logic circuit and block diagram. | 8 |
| (b) Differentiate between Analog and Digital System. | 4 |
| 2(a) / Prove that $A \oplus B \oplus C \oplus D = \Sigma (1, 2, 4, 7, 8, 11, 13, 14)$. | 6 |
| (b) / State and prove De'Morgan's Theorem. | 6 |
| 3(a) What do you know about decoder? Design a 4×16 decoder using two 3×8 decoders. | 2+6 |
| (b) Differentiate between (i) Multiplexer and De-multiplexer (ii) Encoder and Decoder. | 2+2 |

Group B

Answer SEVEN questions.

$7 \times 8 = 56$

- | | |
|---|-------|
| 4. / Perform the following operations: | 2+4+2 |
| (a) $(110110)_8 = (?)_{16}$. | |
| (b) $(29)_{10} - (26)_{10}$ subtract using 9's complement. | |
| (c) $(33.2)_{16} = (?)_{10}$ | |
| 5. / Simplify the Boolean function given below into | 4+4 |
| (i) SOP (ii) POS. | |
| $F(w, x, y, z) = \Sigma (0, 1, 2, 4, 5, 6, 8, 9, 12, 13, 14)$ | |
| 6(a) Explain Ripple counter with necessary diagram. | 6 |
| (b) What do you mean by register and shift register. | 2 |

(2)

- 7(a) Differentiate between sequential and combinational circuit. 2
- (b) Explain JK flip-flop with necessary diagram and mathematical expression. 6
- 8(a) Design a counter which counts 0, 1, 2, 3, 4, 5 and repeat. Using T-flip flop. 6
- (b) Differentiate between synchronous and asynchronous counter. 2
- 9(a) Describe about serial in parallel out register (SIPO) with suitable example. 5
- (b) Explain 2-bit binary parallel adder. 3
10. Design BCD to excess-3 code converter. 8
- 11(a) Prove that $\overline{AB} + \overline{A} + AB = 0$ 3
- (b) What is PLA? Explain why is it superior than ROM for implementing don't care conditions. 5



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Group A

Answer ALL questions.

$10 \times 2 = 20$

1. Solve the equation $(x^2 + 1) \frac{dy}{dx} = 1$.
2. Solve $p^2 - 7p + 12 = 0$ where $p = \frac{dy}{dx}$.
3. Solve $\frac{d^2 y}{dx^2} - a^2 y = 0$.
4. Form partial differential equation by eliminating arbitrary constant from the relation $z = (x - c_1)^2 + (y - c_2)^2$.
5. Find the laplace transform of $\left(\frac{1}{t} \sin t \right)$.
6. Find the inverse laplace transform of $\frac{1}{s(s+2)}$.
7. Define fourier cosine series.
8. Find the real and imaginary part of $f(z) = \log z$.
9. Derive residue of complex function.
10. Show that $\int \frac{z^2}{z-2} dz = 0$, where c is the unit circle $|z|=1$.

(2)

Group B

8×5=40

Answer EIGHT questions.

Ques 8.

11. Solve: $x \frac{dy}{dx} + 2y = x^2 \log x$.

12. Solve $(D^2 - 2D + 5)y = e^{2x}$.

13. Show that $u = e^{-x}(x \sin y - y \cos y)$ is harmonic and find corresponding analytic function.

14. Find the pole and residue of the function $f(z) = \frac{2z-3}{z^3+3z^2}$.

15. Find the laplace transform of $\frac{1}{t}(e^{-at} - e^{-bt})$.

16. Find the inverse laplace transform of $f(s) = \frac{s+2}{(s^2 + 4s + 5)^2}$. Q

17. Find the Fourier sine series for $f(x) = x^2$ in the interval $0 < x < 3$.

18. Find the general solution of 1st order partial differential equation $xp + zq = y$.

19. Solve the differential equation: $\frac{d^2y}{dx^2} + 5 \frac{dy}{dx} + 6y = 0$

Group C

2×10=20

Answer TWO questions.

20. Solve the wave equation $\frac{\partial^2 u}{\partial t^2} = c^2 \frac{\partial^2 u}{\partial x^2}$ under the condition

$u(0, t) = 0, u(\bar{x}, t) = 0$ $\left(\frac{\partial u}{\partial t}\right)_{t=0} = u_t(x, 0)$ and $u(x, 0) = x, 0 < x < \bar{x}$.

21. Solve by the method of laplace transform, the equation $4y'' + 3y' + 4y = e^{-t}$ with the given conditions $y(0) = y'(0) = 1$.

(3)

22. Find the Fourier integral of the function $f(x) = \cos x$ for $|x| < \frac{\pi}{2}$
= 0 for $|x| > \frac{\pi}{2}$

and show that $\int_0^\infty \frac{\cos(w\frac{\pi}{2}) \cos wx}{1-w^2} dw = \frac{\pi}{2} \cos x$ for $|x| < \frac{\pi}{2}$
= 0 for $|x| > \frac{\pi}{2}$

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Group A

Answer ALL questions.

$10 \times 2 = 20$

1. Solve $xdy + (x + 1)dx = 0.$
2. Find the general solution of $(D^2 + D)y = 0.$
3. Solve $p^2 + 5xp + 6x^2 = 0.$
4. Find the laplace transform of $e^{2t}.$
5. Find the inverse laplace transform of $\frac{s+3}{(s+3)^2 + 4}.$
6. Define the Fourier integral of $f(x).$
7. Find general solution of $ap + bq = c$ where $p = \frac{\partial z}{\partial x}, q = \frac{\partial z}{\partial y}$
8. Find the real and imaginary part of $\sin 2.$
9. Derive a partial differential equation by eliminating constant a and b from the relation $z = axy + b.$
10. Find the residue of $f(z) = \frac{\cos z}{z^3}.$

(2)

Group B

Answer EIGHT questions.

8×5=40

11. J Solve: $\frac{dy}{dx} = \frac{2xy}{x^2 - y^2}$ 3

12. J State Clairaut's equation. Find the general and singular solution of $y = px + a/p$. 1

13. J Solve $(D^2 - 2D + 5)y = e^x$. 5

14. Find the laplace transform $f(t) = \cos(t - 2\pi/3)$ $t > 2\pi/3$
 $= 0$ $t < 2\pi/3$

15. Find the inverse laplace transform of $\frac{1}{2} \log \frac{s^2 + b^2}{s^2 + a^2}$.

16. State and prove Cauchy-Riemann equation. 2

17. Determine the poles and residue at each pole of the function

$$f(z) = \frac{9z+i}{z(z^2+1)}$$

18. Find the Taylor's series of $f(z) = \frac{z}{(1-z)^2}$ at the origin.

19. J Find Fourier cosine series of $f(x) = x$ in $0 < x < 2$. 5

Group C

Answer TWO questions.

2×10=20

20. J Solve the differential equation by laplace transform
 $y'' + 4y' + 3y = e^{-t}$ given $y(0) = y'(0) = 1$

(3)

Solve the wave equation $\frac{\partial^2 u}{\partial t^2} = c^2 \frac{\partial^2 u}{\partial x^2}$ corresponding to

initial deflection $u(x,0) = \frac{2kx}{l}; \quad 0 < x < \frac{l}{2}$

$= \frac{2k(l-x)}{2}; \quad \frac{l}{2} < x < l$

and initial velocity $\left(\frac{\partial u}{\partial t} \right) \text{ at } t=0 = g(x) = 0.$

22(a) The differential equation of closed circuit containing Resistance R, an inductance L and a battery which supplies constant voltage E is given by $L \frac{di}{dt} + Ri = E.$

Where i is the current. Find i as function of t. How long take i to reach one-half of its final value.

(b) Find the orthogonal trajectories of the circle $r = C \cos \theta.$



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BIT191MS: Financial Management & Accounting (New Course)

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

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Group A

Answer TWO questions.

$2 \times 12 = 24$

1. Define the concept of financial management? Explain its objectives.
2. A firm whose cost of capital is 10% is considering two mutually exclusive projects X and Y the details of which are:

| | Year | Project X | Project Y |
|--------------|------|-----------|-----------|
| Cost | 0 | 70000 | 70000 |
| Cash inflows | 1 | 10000 | 45000 |
| | 2 | 20000 | 40000 |
| | 3 | 30000 | 20000 |
| | 4 | 45000 | 10000 |
| | 5 | 55000 | 10000 |

Compute the net present value (NPV) of both projects at 10%, payback period and internal rate of return (IRR) for the two projects.

3. The following balances are taken from the books of Gautam D.

| Particulars | Rs | Particulars | Rs |
|-------------|--------|-------------------|--------|
| Capital | 120000 | Drawings | 2100 |
| Stock | 45000 | Plant & Machinery | 24000 |
| Furniture | 1500 | Purchases | 295000 |

| | | | |
|-------------------|--------|------------------------------------|-------|
| Sales | 435000 | Insurance | 1500 |
| Purchases returns | 4000 | Sales returns | 7000 |
| Rent | 5000 | Trade expenses | 2000 |
| Salaries | 24000 | Wages | 40000 |
| Bad debts | 1000 | Investments (1.4.2005 interest 6%) | 50000 |
| Sundry debtors | 40000 | Sundry creditors | 19000 |
| Bad debts reserve | 800 | Cash | 12200 |
| Establishment | 6000 | Misc. receipts | 1200 |
| Patents | 4800 | | |

After making the following adjustments prepare a trading and profit and loss account for the year ended 31st Dec. 2016 and balance sheet as on that date.

- (a) Stock on 31st Dec. 2016 was Rs. 75000.
- (b) Depreciate machinery by 10% and furniture by 20%.
- (c) Wages Rs 5000 and salaries Rs 1200 are outstanding.
- (d) Write off Rs 500 as bad debts and create reserve for discount on debtors at 2%.
- (e) Investment is made on 1.4.2016 and no interest has been received so far.

Group B

Answer EIGHT questions.

8×7=56

4.

The following particulars are available:

Annual need : 12000 units

Cost of material per unit : Rs. 40

Ordering cost : Rs. 60 per order

Annual carrying cost per unit : Rs. 4

Required:

- Economic order quantity

- No. of order in a year

- Total cost of EOQ

(3)

5. Estimate the cash requirements of BIRAT JUICE Co. Ltd for June 2005 on the basis of data given below.

(a) Sales:

February 2016 Rs. 26000

March 2016 Rs. 22000

April to June 2016 Rs. 32000 per month

Roughly half of the sales are for cash. 90% of credit sales are collected in the month following the month of sales and the balance one month later.

- (b) Fruits are always bought for cash to avail of the cash discount of 5%. The purchase budget for the second quarter (April - June) was Rs. 15000 baskets per month at Re 1.50 per basket.
- (c) Wages and salaries for second quarter were budgeted at Rs. 500 per month.
- (d) Manufacturing and other expenses budget for the quarter.

Cash expenses Rs. 4500

Depreciation Rs. 7500

Selling Expenses Rs. 3000

Administrative Expenses Rs 2000 (in April and May only)

6. Opening stock Rs 80,000; purchases Rs 4,80,000; distribution expenses Rs. 4,000; closing stock Rs 1,60,000; administrative expenses Rs 21,100; selling and distribution expenses Rs 40,000; sales Rs 10,00,000.

Calculate

- Inventory turnover
- Gross profit ratio
- Net profit ratio
- Average age of inventory

(4)

7. The Himalayan Company limited is attempting to determine the most it should pay to purchase a particular annuity. The firm requires minimum returns of 9% on all investments, and the annuity consists of cash flows of Rs 800 per year for five years. Find out the present value of annuity and show the time line also.

8. Prepare a petty cashbook on imprest system from the following transactions:

| | |
|--------------|--|
| 2016, June 1 | Received for petty cash payments Rs. 500 |
| June 2 | Paid for postage Rs. 40 |
| June 5 | Paid for stationery Rs. 25 |
| June 8 | Paid for advertisement Rs. 50 |
| June 12 | Paid for wages Rs. 20 |
| June 16 | Paid for carriage Rs. 15 |
| June 20 | Paid for conveyance Rs. 22 |
| June 25 | Paid for travelling Rs. 80 |
| June 27 | Paid for postage Rs. 50 |
| June 28 | Paid for office clearance Rs. 10 |
| June 30 | Paid for telegrams Rs. 20 |
| June 30 | Sent registered notice to landlord Rs. 3 |

9. What are the factors effecting dividends policy? Explain

10. Discuss about capital structure. Mention the factors to be considered when making capital structure decision.

11. What is financial accounting? Define the rules of double entry system with suitable examples.

12. Discuss about cash flow statement and its importance.

13. Write short notes on any TWO:

- (a) Inventory management
- (b) Stock split and stock dividend
- (c) Business and financial risk
- (d) Profit Vs. wealth maximization

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Group A

Answer TWO questions.

$2 \times 12 = 24$

1. A Company is considering the purchase of a machine. Two machines are available and each machine costing Rs. 10,000. Each machine has expected life of 4 years. The cost of capital is 12%. Net cash flow during the expected life of the machinery is given below.

| Year | Machine A | Machine B |
|------|-----------|-----------|
| 1 | Rs.4500 | Rs.3500 |
| 2 | 3500 | 3500 |
| 3 | 3500 | 3500 |
| 4 | 3000 | 3500 |

Required: (a) Net present value (b) The internal rate of return
(c) Payback period.

2. Define Financial Management. Briefly explain about the objectives of financial management.

3. Given below is the trial and balance of a Raj and Brothers as on 30th chaitra 2072::

| Particulars | Debit (Rs) | Credit(Rs) |
|--------------------------|------------|------------|
| Capital <i>B/S</i> | | 300,000 |
| Purchase <i>T</i> | 400,000 | |
| Opening Stock <i>T</i> | 350,000 | |
| Purchase return <i>T</i> | | 10,000 |
| Sales <i>T</i> | | 690,000 |
| Sales return <i>T</i> | 10,000 | |

(2)

| | | |
|------------------------|-----------|-----------|
| Carriage outwards | 10,000 | |
| Debtors | 42,000 | |
| Creditors | | 30,000 |
| Advertisement Expenses | 4,000 | |
| Discount | 2,000 | |
| Insurance paid | 10,000 | |
| Salaries paid | 65,000 | |
| 10% bank loan | | 80,000 |
| Interest on bank loan | 4,000 | |
| General Expenses | 20,000 | |
| Wages | 40,000 | |
| Carriage inward | 8,000 | |
| Furniture | 50,000 | |
| Rent paid | 40,000 | |
| Bank and cash balance | 55,000 | |
| Total | 11,10,000 | 11,10,000 |

Additional Information:

- (a) Closing stock Rs. 3,75,000 ✓
- (b) Bad debts Rs 2000. P/L
- (c) Provide reserve for bad debts 5% on debtors.
- (d) Advance salaries paid Rs 5000. ✓
- (e) Outstanding wages Rs. 2000. ✓
- (f) Bank loan was taken at the beginning of the year. ↗ 80000
- (g) Depreciation on furniture at 10% p.a. ✓

Required:

- (a) Trading Account (b) Profit and loss Account
- (c) Balance Sheet as on 30th Chaitra 2072.

Group B

8×7=56

Answer EIGHT questions.

Show the accounting equation on the basis of following transactions:-

- (a) Commenced a business with bank balance Rs. 80,000.
- (b) Paid for office equipment by cheque Rs. 5000.

(3)

- (c) Withdraw from bank for office use. 2000.
- (d) Purchased goods from Srijana of Rs. 10,000.
- (e) Cash drew from bank for private use Rs. 4000.
- (f) Purchase machinery for cash Rs. 30,000.
- (g) Rent received Rs 5000 and still to be received Rs 2000.

5. ✓ What do you mean by time value of money? Explain its importance.

OR

Following are the information rating to a firm:

Annual requirement - 60,000 units

Ordering cost per order - Rs. 300

Cost per unit - Rs. 20

Carrying cost per unit 20% of average inventory

Required:

- | | | |
|---------|------------------|-----------------------|
| (a) EOQ | (b) No. of order | (c) Total cost of EOQ |
|---------|------------------|-----------------------|

6. The following is provided:

| | | | |
|--------------|-------------|-----------------------|---------|
| Inventory | Rs. 30,000 | Bill receivable | 10,000 |
| Creditors | Rs. 20,000 | Fixed assets | 50,000 |
| Debtors | Rs. 250,000 | Debtor turnover ratio | 6 times |
| Cash in hand | Rs. 5,000 | Gross profit | 20,000 |

Required:

- | | |
|-------------------|---------------------------------|
| (a) Current ratio | (b) Quick ratio |
| (c) Sales amount | (d) Fixed assets turnover ratio |

7(a) You will require Rs 1000 in 6 years. If you earn 7% interest on your funds, how much will you need to invest today in order to reach your saving goal?

(b) Which amount is worth more at 14 percent: Rs 7000 in hand today or Rs. 14000 due in six years?

8. ✓ The balance sheet and income statement of a company ltd are as under:

(4)

| Liabilities | 2013 | 2014 | Assets | 2013 | 2014 |
|-----------------|----------|----------|--------------------|----------|----------|
| Share Capital | 100000 | 200000 | Plant & machinery | 160000 | 200000 |
| Share Premium | 10000 | 20000 | Investments | 30000 | 60000 |
| 10 % debenture | 50000 | - | Account receivable | 50000 | 40000 |
| Bills payable | 30000 | 20000 | Inventory | 10000 | 25000 |
| Account payable | 40000 | 70000 | Cash at Bank | 30000 | 50000 |
| P/L Account | 70000 | 90000 | Prepaid Expenses | 20,000 | 25,000 |
| | 3,00,000 | 4,00,000 | | 3,00,000 | 4,00,000 |

Additional Information:

- (a) Sales Revenue Rs.3,00,000.
- (b) Cost of goods sold Rs.2,00,000.
- (c) Administrative & other operating cost Rs15,000.
- (d) Debenture Interest Rs.5,000.
- (e) Depreciation on Plant and Machinery Rs.30,000.
- (f) Plant having Book value 30,000 sold at a loss Rs.5,000.
- (g) Dividend paid Rs.25,000.
- (h) Plant Purchased during the period Rs.1,00,000.

Contd. ...**Required:** Cash flow from operating activities.

9.

Consider the following transactions:

- May 1 Started a business with cash Rs 40,000 and Furniture Rs. 25,000.
- 2 Cash deposited into bank Rs. 50,000.
- 11 Goods purchased from Nivan of Rs.15000.
- 18 Sold goods to Ram on credit for Rs. 1000.
- 25 Cash received from Ram Rs 900 in full settlement of Rs. 1000.
- 28 Cash paid to Nivan Rs.14500 in full settlement of his account.

Required: Double column cash book

10. A Ltd. Company prepares business budget to exercise control over operations. The sales figure and purchase figure for recent month and expected for next month are as follows:

| Months | Sales | Purchase |
|----------|-------------|------------|
| Baishakh | Rs. 200,000 | |
| Jestha | Rs.300,000 | Rs.175,000 |
| Ashad | Rs.350,000 | Rs.300,000 |

PURBANCHAL UNIVERSITY

2016

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

Time: 03:00 hrs.

Full Marks: 80/Pass Marks: 32

BIT191MS: Financial Management & Accounting (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

- The following balances are taken from the books of Ram Chandra.

| | | | |
|---------------------|--------|--------------------------------|--------|
| Capital ✓ | 120000 | Drawings | 21000 |
| Stock (1. 1.2010) ✓ | 45000 | Plant and machinery | 24000 |
| Furniture ✓ | 1500 | Purchase | 295000 |
| Sales ✓ | 435000 | Insurance | 1500 |
| Purchase returns ✓ | 4000 | Sales returns | 7000 |
| Rent ✓ | 5000 | Trade expenses | 2000 |
| Salaries ✓ | 24000 | Wages | 40000 |
| Bad debts ✓ | 1000 | Investments (1.4.2010) int.6%) | 50000 |
| Sundry debtors ✓ | 40000 | Sundry creditors | 19000 |
| Bad debts reserve ✓ | 800 | Cash | 12200 |
| Establishment ✓ | 6000 | Miscellaneous receipts | 1200 |
| Patents ✓ | 4800 | | |

After making the following adjustment prepare a trading and profit and loss account for the year ended 31st December 2010 and the balance sheet as on that date.

- Stock on 31st December 2010 was Rs 75000.
- Depreciate machinery by 10% and furniture by 20%. ✓ Wages Rs 5000 and salaries Rs 1200 are outstanding. ✓
- Write off Rs 500 as bad debt and create a reserve on bad and doubtful debts at 5% and reserve for discount on debtors at 2%.

(2)

- Investment is made on 1.4.2010 and no interest has been received so far

2. You are given the following information relating to financial statement:

| | |
|-----------------------------------|---------------|
| Sales during the year | Rs. 10,00,000 |
| Cost of goods sold | Rs. 6,00,000 |
| Account receivable decreased | Rs. 50,000 |
| Increase in Inventory | Rs. 30,000 |
| Salary paid | Rs. 40,000 |
| Other administrative expenses | Rs. 50,000 |
| Tax paid | Rs. 25,000 |
| Interest paid | Rs. 30,000 |
| Dividend paid | Rs. 40,000 |
| Increase in share capital | Rs. 3,00,000 |
| Paid for redemption of debentures | Rs. 1,50,000 |
| Machinery purchased | Rs. 1,00,000 |
| Investment sold | Rs. 3,00,000 |
| Building purchased | Rs. 2,00,000 |

Required:

- (a) Cash from operating activities
- (b) Cash from investing activities
- (c) Cash from financing activities

Interpret your result.

3. Briefly explain the functions of financial management. Why is wealth maximization better than profit maximization? Justify.

Group B

Answer SEVEN questions.

$7 \times 8 = 56$

4. Enter the following transactions in the triple column cash book and balance the book as on January 2010:

(3)

- (a) Hira commenced business with cash Rs 3000. He pays Rs 2750 into bank account from cash box.
- (b) He purchases goods for cheque Rs. 690.
- (c) He paid rent Rs. 150 by cheque.
- (d) He settled debt of Rs. 75 due to Hari by cheque deducting discount at 5%.
- (e) He received a cheque of Rs. 30 less 5% discount from Gopal.
- (f) He drew for personal use Rs. 70 from cash box
- (g) He paid wages Rs. 20 in cash.

5.

Information relating to inventory are::

Annual requirement - 40,000 units

Ordering cost - Rs.200 per order

Carrying cost – Rs. 2 per unit p.a.

Safety stock - For 10 day consumption

Days in a year – 200 days

Required:

- (a) Economic order quantity (EOQ) *21/11/93*
- (b) No. of order
- (c) Safety stock

6. From the following data calculates:

Gross profit ratio

Current ratio

Inventory turnover ratio

Liquid ratio

Total assets turnover ratio

Net profit ratio

| | |
|---------------------|--------------|
| Average inventory | Rs, 1,00,000 |
| Cost of goods sold | Rs, 6,00,000 |
| Current liabilities | Rs, 2,00,000 |
| Fixed assets | Rs, 4,00,000 |
| Liquid assets | Rs, 2,00,000 |
| Long term debts | Rs, 2,00,000 |
| Net profit | Rs, 1,50,000 |
| Sales | Rs, 1,00,000 |

(4)

7. Mr. Shyam whishes to determine how much money he will have at the end of five years. If he deposits Rs. 15000 annually in a saving account paying 10 % annual interest. The deposits will be made at the end of each of the next five years and show the time line.

8. A firm whose cost of capital is 10% is considering two mutually exclusive projects X and Y; the details of which are:

| | Year | Project X | Project Y |
|-----------|------|-----------|-----------|
| Cost (Rs) | 0 | 70000 | 70000 |
| CFAT (Rs) | 1 | 10000 | 45000 |
| Maximum | 2 | 20000 | 40000 |
| | 3 | 30000 | 20000 |
| | 4 | 45000 | 10000 |
| | 5 | 55000 | 30000 |

9. ~~NDL opt both project and PBD which is better.~~
What are the factors effecting dividend policy? Explain.

10. What do you understand by optimum capital structure? Explain.

11. Define the concept of double entry system of accounting.

12. Briefly explain the cash flow management.

13. What is trial balance ? How it is prepared and which method is preferred? Explain.

