MANAGEMENT ACCOUNTING

Time : Three Hours Maximum Marks :

[Regular Candidates : 80, Reappear Candidates 90]

Note : Attempt *five* questions inall. Question No. 1 is compulsory.

1. (a) Find the length of the line segment joining the points A(–1, 3) and B(2, –4).

   (b) Prove that the points A(0, 3), B(6, 0) and C(4, 1) are collinear.

   (c) If 2/3, k, and 0.375 are in G.P., then find the value of k.

   (d) Evaluate the integral :

$$\int_0^2 (x^2+1)\,dx$$

(e) Evaluate the integral :

$$\int\left(3\sqrt[4]{x^3}+\frac{7}{x^5}+\frac{1}{6\sqrt{x}}\right)dx$$

(f) Find the value of $\text{Log}_{216}(36)$

2+3+3+3+3+2=16

2. (a) In what ratio is the line segment joining the points A(4, 5) and B(–1, 2) divided by the y-axis? Also find the co-ordinates of the point of division.

(b) Find the equation of a line which has a gradient of 13 and passes through the point (1, 2).

(c) Find the co-ordinates of the point which divides the join of the points (2, 3) and (5, –3) in the ratio 1 : 2

(i) internally

(ii) externally 5+5+6=16

3. (a) Find the equation of the straight line which passes through the two points (1, –2) and (–3, 0).

(b) Find the distance between the parallel lines $3x - 4y + 7 = 0$ and $3x - 4y + 5 = 0$.

(c) Show that the lines $4y + 22 = 3x$ and $6x + 5y + 8 = 0$ and $x - y = 6$ are concurrent. Also find the point of concurrency. 5+5+6=16

4. (a) Find the sum of n terms of the series :

$7 + 77 + 777 + 7777 + ...$

(b) If a, b, c are in H.P., Show that :

$a/b + c, b/c + a, c/a + b$ are also in H.P.

(c) What is the sum of all 3 digit numbers that leave a remainder of 2 when divided by 3 ? 5+5+6=16

5. (a) A piece of equipment cost a certain factory Rs. 6,00,000. If it depreciates in value, 15% the first year, 13.5% the next year, 12% the third year, and so on, what will be its value at the end of 10 years, all percentages applying to the original cost.

(b) Given two numbers $A = 2^{65}$ and

$B = (2^{64} + 2^{63} + 2^{62} + ... + 2^0)$. Which of the numbers is larger ?

(c) A car covers a disantance from Delhi to Agra at a speed of 60 km per hour and from Chandigarh to Delhi at a speed of 40km per hour. What is the average speed of the car during the journey ?

6. (a) Explain integration as an inverse process of differentiation.

(b) Evaluate the following :

(i) $\int x(x+1)^8 dx$

(ii) $\int_1^2 (y^2 + y^{-2}) dy$ 4+12=16

7. Evaluate the following :

(i) $\int_1^2 \sqrt{t}(t-2) dt$

(ii) $\int_1^2 \left(4x - 6\sqrt[3]{x^2}\right) dx$

(iii) $\int 9(x^2 + 3x + 5)^8 (2x + 3)\, dx$ +5+5+6=16

8. (a) How much money should a man save in an account paying 5% interest compounded monthly if he wants to have Rs. 6,000 in 6 months ?

(b) There is 60% increase in an amount in 6 years at simple interest. What will be the compound interest Rs. 12,000 after 3 years at the same rate ?

(c) Find the value of $\log_2 \left[\log_2 \left\{\log_3 \left(\log_3 27^3\right)\right\}\right]$

6+6+4=16