Register Number:

Date: 15-01-2021

ST. JOSEPH'S COLLEGE (AUTONOMOUS), BANGALORE-27
B.COM - I SEMESTER
SEMESTER EXAMINATION: JANUARY-2021
BC-1418/ BPS 1418- QUANTITATIVE TECHNIQUES

Time- 2 1/2 hrs **Max Marks-70**

Section A

I. Answer any five questions Each question carries two marks (5x2=10)

1. The marked price of a television is $ 18500. A dealer allows two successive discounts of 20% and 5%. For how much is the television available?

2. Starting on her 30th birthday, a woman invests certain amount every year on her birthday in an account that grows at interest rate of 7%. What should this amount set aside be if she wants this fund to grow to Rs 300,000 just before her 65th birthday?

3. The price of diesel increases by 50 %. Find by how much percent a truck owner must reduce his consumption in order to maintain the same budget?

4. Anil sold a good to Amal at a profit of 25% and Amal sold the good to Aron at a profit of 20% if Aron paid $450 for the good what was the cost paid by Anil?

5. Differentiate: $y = x^4(x^3 + 2x^2 + 5)$

6. When 35 is subtracted from a number; it reduces to its 80 %. Find the four-fifth of that number.

Section B

II. Answer any three questions. Each question carries five marks (3x5=15)

7. Would you buy for Rs 2700 OR lease an table for 7 years at Rs700 rental charges ?
   - When the rate is 7%p.a.
   - When the rate is 10% p.a.

8. A plane left 30 minutes later than the schedule tie and in order to reach destination 1500km away, it has to increase its speed 250km/hr from its usual speed. Find the usual speed.

9. Find the rate of Interest for an investment of Rs 600 which becomes Rs 774.40 at the end of 2 years at compound interest.

10. A and B can do a piece of work in 18 days; B and C can do it in 24 days while C and A can finish it in 36 days. If A, B, C works together, in how many days will they finish the work?

Section C

III. Answer any two questions. Each question carries fifteen marks (2x15 =30)

11. A] Finny lent a sum to Jenifer who agreed to repay the amount of Rs 6000 at 10% p.a in 9 equal instalments the first instalment starting from the end of the 3rd year . What was the sum lent?

    B] The weekly wages of 30 persons consisting of men and women amounts to Rs190. Each man receives Rs 7 and each women Rs 5 .Find the number of men and women.

    C] The ratio of daily income of Lal and Mal is 3:4 and the ratio of their expenses are 9:11. Ratio of their savings are 2:3 .If their total saving is Rs75 .Find their daily income.

    [5+5+5]

12. A] If the rate of compound interest for the first, second and third year be 8%, 10% and 15% respectively, Find the amount on $ 12,000 in 3 years.

    B] A sum of Rs. 18750 is left by will by a father to be divided between two sons, 12 and 14 years of age, so that when they attain maturity at 18, the amount received by each of them at 5 per cent simple interest will be the same. Find the sum allotted at present to each son?

C] Divide Rs 1600 in such a way that Lal has 100 more than Peter and Gill has 200 more than Peter .How much does each get ? **[5+5+5]**

13. A] find the maxima and minima for the following functions :
f (x) = x3 – 6x2 + 9x +15

B] A company sells a product for Rs 65 per unit ,Variable cost per unit is Rs 20 fro material and Rs 27.5 for labour .Fixed cost is Rs100000.Construct
(i) Cost function (ii) Revenue function
(iii) Profit function, and (iv) Profit at 20000 units (v) Average cost

C] If $x= 25 -3p -p^2$ is the demand function .Find the price elasticity of demand if p=3 **[5+5+5]**

Section D

IV. **Answer the question given below; the question carries fifteen marks (1x15=15)**

14. A] 6 typists working 5 hours a day can type the book's manuscript in 16 days. How many days will four typists take to do the same job, each working 6 hours a day? (4)

B] The age of the father is four times that of his son. Five years ago, the father was 7 times as old as his son. Find their present ages. (3)

C] Durable furniture company manufactures tyres, steering wheels, and Car seats in Mumbai and Bangalore. The company sold 150 tyres,625 wheels, and 410 car seats in Mumbai, 175 tyers,525 wheels and 350 car seats in Bangalore.
The selling price per tyre, wheel and car seat is Rs 27250 ,Rs1750,Rs9500, respectively. Calculate

i) The revenue from selling products in Mumbai and Bangalore
ii) The cost of the products if manufacturing cost was Rs 19250,Rs 935, Rs 7475 respectively.
iii) IF 10% discount on tyres , 5 % discount on wheels and 15% discount on car seats were given ,What would be the new revenue
iv) Lastly, find out the gross profit. (8)