

Course Code: PEA308

Course Title: ADVANCED ANALYTICAL SKILLS-II

Time Allowed: 2 hrs

Max. Marks: 80

Read the following instructions carefully before attempting the question paper.

1. Match the Paper Code shaded on the OMR Sheet with the Paper code mentioned on the question paper and ensure that both are the same.
2. This question paper contains 80 questions of 1 mark each. 0.25 marks will be deducted for each wrong answer.
3. Attempt all the questions in serial order.
4. Do not write or mark anything on the question paper and/or on rough sheet(s) which could be helpful to any student in copying, except your registration number on the designated space.
5. Submit the question paper and the rough sheet(s) along with the OMR sheet to the invigilator before leaving the examination hall.
6. Use of calculator/log table is not allowed.

Q(1) A conical vessel has a capacity of 15 L of milk, its height is 50 cm and base radius is 25 cm. How much milk can be contained in a vessel in cylindrical form having the same dimensions as that of the cone?  
 (a) 15L (b) 30L (c) 45L (d) 60L CO4,L3

Q(2) From the top of a hill, the angles of depression of two consecutive 1 kilometer stone due west are found to be  $30^\circ$  and  $45^\circ$ . The height of the hill is  
 (a) 491 m (b) 1366 m (c) 1065 m (d) 1296 m CO4,L3

Q(3) From a point A on a level ground, the angle of elevation of the top steel rope is  $30^\circ$ . If the tower is 150 m high, the distance of point A from the foot of the rope is  
 a.  $150\sqrt{3}$  b.  $190\sqrt{3}$  c.  $250\sqrt{3}$  d. None

Q(4) The radius of the cone is 10 cm. The ratio of the curved surface area and the total surface area of the cone is 4. Find the slant height of the cone.  
 (a) 30 cm (b) 40 cm (c) 35 cm (d) 42 cm CO1,L3

Q(5) A circle is inscribed in a square of side 48 cm. Find the area of the remaining portion of the square which is not enclosed by the circle.  
 (a)  $455.715 \text{ cm}^2$  (b)  $439.715 \text{ cm}^2$  (c)  $493.715 \text{ cm}^2$  (d)  $433.715 \text{ cm}^2$  CO1,L3

Q(6) The height of a cylindrical-shaped wood is 15 cm less than the circumference of the base and the curved surface area is  $154 \text{ cm}^2$ , then what is the volume (in  $\text{cm}^3$ ) of the cylinder-shaped wood?  
 (a) 289.5 (b) 269.5 (c) 462 (d) 482.5 CO1,L3

Q(7) It was Sunday on Jan 1, 2006. What was the day of the week Jan 1, 2010?  
 (a) Sunday (b) Saturday (c) Friday (d) Wednesday CO5,L3

Q(8) What was the day of the week on 28th May, 2006?  
 (a) Thursday (b) Friday (c) Saturday (d) Sunday CO5,L3

Q(9) A watch gains 6 minutes in one hour and was set right at 8 am. What time will it show at 7 pm on the same day?  
 (a) 8: 06 pm (b) 7: 07 pm (c) 8:30 pm (d) 7: 30 pm CO5,L3

Q(10) Statement:  $M \geq R$   $C = M$

Conclusions: I.  $A > R$  II.  $C \geq H$

(a) If only conclusion I is true

(c) If either conclusion I or II is true

(b) If only conclusion II is true

(d) If neither conclusion I nor II is true CO1,L3

Q(11) Eight people of which A, B, C, and D are women and P, Q, R, and S are men sit around a circular table facing towards the centre.

None of the women sit as immediate neighbour. A is not facing B. Q, who is immediate neighbour of C, faces P. R is immediate neighbour of D but not of C. D does not sit second to the right C. At least one person sits between A and R.

Who sit to the immediate right of S?

(a) C (b) A

(c) P

(d) Q CO1,L3

Q(12) Eight people of which A, B, C, and D are women and P, Q, R, and S are men sit around a circular table facing towards the centre. None of the women sit as immediate neighbour. A is not facing B. Q, who is immediate neighbour of C, faces P. R is immediate neighbour of D but not of C. D does not sit second to the right of C. At least one person sits between A and R. Who sits in front of B?

- (a) D (b) C (c) S (d) Q

CO1,L3

Q(13) Statements : W  $\delta$  X, X  $\alpha$  Y, Y  $\#$  Z

Conclusions : I. W  $\alpha$  Y II. Z  $\#$  C

- (a) if only conclusion I is true (b) if only conclusion II is true  
(c) if either conclusion I or II is true (d) if neither conclusion I nor II is true

CO5,L3

Q(14) Eight friends A, B, C, D, E, F, G and H are sitting around a circle facing the center. B is third to the right of A who is third to the right of C. F is second to the right of E who is not an immediate neighbor of B. D sits second to the left of H who sits second to the left of G. Four of the following five are alike in a certain way based on their position in the given arrangement and so form a group. Which is one that does not belong to the group?

- (a) AD (b) HG (c) EF (d) BF

CO5,L3

Q(15) A clock is set right at 8 a.m. The clock gains 10 minutes in 24 hours will be the true time when the clock indicates 1 p.m. on the following day?

- (a) 48 min. past 12 (b) 45 min. past 12 (c) 45 min. past 12 (d) 47 min. past 12.

CO1,L3

Q(16) A, B, C, D and E are sitting along a circle facing the centre. C is neighbor of A and B. E is to the immediate left of B. Which of the following is false statement?

- (a) E is the immediate right of D (b) D is 2nd to the right of C  
(c) A is 3rd to the right of C (d) None is false

CO5,L3

Q(17) The last day of a century cannot be

- (a) Tuesday (b) Monday (c) Wednesday (d) Friday

CO1,L3

Q(18) How many times are the hands of a clock at right angle in a day?

- a. 22 b. 33 c. 66 d. None

Q(19) Chirag's birthday is on Thursday 1st June. On what day of the week will be Reyansh's Birthday in the same year if Reyansh was born on 3rd December?

- (a) Wednesday (b) Sunday (c) Friday (d) Saturday

CO1,L3

Q(20) Today is Friday. After 62 days, what day will it be?

- (a) Thursday (b) Saturday (c) Friday (d) Sunday

CO1,L3

Q(21) If today is Monday, which day of the week will it be after one year?

- (a) Tuesday (b) Wednesday (c) Monday (d) Either (a) or (b)

CO1,L3

Q(22) If the time in a clock is 6 hours 45 minutes, then what time does it show on the mirror?

- (a) 6 hrs. 45 min (b) 4 hrs. 15 min (c) 7 hrs. 45 min (d) 5 hrs. 15 min

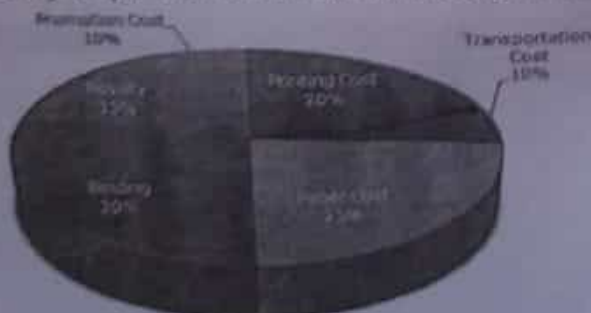
CO1,L3

Q(23) An accurate clock shows 8 O'clock in the morning. Through how many degrees will the hour-hand rotate when the clock shows 2 O'clock in the afternoon?

- (a)  $30^\circ$  (b)  $180^\circ$  (c)  $90^\circ$  (d)  $150^\circ$

CO1,L3

Q(24) The following pie-chart shown the percentage distribution of the expenditure incurred in publishing a book. Study the pie-chart and the answer the questions based on it. Various Expenditures (in percentage)



Incurred in publishing a Book

What is the central angle of the sector corresponding to the expenditure incurred on Royalty?

- (a)  $15^\circ$  (b)  $24^\circ$  (c)  $54^\circ$  (d)  $48^\circ$

Question How much was the total sale of the company ?

ements

e company sold 8000 units of product A each costing Rs. 25.

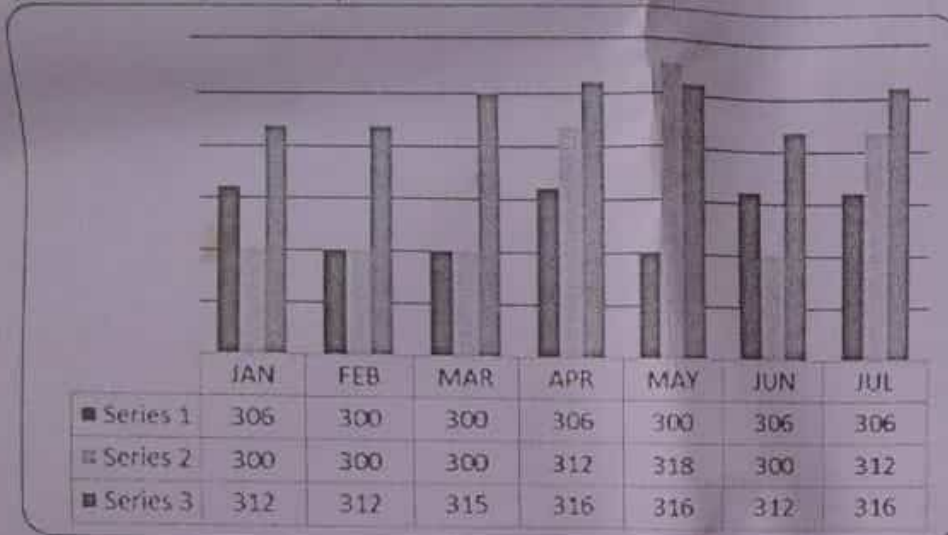
his company has no other product line.

- (a) I alone is sufficient while II alone is not sufficient.  
(c) Neither I nor II is sufficient.

- (b) II alone is sufficient while I alone is not sufficient.  
(d) Both I and II are sufficient.

Q(26) Refer to the following bar graph and solve the questions based on it. The following bar chart shows the monthly expenditure of a family over a period of seven months during three different years: 1998(series1), 1999(series2), 2000(series3). In any of the given years, which month sees the maximum percentage increase in expenses with respect to the previous month ?

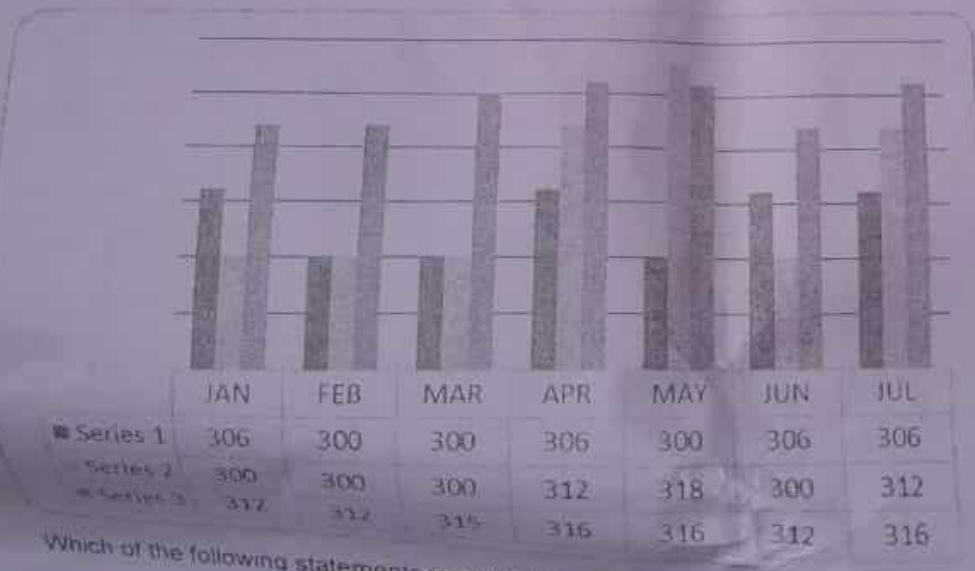
CO6,L1



- (a) February (b) March (c) April (d) June

CO6,L1

Q(27) Refer to the following bar graph and solve the questions based on it. The following bar chart shows the monthly expenditure of a family over a period of seven months during three different years: 1998(series1), 1999(series2), 2000(series3).



Which of the following statements is correct ?

- (a) In 1998, May-June were the two consecutive months during which the expenditure was the maximum.  
(b) During May-June 1999, the expenditure was the maximum for the year.  
(c) Expenditure during January-February was the same in 1999 as well as in 2000.  
(d) None of these

CO6,L1



# Registration No.:

Q(56) Lonavala and Khandala are two stations 600 km apart. A train starts from Lonavala and moves towards Khandala at the rate of 25 km/h. After two hours, another train starts from Khandala at the rate of 35 km/h. How from Lonavala will they cross each other?

- (a) 250 km (b) 300 km (c) 279.166 km (d) 475 km

CO2,L

Q(57) A cyclist moving on a circular track of radius 100 meters completes one revolution in 2 minutes. What is the average speed of cyclist (approx)?

- (a) 314 m/minute (b) 20 m/minute (c) 300 m/minute (d) 900 m/minute

CO2,L5

Q(58) A motorboat went downstream for 28 km and immediately returned. It took the boat twice as long to make the return trip. If the speed of the river flow were twice as high, the trip downstream and back would take 672 minutes. Find the speed of the boat in still water and the speed of the river flow.

- (a) 9 km/h, 3 km/h (b) 9 km/h, 6 km/h (c) 8 km/h, 2 km/h (d) 12 km/h, 3 km/h

CO2,L5

Q(59) Two trains are running on parallel lines in the same direction at speeds of 40 kmph and 20 kmph respectively. The faster train crosses a man in the second train in 36 seconds. The length of the faster train is

- (a) 200 meters (b) 185 meters (c) 225 meters (d) 210 meters

CO2,L5

Q(60) In a 100 m race, Shyam runs at 1.66 m/s. If Shayam gives Sujit a start of 4 m and still beats him by 12 seconds, what is Sujit's speed?

- (a) 1.11 m/s (b) 0.75 m/s (c) 1.33 m/s (d) 1 km/h

CO2,L5

Q(61) In a class Rajni got the 11th rank and she was 31st from the bottom of the list of girls passed. Three girls did not take the examination and one failed. What is the total strength of the class?

- (a) 32 (b) 42 (c) 46 (d) 45

CO1,L3

Q(62) Sudesh is 7 ranks ahead of Ashok in the class of 39 students. If Ashok's rank is 17th from the last, what is Sudesh's rank from the start?

- (a) 16 (b) 23 (c) 24 (d) 15

CO1,L3

Q(63) In a row of children, Ravi 10th from the left and Vimla is 12th from the right. When they exchange their places Ravi is 16th from the left. What is the new position of vimla from the right?

- (a) 16<sup>th</sup> (b) 17<sup>th</sup> (c) 18<sup>th</sup> (d) 20<sup>th</sup>

CO1,L3

Q(64) Statements:

All tubes are cubes.

No cube is sky.

No bird is sky.

Conclusions:

I. No tube is bird.

II. All birds being cubes is a possibility.

(a) If only conclusion I follow

(c) If neither conclusion I nor conclusion II follows

(b) If only conclusion II follow

(d) If both the conclusions follow

CO1,L3

Q(65) Statements:

All marks are grades. No grade is a score. All scores are letters. Some letters are characters.

Conclusions:

I. Some scores are characters.

II. All marks being letters is a possibility.

III. All characters are grades is a possibility.

(a) Only II follows

(b) Only II and III follows

(c) All follows

(d) Only I nor III follows

CO3,L3

Q(66) Solve for x, if  $(\log 400 / \log 20) = \log x$

- (a) 2 (b) 10

(c) 100

(d) 400

CO3,L3

Q(67)  $5 = (\log P) / (\log 3)$ , find P

- (a) 27 (b) 81

(c) 243

(d) 729

CO3,L3

Statements: No cap is a shirt.  
 Trousers are caps.  
 Caps are shirts.  
 Conclusions: I. No cap is a trouser.  
 II. All caps being trousers is a possibility.

- (a) If only conclusion I follows  
 (c) If either conclusion I or II follows

- (b) If only conclusion II follows  
 (d) If neither conclusion I nor II follows

CO1,L3

Q(69) In a north-facing row of NCC Cadets, Trisha is 9th from the left end and Tina is 12th from the right end. There are 5 cadets between Trisha and Tanya who is equidistant to Tina. Find how many cadets are there in the row.

- (a) 34 (b) 32 (c) 31 (d) 33

CO1,L3

Q(70) Statements: Some milk is curd.  
 Some curd is butter milk.  
 All butter milk is butter.  
 No butter is ghee.  
 Conclusions: I. No butter milk is ghee.  
 II. Some butter is curd.  
 III. Some curd is not ghee.

- (a) If only conclusion I follows  
 (c) If either conclusion I or II follows.

- (b) If only conclusion II follows  
 (d) If all conclusions I, II, and III follow

CO1,L3

Q(71) Ratio of length, breadth of a rectangular box is 5:4. Area of box is 2000 square meter. Find diagonal of the box (approximately).

- a. 64 m b. 68 None c. 74 m d. None

Q(72) In a triangle ABC, point D is on side AB and point E is on side AC, such that BCED is a trapezium. DE:BC = 3:5. Calculate ratio of area of triangle ADE and the trapezium BCED?

- (a) 3:4 (b) 9:16 (c) 3:5 (d) 9:25

Q(73) At the rate of Rs. 2 per sq m, cost of painting a rectangular floor is Rs 5760. If the length of the floor is 80% more than its breadth, then what is the length of the floor?

- (a) 25m (b) 35m (c) 72m (d) 75m

CO4,L3

Q(74) A 5 m long and 4 m wide cistern contains water up to a breadth of 1 m 25 cm. Find the total surface area of the surface immersed in water?

- (a) 42.5 m<sup>2</sup> (b) 49.5 m<sup>2</sup> (c) 52.5 m<sup>2</sup> (d) 64.5 m<sup>2</sup>

CO4,L3

Q(75) How many bricks, each measuring 25cm\*11.25cm\*8cm, will be needed to build a wall 8m\*7m\*22.5m?

- (a) 540000 (b) 560000 (c) 640000 (d) 630000

CO4,L3

Q(76) Two ships are sailing in the sea on the two sides of a lighthouse. The angle of elevation of the top of the lighthouse is observed from the ships are 30° and 45° respectively. If the lighthouse is 100 m high, the distance between the two ships is?

- (a) 173m (b) 200m (c) 273m (d) 300m

CO4,L3

Q(77) Find the cost of carpeting a room 13 m long and 9 m broad with a carpet 75 cm wide at the rate of Rs. 12.40 per metre? (in Rs)

- (a) 1934.40 (b) 1265.43 (c) 1374.40 (d) 1300

CO1,L3

Q(78) The length of a rectangle is twice its breadth. If its length is decreased by 5 cm and breadth is increased by 5 cm, the area of the rectangle is increased by 75 sq cm. find the length of the rectangle.

- (a) 40cm (b) 20cm (c) 10cm (d) 5cm

Q(79) The angle of elevation of a tower from a distance 50 m from its foot is 30°. The height of the tower is

- (a)  $50\sqrt{3}$  m (b)  $50 / \sqrt{3}$  m (c)  $75\sqrt{3}$  m (d)  $75 / \sqrt{3}$  m

CO1,L3

Q(80) A cone and a hemisphere have equal base diameter and equal volumes. The ratio of their heights is

- (a) 3:1 (b) 2:1 (c) 1:2 (d) 1:3

CO1,L3

--End of Question paper--

CO4,L3