Previous Year ACC Written Test Paper

APTITUDE:

Q1. A coffee shop blends 2 kinds of coffee, putting in 2 parts of a 33p. a gm. grade to 1 part of a 24p. a gm. If the mixture is changed from 1 part of the 33p. a gm. to 2 parts of the less expensive grade, how much will the shop save in blending 100 gms?

a) Rs.90
b) Rs.1.00
c) Rs.3.00
d) Rs.8.00

ANS: c

Q2. If 13 = 13w/ (1-w), then (2w)2 =

a) 1/4
b) 1/2
c) 1
d) 2

ANS: c

Q3. In June a baseball team that played 60 games had won 30% of its game played. After a phenomenal winning streak this team raised its average to 50%. How many games must the team have won in a row to attain this average?

a) 12
b) 20
c) 24
d) 30

ANS: c

Previous Year ACC Written Test Paper

Q4. In a class composed of x girls and y boys what part of the class is composed of girls

a) y/ (x + y)
b) x/ xy
c) x/ (x + y)
d) y/ xy

ANS: c

Q5. A traveler makes 3/4 of his journey by train and 2/3 of the rest by car. If he walks the remaining 12 Km, the total distance traveled by him is

a) 124 Km
b) 134 Km
c) 144 Km
d) 244 Km
e) None of the above

Q6. Ascending order of the Fractions 5/6, 7/8, 9/16 and 11/24 is

a) 11/24, 9/16, 5/6, 7/8
b) 5/6, 7/8, 9/16, 11/24
c) 7/8, 5/6, 9/16, 11/24
d) 11/24, 7/8, 5/6, 9/16
e) None of the above

Q7. Find a number lying between 5000 and 6000 leaving a reminder of 15 when divided by 24, 32, 36 and 40

a) 5010
b) 5555 1
c) 5775
d) 5550
e) None of the above

Previous Year ACC Written Test Paper

Q8. A person deposits 1/16 of his income as Provident Fund and 1/15 of the remaining as insurance premium. If he spends 5/7 of the balance on domestic needs and deposits an amount of Rs.50 in the bank, his total income would be

a) 150
b) 200
c) 250
d) 300
e) None of the above

Q9. What is the maximum number of half-pint bottles of cream that can be filled with a 4-gallon can of cream (2 pt.=1 qt. and 4 qt.=1 gal)

a) 16
b) 24
c) 30
d) 64

ANS: d

Q10. There are 200 questions on a 3 hr examination. Among these questions are 50 mathematics problems. It is suggested that twice as much time be spent on each Maths problem as for each other question. How many minutes should be spent on mathematics problems?

a) 36
b) 72
c) 60
d) 100

ANS: b

Q11. If the operation, ^ is defined by the equation x ^ y = 2x + y, what is the value of in 2 ^ a = a ^ 3

a) 0
b) 1
c) -1
d) 4

ANS: b

Q12. In a group of 15, 7 have studied Latin, 8 have studied Greek, and 3 have not studied either. How many of these studied both Latin and Greek?

a) 0
b) 3
c) 4
d) 5

ANS: b

Q13. If a and b are positive integers and (a-b)/ 3.5 = 4/7, then

a) b < a
b) b > a
c) b = a
d) b >= a

ANS: a

Q14. 2 hours after a freight train leaves Delhi a passenger train leaves the same station traveling in the same direction at an average speed of 16 km/hr. After traveling 4 hrs the passenger train overtakes the freight train. The average speed of the freight train was?

a) 30
b) 40
c) 58

d) 60

ANS: b

Q15. A company contracts to paint 3 houses. Mr. Brown can paint a house in 6 days while Mr. Black would take 8 days and Mr. Blue 12 days. After 8 days Mr. Brown goes on vacation and Mr. Black begins to work for a period of 6 days. How many days will it take Mr. Blue to complete the contract?

a) 7
b) 8
c) 11
d) 12

ANS: c

Q16. Find the cost of:
Rs. 7200, 8% stock at 90;
Rs. 4500, 8.5% stock at 4 premium;
Rs. 6400, 10% stock at 15 discount.

a) 6480, 4680, 5440
b) 5440, 6480, 5669
c) 5645, 2565, 5623
d) 5623, 4562, 8965

ANS: a

Q17. To be minute hand of a clock overtakes the hour hand at intervals of 65 minutes of the correct time. How much a day does the clock gain or lose?

a) The clock lose 445/43 minutes in 24 hours
b) The clock gains 440/43 minutes in 24 hours
c) The clock lose 440/43 minutes in 24 hours
d) The clock gains 445/43 minutes in 24 hours

ANS: b

Q18. If 9x - 3y = 12 and 3x - 5y = 7 then 6x - 2y = ?

a) -5
b) 4
c) 2
d) 8

ANS: d

Q19. How many words can be formed from the letters of the word DIRECTOR, So that the vowels are always together?

a) 2160
b) 2156
c) 2156
d) 4556

ANS: a

Q20. What is the least number which when divided by 16, 24, 20, 32 leaves a reminder of 10?

a) 940
b) 450
c) 470
d) 490
e) None of the above

Q21. In a 100 m race, A runs at 8 km per hour. If A gives B a start of 4 m and still him by 15 seconds, what is the speed of B?

a) 5.79 km/hr
b) 5.76 km/hr
c) 5.54 km/hr
d) 5.56 km/hr

ANS: b

Q22. The surface area of a cube is 1734 sq. cm. Find its volume.

a) 4913 cm^3.
b) 4562 cm^3.
c) 5623 cm^3.
d) 4565 cm^3.

ANS: a

Q23. If x: y = 3: 4, find (4x + 5y): (5x - 2y).

a) 32/5
b) 32/23
c) 32/13
d) 32/7

ANS: d

Q24. A rectangular grassy plot 110 m. by 65 m has a gravel path 2.5 m wide all round it on the inside. Find the cost of gravelling the path at 80 paise per sq. metre.

a) Rs 562
b) Rs 654
c) Rs 546
d) Rs 680

ANS: d

Q25. If log sqrt 8 x = 3 (1/3), find the value of x.

a) 23
b) 36
c) 63
d) 32

ANS: d

Q26. Adam borrowed some money at the rate of 6% p.a. for the first two years, at the rate of 9% p.a. for the next three years, and at the rate of 14% p.a. for the period beyond five years. If he pays a total interest of Rs. 11, 400 at the end of nine years how much money did he borrow?

a) 13000
b) 14000
c) 12000
d) 15000

ANS: c

Q27. How many kgs of wheat costing Rs. 8 per kg must be mixed with 86 kg of rice costing Rs. 6.40 per kg so that 20% gain may be obtained by Belling the mixture at Rs. 7.20 per kg?

a) 10.8 kg
b) 10.23 kg
c) 10.75 kg
d) 10.56 kg

ANS: a

Previous Year ACC Written Test Paper

Q28. A man can row 40 km upstream and 55 km downstream in 13 hours also, he can row 30 km upstream and 44 km downstream in 10 hours. Find the speed of the man in still water and the speed of the current?

a) 4 kmph
b) 9 kmph
c) 5 kmph
d) 3 kmph

Q29. A sum of money amounts to Rs. 6690 after 3 years and to Rs.10,035 after 6 years on compound interest. Find the sum.

a) 4456
b) 4467
c) 4567
d) 4460

ANS: d

TECHNICAL:

Q30. Determine the minimum force F needed to push the two 75-kg cylinders up the incline. The force acts parallel to the plane and the coefficients of friction at the contacting surfaces are A = 0.3, B = 0.25, C = 0.4. Each cylinder has a radius of 150 mm.

a) F = 919 N
b) F = 735 N
c) F = 1.051 kN
d) F = 981 N

Q31. If = 20 degree and = 35 degree, determine the magnitudes of F1 and F2 so that the resultant force has a magnitude of 20 lb and is directed along the positive x axis.

a) F1 = 20.0 lb, F2 = 22.9 lb

b) F1 = 25.6 lb, F2 = 26.6 lb
c) F1 = 28.5 lb, F2 = 11.91 lb
d) F1 = 14.00 lb, F2 = 8.35 lb

Q32. A smooth can C, having a mass of 2 kg, is lifted from a feed at A to a ramp at B by a forked rotating rod. If the rod maintains a constant angular motion of = 0.5 rad/s, determine the force which the rod exerts on the can at the instant = 30°. Neglect the effects of friction in the calculation. The ramp from A to B is circular, having a radius of 700 min.

a) F = 19.62 N
b) F = 11.33 N
c) F = 10.63 N
d) F = 12.03 N

Q33. If the 3-lb solid sphere is released from rest when = 30 degree, determine its angular velocity when = 0 degree, which is the lowest point of the curved path having a radius of 11.5 in. The sphere does not slip as it rolls.

a) ω= 15.17 rad/s
b) ω = 18.13 rad/s
c) ω = 21.5 rad/s
d) ω = 17.15 rad/s

Q34. The sphere starts from rest at = 0 and rotates with an angular acceleration of = (4) rad/s2, where is measured in radians. Determine the magnitudes of the velocity and acceleration of point P on the sphere at the instant = 6 rad.

a) vP = 96.0 in./s, aP = 1168 in./s2
b) vP = 135.8 in./s, aP = 2310 in./ s2
c) vP = 83.1 in./s, aP = 1011 in./ s2
d) vP = 117.6 in./s, aP = 2000 in./ s2

Q35. Determine the radius of gyration ky of the parabolic area

a) ky = 76.5 mm
b) ky = 17.89 mm
c) ky = 78.6 mm
d) ky = 28.3 mm

Q36. A scale is constructed with a 4-ft-long cord and the 10-lb block D. The cord is fixed to a pin at A and passes over two small pulleys at B and C. Determine the weight of the suspended block E if the system is in equilibrium when s = 1.5 ft.

a) W = 8.01 lb
b) W = 14.91 lb
c) W = 17.63 lb
d) W = 18.33 lb

Q37. Compute the horizontal and vertical components of force at pin B. The belt is subjected to a tension of T=100 N and passes over each of the three pulleys.

a) Bx = 0 N, By = 141.4 N
b) Bx = -15.89 N, By = 120.7 N
c) Bx = 20.7 N, By = 157.3 N
d) Bx = 0, By = 100.0 N

Q38. Determine the distance to the centroidal axis of the beams cross-sectional area.

a) 112.3 mm
b) 125.0 mm
c) 100.0 mm
d) 91.7 mm

Q39. Locate the centroid of the exparabolic segment of area.

a) -4a/5, = -b/4
b) -3a/4, = -3b/10
c) -2a/3, = -b/3

d) -5a/7, = -3b/8

Q40. A car is traveling along the circular curve of radius r = 300 ft. At the instant shown, its angular rate of rotation is = 0.4 rad / s, which is increasing at the rate of = 0.2 rad / s2. Determine the magnitude of the acceleration of the car at this instant.

a) a = 108.0 ft/s2
b) a = 60.0 ft/s2
c) a = 48.0 ft/s2
d) a = 76.8 ft/s2

Q41. Determine the moment of the force at A about point P. Use a vector analysis and express the result in Cartesian vector form.

a) MP = (-6i + 6j - 4k) N-m
b) MP = (24i + 8j + 9k) N-m
c) MP = (-6i - 6j - 4k) N-m
d) MP = (24i - 8j + 9k) N-m

Q42. Determine the force in members FF, FB, and BC of the Fink truss and indicate whether the members are in tension or compression.

a) BF = 693 lb T, FG = 1800 lb C, BC = 1212 lb T
b) BF = 8660 lb C, FG = 3600 lb C, BC = 1212 lb T
c) BF = 3810 lb T, FG = 3600 lb C, BC = 1212 lb T
d) BF = 1732 lb T, FG = 2400 lb C, BC = 1212 lb