

Half Ticket Number:

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Code No. : 14161 N/O

**VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS), HYDERABAD**

Accredited by NAAC with A++ Grade

**B.E. IV-Semester Main & Backlog Examinations, July-2023**

**Skill Development Course-III (Aptitude-II)**

(Common to all branches)

Time: 2 hours

Max. Marks: 40

Note: Answer ALL questions in Part-A and any FIVE from Part-B

**Part-A (5 × 1 = 5 Marks)**

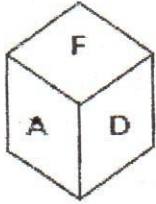
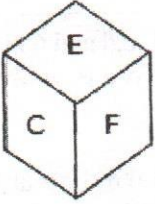
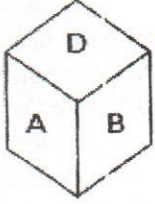
Q.No.	Stem of the question	M	L	CO	PO
1.	A man walks a certain distance and rides back in $7\frac{1}{2}$ hours. He can walk both ways in $9\frac{1}{4}$ hours. How long will it take to ride both ways? A. $7\frac{1}{4}$ hours      B. $5\frac{3}{4}$ hours C. $7\frac{5}{8}$ hours      D. $6\frac{1}{2}$ hours      E. None of these	1	1	1	12
2.	All the faces of a cube are painted with yellow colour. Then it is cut into 125 small equal cubes. How many small cubes will be formed having no face coloured? A. 24    B. 8    C. 16      D. 27	1	1	2	12
3.	Village Q is situated to the north of village P. Village R is situated to the east of village Q. Village S is to the west of village P. What is the position of village S with respect to village R? A) West    B) South-West    C) South    D) North-West    E) None of these	1	2	3	12
4.	A cost of cultivating a square field at a rate of Rs. 35 per hectare is Rs. 1215. The cost of putting a fence around it at the rate of 75 paise per metre would be A. Rs. 360      B. Rs. 810      C. Rs. 900      D. Rs. 1800	1	3	4	12
5.	There are total 18 balls in a bag. Out of them 6 are red in colour, 4 are green in colour and 8 are blue in colour. If Vishal picks three balls randomly from the bag, then what will be the probability that all the three balls are not of the same colour? A. $95/102$ B. $19/23$ C. $21/26$ D. $46/51$ E. $9/11$	1	4	5	12
<b>Part-B (5 × 7 = 35 Marks)</b>					
6. a)	i) A boat takes 90 minutes less to travel 36 miles downstream than to travel the same distance upstream. If the speed of the boat in still water is 10 mph, the speed of the stream is: A. 2 mph      B. 2.5 mph      C. 3 mph      D. 4 mph ii) A train sets off at 3 p.m. at the speed of 70 kmph. Another train starts at 4:30 p.m. in the same direction at the rate of 85 kmph. At what time the trains will meet? A. 10:10 pm      B. 9:50 pm      C. 11:30 pm      D. 10:30 pm iii) The ratio of speed of two trains which are running in the same direction is 4 : 5. The train having higher speed crosses the second train in 30 seconds and a pole in 4 seconds respectively. Find the ratio of their lengths. A. 1 : 2      B. 2 : 3      C. 3 : 5      D. 4 : 5      E. 6 : 7	4	3 2 3 2	1	12

	iv) Two men P and Q start from a place walking at 5 km/h and 6.5 km/h, respectively. What is the time they will take to be 92 km apart, if they walk in opposite directions? A. 2 h B. 4 h C. 6 h D. 8 h				
b)	i) A train, 225 m long, is running at 45 km/h. In what time does it cross a man running at 18 km/h in the same direction? A. 20 s B. 30 s C. 25 s D. 15 s E. None of these ii) A thief is spotted by a policeman from a distance of 100 m. When the policeman starts the chase, the thief also starts running. If the speed of the thief be 8 km/hr and that of the policeman 10 km/hr. How far the thief will have run before he is overtaken? A. 100 m B. 150 m C. 200 m D. 400 m iii) Ashok walks to a viewpoint and returns to the starting point by his car and thus takes a total time of 6 hrs 45 min. He would have gained 2 hrs by driving both ways. How long would it have taken for him to walk both ways? A. 7 hrs 45 min B. 8 hrs 45 min C. 5 hrs 30 min D. None of these	3	2 1 1	1	12
7. a)	Directions: Study the following information carefully and answer the given questions: A group of eight friends – A, B, C, D, E, F, G and H – are sitting in a straight line facing north. A sits third to the right of F. Neither A nor F sits at the extreme ends of the line. E is not an immediate neighbour of either A or F. One person is sitting between H and C. G sits at an extreme end of the line. B sits on the immediate right of A. E doesn't sit to the left of D. C sits at 4th position from either of the end. i) How many people sit between H and A? A. One B. Three C. Two D. Five E. None of these ii) Who sits exactly between D and G? A. H B. A C. E D. F E. None of these iii) How many people sit between F and B? A. One B. Three C. Two D. Five E. None of these iv) If G is related to E and F is related to A, then in the similar way, D is related to? A. H B. E C. C D. F E. None of these	4	3 & 4	2	12
b)	i) Statements: All buses are trains. Some trains are cars. No car is a scooter. All scooters are jeeps. Conclusions: I. Some cars are buses. II. All jeeps are scooters. III. No Jeep is a train. A. Only I follows B. Only II follows C. Only III follows D. Only either I or III follows E. None follows	3	3 3 3	2	12

	<p>ii) Statements:                      All curtains are pillows.                      No pillow is a mattress.                      Some mattresses are beds.                      All beds are sofas.                      Conclusions:                      I. No bed is a pillow.                      II. Some mattresses are sofas.                      III. Some beds are pillows.                      A. Only either I or III follows    B. Only II follows                      C. Only II and either I or III follow                      D. Only I and II follow                      E. All follow</p> <p>iii) Statements:                      Some pulses are grains.                      Some grains are sprouts.                      All sprouts are nuts.                      No fruit is a nut.                      Conclusions:                      I. Some nuts are pulses.                      II. Some nuts are grains.                      III. No fruit is sprout.                      A. Only II and III follow    B. Only I and II follow                      C. Only either I or II follows    D. None follows    E. None of these</p>				
<p>8. a)</p>	<p>i) Mohan walked 30 metres towards South, took a left turn and walked 15 metres. He then took a right turn and walked 20 metres. He again took a right turn and walked 15 metres. How far is he from the starting point ?                      A. 95 metres    B. 50 metres    C. 70 metres    D. cannot be determined                      E. None of these</p> <p>ii) Find the angle between the hour hand and the minute hand of a clock when the time is 3.25                      A. 47.5 deg    B. 57.5 deg    C. 45.5 deg    D. 55.5 deg</p> <p>iii) Find at what time between 8 and 9 o'clock will the hands of a clock be in the same straight line but not together ?                      A. 100/11 min past 8    B. 120/11 min past 8                      C. 90/11 min past 8    D. 80/11 min past 8</p> <p>iv) Which two months in a year have the same calendar?                      A. October, December    B. April, November                      C. June, October                      D. April, July</p>	<p>4</p>	<p>3 2 3 1</p>	<p>3</p>	<p>12</p>
<p>b)</p>	<p>i) Bhavin's birthday is on Monday 29th May. On what day of the week will be Rachit's Birthday in the same year if Rachit was born on 17th November?                      A. Saturday    B. Wednesday    C. Sunday    D. Friday</p>	<p>3</p>	<p>2 3 4</p>	<p>3</p>	<p>12</p>

	<p>ii) A clock gains 20 seconds for every 3 hours of time. If a clock is set at a correct time of 2 am on Friday, what would it indicate at 6:30 pm, Saturday A. 6.32.00 pm B. 6.32.46 pm C. 6.34.30 pm D. 6.38.56 pm</p> <p>iii) Lihaan walks 8m towards south from his office to reach park. Then take left and walks 15m to reach traffic signal. Then he turns 90 degree anticlockwise direction and walks 8m to reach coffee shop. From the coffee shop he takes left and walks 8m to reach home. What is the shortest distance between Lihaan's office and Traffic signal? A. 30 m B. 25 m C. 17 m D. 15 m E. None of these</p>				
9. a)	<p>i) The diagonal of a rectangular field is 50 m and one of the sides is 40 m. If the cost of cutting the grass of the field is Rs. 27 per square metre then the total cost of cutting all grass of the rectangular field is A. Rs 32800 B. Rs 35000 C. Rs 32400 D. Rs 32000 E. None of the above</p> <p>ii) A rectangle has 20 cm as its length and 320 sq cm as its area. Its area is increased to <math>1\frac{1}{4}</math> times its original area by increasing only its length. Its new perimeter ( in cm ) is A. 80 B. 82 C. 85 D. 90 E. None of the above</p> <p>iii) The length and the breadth of the rectangular plot are in the ratio of 8:6. If the cost of fencing the plot @ Rs. 25 per meter is Rs. 5600. What is the area of the plot? A) 2240 B) 2560 C) 3978 D) 3072 E) None of these</p> <p>iv) If the ratio of the radius of the cylinder to the cone is 3:2 and the ratio of the height of the cone to the cylinder is 3:5, then what is the ratio of the volume of the cone to the cylinder? A.3:46 B.20:27 C.20:31 D.4:45 E.None of these</p>	4	3 2 3 4	4	12
b)	<p>i) If <math>\log 2 = 0.30103</math>, the number of digits in <math>2^{72}</math> is: A.21 B.19 C.20 D.22</p> <p>ii) The perimeter of a rhombus is 60 cm and one of its diagonal is 24 cm. The area (in sq cm) of the rhombus is:___ A. 206 B. 216 C. 432 D. 108</p> <p>iii) A sphere of radius 5 cm is melted to form a cone with base of same radius. The height (in cm) of the cone is A) 5 B) 10 C) 20 D) 22 E) None of these</p>	3	2 2 3	4	12
10. a)	<p>i) How many 6-digit even numbers can be formed from the digits 1, 2, 3, 4, 5, 6 and 7 so that the digits should not repeat and the second last digit is even? A. 521 B. 720 C. 420 D. 225</p> <p>ii) In how many different ways can the letters of the word 'CORPORATION' be arranged so that the vowels always come together? A. 850 B. 940 C. 2985 D. 50400 E. None of these</p> <p>iii) The Indian Cricket team consists of 16 players. It includes 2 wicket keepers and 5 bowlers. In how many ways can a cricket eleven be selected if we have to select 1 wicket keeper and at least 4 bowlers? A. 1029 B. 1072 C. 1040 D. 1092 E. None of these</p>	4	3 2 3 4	5	12

	<p>iv) A card is drawn from a well shuffled pack of 52 cards. What is the probability of getting a queen or club card? A. <math>17/52</math> B. <math>15/52</math> C. <math>4/13</math> D. <math>3/13</math> E. None of these</p>				
b)	<p>i) Find no of ways in which 4 particular persons a,b,c,d and 6 more persons can stand in a queue so that A always stands before B. B always stands before C, and C always stands before D? A. <math>6!</math> B. <math>7!</math> C. <math>10C6 \cdot 6!</math> D. <math>10C4 \cdot 4!</math></p> <p>ii) A can hit the target 3 times in 6 shots, B 2 times in 6 shots and C 4 times in 6 shots. They fire a volley. What is the probability that at least 2 shots hit? A. <math>1/2</math> B. <math>1/3</math> C. <math>2/3</math> D. <math>3/4</math></p> <p>iii) Two friends Harish and Kalyan appeared for an exam. Let A be the event that Harish is selected and B is the event that Kalyan is selected. The probability of A is <math>2/5</math> and that of B is <math>3/7</math>. Find the probability that both of them are selected. A. <math>35/36</math> B. <math>5/35</math> C. <math>5/12</math> D. <math>6/35</math> E. None of these</p>	3	2 3 4	5	12
11. a)	<p>i) A boy rides his bicycle 10 km at an average speed of 12 km/hr and again travels 12 km at an average speed of 10 km/hr. His average speed for the entire trip is approximately. A. 10.4 km/hr B. 10.8 km/hr C. 11 km/hr D. 12.2 km/hr</p> <p>ii) A car complete a journey in 10 hours. He travels first half of the journey at the rate of 21 km/hr and second half at the rate of 24 km/hr. The total journey in km is A. 224 B. 230 C. 234 D. 220</p> <p>iii) A train takes 120 seconds to cover a distance of 200 meters at a speed of 90km/hr. What will be the time taken by the train to cross a standing man? A. 120 seconds B. 108 seconds C. 112 second D. none of these</p> <p>iv) A train takes 72 seconds and 40 seconds to cross a platform and a pole respectively. If the train runs at 108 km/hr then length of the platform is: A. 960 meters B. 1020 meters C. Data inadequate D. None of these</p>	4	2 2 2 3	1	12
b)	<p>i) A cube is segmented into 125 cubes. Before dividing the cube, each face of it is varnished with different colors. How many tiny cubes will be formed having more than one color? A. 44 B. 32 C. 45 D. 53</p> <p>ii) Statements: All books are toys. Some toys are notebooks. No register is a notebook. Conclusions: I. Most of the toys are not registers. II. All notebooks being books is a possibility. A. Only I follows B. Both I and II follow C. Only II follows D. Either I or II follows E. Neither I nor II follows</p>	3	1 2 1	2	12

	<p>iii) You are given three positions of dice then which face is opposite to the face with alphabet B?</p> <div style="display: flex; justify-content: space-around; align-items: center;">    </div> <p>A. E   B. F   C. D   D. A</p>				
<p>12. a)</p>	<p>i) If at 3pm the shadow of a person is on his right then the person is facing which direction? A. North   B. South   C. East   D. West</p> <p>ii) Ankush walked 50 m towards north then turned left and walked 68 m. He then turned to the south and walked 22 m then he took a left turn and walked 44 m. After that he turned right and walked 18 m and finally he turned left and walked 48 m. What is the total distance traveled by Ankush in the south direction during the entire journey? A. 22 m   B. 36 m   C. 40 m   D. 48 m   E. 54 m</p> <p>iii) I drove 50 km towards east from a city 'S' and then turned right and drove another 30 km. Now I turned to my left &amp; drove another 30 km. Finally I turned my right &amp; drove 30 km to reach a city 'F'. Find the shortest straight distance between cities S and F. A. 20 km   B. 25 km   C. 30 km   D. 40 km   E. 100 km</p> <p>iv) If it was a Saturday on 10 November 2018, what was the day of the week on 15 August 2017? A. Monday   B. Tuesday   C. Sunday   D. Friday</p>	<p>4</p>	<p>2 3 4 2</p>	<p>3</p>	<p>12</p>
<p>b)</p>	<p>i) If <math>\log_{\sqrt{8}}(x) = 3 \frac{1}{3}</math> then find the value of x? A. 25   B. 32   C. 37   D. None of these</p> <p>ii) How many times do the hands of a clock coincide in a day? A. 20   B. 21   C. 22   D. 24</p> <p>iii) If the longer side of a rectangle is doubled and the other reduced to half, then find what will be the percentage increment in the area of the new rectangle? A. 50%   B. 100%   C. 0%   D. 150%   E. None of these</p>	<p>3</p>	<p>2 3 2</p>	<p>4</p>	<p>12</p>

M : Marks; L: Bloom's Taxonomy Level; CO; Course Outcome; PO: Programme Outcome

i)	Blooms Taxonomy Level - 1	20%
ii)	Blooms Taxonomy Level - 2	35%
iii)	Blooms Taxonomy Level - 3 & 4	45%

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$(2^2)^2$

$(2 \frac{3}{2})$   
 $\frac{5}{10/3}$   
 $\frac{5}{2}$