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Code No. : 15134 S

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

Accredited by NAAC with A++ Grade

**B.E. V-Semester Supplementary Examinations, June-2022****Skill Development Course-III**

(Common to all branches)

Time: 2 hours

Max. Marks: 40

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

ii) Calculators are not allowed

**Part-A (5 × 1 = 5 Marks)**

Q.No.	Stem of the question	M	L	CO	PO
1.	Two towns P & Q are 275 km apart. A motorcycle rider starts from P towards Q at 8 a.m. at the speed of 25 km/hr. Another rider starts from Q towards P at 9 a.m. at the speed of 20 km/hr. Find at what time they will cross each other? A. 2.45 p.m. B. 2.30 p.m. C. 1.35 p.m. D. 1.15 p.m	1	3	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.	At what time after 9 am, do the hands of the clock make a right angle? A. At 9 am B. 38 2/11 min. past 9 C. At 3 pm D. At 29 2/11 minutes before 10 am	1	2	3	12
4.	A contractor undertakes a job of fencing a rectangular field of length 120 m and breadth 60 m. The cost of fencing is Rs. 2 per metre and the labour charges are Rs. 1 per metre, both paid directly to the contractor. Find the total cost of fencing if 10 % of the amount paid to the contractor is paid as tax to the land authority. A. Rs 1198 B. Rs 1080 C. Rs 1200 D. Rs 1000 E. Rs 1188	1	4	4	12
5.	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	1	3	5	12
<b>Part-B (5 × 7 = 35 Marks)</b>					
6. a)	i. Two places A and B are at a distance of 480 KM. Sita started from A towards B at the speed of 40Kmph. After 2 hours Gita started from B towards A at a speed of 60 Kmph. They meet at Place C then what is the difference between the time taken by them to reach their destinations from Place C?  A. 1 hour B. 2 hours C. 3 hours D. 4 hours E. Cannot be determined	4	i. 3 ii. 2 iii. 1 iv. 3	1	12

Contd... 2

	<p>ii. If a car runs at 45km/hr, it reaches its destination late by 10 min but if it runs at 60km/hr it is late by 4 min. What is the correct time for the journey? A. 24min    B. 14min    C. 32min    D. 20min    E. 46min</p> <p>iii. How long will a boy take to run round a square field of side 35 meters, If he runs at the rate of 9 km/hr? A. 50 sec    B. 52 sec    C. 54 sec    D. 56 sec</p> <p>iv. Anisha leaves Mumbai at 6 am and reaches Bangalore at 10 am . Prakash leaves Bangalore at 8 am and reaches Mumbai at 11:30 am. At what time do they cross each other? A. 10 am    B. 8:32 am    C. 8:56 am    D. 9:20 am</p>				
<p>b)</p>	<p>i. A train overtakes two persons walking along a railway track. The first one walks at 4.5 km/hr. The other one walks at 5.4 km/hr. The train needs 8.4 and 8.5 seconds respectively to overtake them. What is the speed of the train if both the persons are walking in the same direction as the train? A. 66 km/hr    B. 72 km/hr    C. 78 km/hr    D. 81 km/hr</p> <p>ii. A train 800 metres long is running at a speed of 78 km/hr. If it crosses a tunnel in 1 minute, then the length of the tunnel (in meters) is: A. 130    B. 360    C. 500    D. 540</p> <p>iii. A boatman can row a certain distance down the stream in 2 hours and can row the same distance up the stream in 3 hours. If the velocity of the stream is 4km/hr, what is the speed of the boat in still water? A. 8 km/hr    B. 12 km/hr    C. 40 km/hr    D. 20 km/hr</p>	<p>3</p>	<p>i. 4 ii. 1 iii. 2</p>	<p>1</p>	<p>12</p>
<p>7. a)</p>	<p><b>Directions:</b> Prince, Queen, Ricky, Smith, Tim, Uber, Vivian and Watson are seated in a straight line but not necessarily in the same order. Some of them are facing South while some are facing North. (NOTE: Same direction means that if one person is facing north then the other also faces north and if one person is facing south then the other person also faces south. Opposite direction means that if one person is facing north then the other person faces south and vice versa.) Tim faces south. Only three people sit to the left of Tim. Only two people sit between Tim and Queen. Uber sits third to the right of Watson. Watson is an immediate neighbor of neither Tim nor Queen. Watson does not sit at any of the extreme ends of the line. Both the immediate neighbors of Smith face north. Smith is not an immediate neighbor of Watson. Only one person sits between Smith and Prince. Prince faces the same direction as Watson. The immediate neighbours of Queen face opposite directions (i.e if one neighbour faces north then the other faces south and vice versa). Persons sitting at extreme ends face opposite directions. Ricky faces a direction opposite that of Smith.</p>	<p>4</p>	<p>i. 4 ii. 4 iii. 4 iv. 4</p>	<p>2</p>	<p>12</p>

	<p>i. How many people are seated between Tim and Prince? A. Four B. More than four C. One D. Three E. Two</p> <p>ii. Which of the following pairs represents the persons seated at the two extreme ends of the line? A. Ricky, Tim B. Prince, Vivian C. Prince, Uber D. Queen, Ricky E. Ricky, Smith</p> <p>iii. Who among the following sits on the immediate left of Ricky? A. Tim B. Prince C. Watson D. Queen E. Smith</p> <p>iv. Four of the following five are alike in a certain way based on the given arrangement and so form a group. Which is the one that does not belong to that group? A. Ricky B. Uber C. Prince D. Watson E. Tim</p>				
<p>b)</p>	<p>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.</p> <p>A. Only I follows B. Only II follows C. Only III follows D. Only either I or III follows E. None follows</p> <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.</p> <p>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.</p>	<p>3</p>	<p>i. 4 ii. 4 iii. 4</p>	<p>2</p>	<p>12</p>

	<p>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>				
8. a)	<p>i. The reflex angle between the hands of a clock at 10.25 is                  A. <math>197\frac{1}{2}</math>      B. <math>167\frac{1}{2}</math>      C. <math>157\frac{1}{2}</math>      D. <math>187\frac{1}{2}</math></p> <p>ii. A clock goes fast by one minute during the first hour, by two minutes at the end of the second hour, by 4 minutes at the end of the 3rd hour, by 8 minutes by the end of the 4th hour, and so on. At the end of which hour, will it be fast by just over sixty minutes?                  A. fifth      B. sixth      C. seventh      D. eighth</p> <p>iii. If in a particular year, 16th June was Friday, then the first Friday in July of that year will fall on which date?                  A. 5<sup>th</sup> July      B. 6<sup>th</sup> July      C. 7<sup>th</sup> July      D. 8<sup>th</sup> July</p> <p>iv. Bhagya remembers that she saw her mother on Tuesday after 26<sup>th</sup> of a month. If the 4<sup>th</sup> of that month fell on Friday, then on what date of the week did she meet her mother?                  A. 27th July      B. 28th July      C. 29th July      D. None of these</p>	4	<p>i. 2                  ii. 3                  iii. 3                  iv. 2</p>	3	12
b)	<p><b>Direction:</b> Study the information given below carefully and answer the questions that follow.</p> <p>A, B, C, D, E, F and G are seven offices. F is 6 km to the east of B. A is 8 km to the north of B. G is exactly midway between A and B. C is 10 km to the south of G. E is 3 km to the east of G. D is exactly midway between B and F.</p> <p>i. What is the distance between C and A?                  A. 4 km      B. 10 km      C. 14 km      D. 18 km      E. 16 km</p> <p>ii. If a person walks 4 km towards south from E, takes a right turn and walks for another 3 km, which of the following the office would he reach?                  A. G      B. B      C. C      D. F      E. Cannot be determined</p> <p>iii. In which direction Office A is situated with respect to office F?                  A. South-East      B. North-West      C. North-East                  D. South-West      E. North</p>	3	<p>i. 3                  ii. 3                  iii. 3</p>	3	12
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>	4	<p>i. 4                  ii. 3                  iii. 2                  iv. 2</p>	4	12

	<p>iii. A square of perimeter 88 cm and a circle of perimeter 88 cm are given. Which figure has a larger area and by how much?</p> <p>A. Square, 132 cm<sup>2</sup>                      B. Circle, 132 cm<sup>2</sup>            C. Both have equal area              D. Circle, 495 cm<sup>2</sup></p> <p>iv. A sphere of radius 90 cm is melted to form 3 smaller spheres of radius 45 cm, 60 cm and X cm. What is the value of X?            A. 70 cm    B. 80 cm    C. 60 cm    D. 75 cm</p>				
b)	<p>i. If <math>\log_x y = 100</math> and <math>\log_2 x = 10</math>, then the value of y is:            A. <math>2^{10}</math>    B. <math>2^{100}</math>    C. <math>2^{1000}</math>    D. <math>2^{10000}</math></p> <p>ii. <math>\log_a a^2 - 4\log_a (1/a)</math>, <math>a &gt; 0</math>, <math>a \neq 1</math>:            A. 5    B. 6    C. a    D. 4</p> <p>iii. 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>	3	<p>i. 1            ii. 2            iii. 1</p>	4	12
10. a)	<p>i. Electricity department needs to generate bills for a locality. They decide the bill no. to be a 6 digit number with 4 and 7 fixed as first and last digits. No digits should be repeated anywhere in the bill number. 4 denotes station number and 7 denotes the area. How many such bill numbers can the electricity department generate?            A. 890    B. 1680                      C. 5040                      D. 10080</p> <p>ii. A cricket group of 6 members is to be formed from Academy A. The members of the group are to be from 3 bowlers, 4 batsmen and 5 coaches. How many ways are possible to form the group so that it has either 3 coaches and 3 batsmen or 2 bowlers and 4 coaches.            A. 27    B. 55    C. 90    D. 144</p> <p>iii. Let n be the number of different 5-digit numbers, divisible by 4 that can be formed with the digits 1, 2, 3, 4, 5 and 6, with no digit being repeated. What is the value of n?            A. 144    B. 168    C. 192    D. None of these</p> <p>iv. The letters of the word ALLAHABAD are rearranged to form new words and put in a dictionary. If the dictionary has only these words and one word on every page in alphabetical order then what is the page number on which the word LABADALAH comes?            A. 6089    B. 6088    C. 6087    D. 6086</p>	4	<p>i. 3            ii. 3            iii. 4            iv. 4</p>	5	12
b)	<p>i. If 8 coins are tossed, what is the chance that one and only one will turn up Head?            A. <math>1/16</math>    B. <math>3/32</math>    C. <math>5/32</math>    D. <math>1/32</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. There are two bags, one of them contains 5 red and 7 white balls and the other 3 red and 12 white balls, and a ball is to be drawn from one or the other of the two bags. Find the chance of drawing a red ball.            A. <math>37/120</math>    B. <math>1/4</math>    C. <math>11/120</math>    D. None of these</p>	3	<p>i. 1            ii. 3            iii. 1</p>	5	

11. a)	<p>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</p> <p>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</p> <p>iii. Two trains start from stations A and B and travel towards each other at speeds of 50 km/ph and 60 km/ph respectively. At the time of their meeting, the second train had traveled 120 km more than the first. The distance between A and B is? A. 990 km    B. 1200 km    C. 1320 km    D. 1440 km</p> <p>iv. A boat covers 24 km upstream and 36 km downstream in 6 hours, while it covers 36 km upstream and 24 km downstream in 6 ½ hours. The velocity of the current is? A. 1 km/h    B. 1.5 km/h    C. 2 km/h    D. 2.5 km/h</p>	4	i. 3 ii. 3 iii. 2 iv. 2	1	12
b)	<p>i. In a solid cube made up of 64 small cubes, two opposite sides are painted red, two opposite sides yellow and two other sides white. How many small cubes have the colors yellow and white alone in them? A. 12    B. 8    C. 4    D. 16 <b>Directions:</b> Five girls are sitting on a bench to be photographed. Seema is to the left of Rani and to the right of Bindu. Mary is to the right of Rani. Reeta is between Rani and Mary.</p> <p>ii. Who is sitting immediately to the right to Reeta ? A. Bindu    B. Rani    C. Mary    D. Seema</p> <p>iii. Who is in the middle of the photograph ? A. Bindu    B. Rani    C. Reeta    D. Seema</p>	3	i. 2 ii. 1 iii. 1	2	12
12. a)	<p>i. A cone of height 15 cm and base diameter 30 cm is carved out of a wooden sphere of radius 15 cm. The percentage of wasted wood is : A. 75%    B. 50%    C. 40%    D. 25%</p> <p>ii. The heights of two cones are in the ratio 1:3 and the diameters of their base are in the ratio 3 : 5. The ratio of their volume is A. 3 : 25    B. 4 : 25    C. 6 : 25    D. 7 : 25</p> <p>iii. The radii of the base of two cylinders are in the ratio 3 : 5 and their heights in the ratio 2:3. The ratio of their curved surface will be : A. 2 : 5    B. 2 : 3    C. 3 : 5    D. 5 : 3</p> <p>iv. The height of a conical tank is 60 cm and the diameter of its base is 64cm. The approximate cost of painting it from outside at the rate of 35 per sq. m. is : A. 52.00    B. 39.20    C. 35.20    D. 23.94</p>	4	i. 3 ii. 2 iii. 2 iv. 2	4	12

b)	<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. 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 travelled 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. A clock is set right at 10 a.m. on Sunday, If it loses 8 min in 24 hours. What is the correct time when the clock indicates 9 p.m. on next Sunday? A. 10:30 PM B. 9:30 PM C. 11 PM D. 10 PM</p>	3	<p>i. 1 ii. 2 iii. 2</p>	3	12
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M : Marks; L: Bloom's Taxonomy Level; CO; Course Outcome; PO: Programme Outcome

i)	Blooms Taxonomy Level – 1	20%
ii)	Blooms Taxonomy Level – 2	40%
iii)	Blooms Taxonomy Level – 3 & 4	40%

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