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G. VENKATASWAMY NAIDU COLLEGE (AUTONOMOUS), KOVILPATTI – 628 502.**UG DEGREE END SEMESTER EXAMINATIONS - APRIL 2025.**

(For those admitted in June 2021 and later)

PROGRAMME AND BRANCH: B.Sc., MATHEMATICS

SEM	CATEGORY	COMPONENT	COURSE CODE	COURSE TITLE
VI	PART-III	SEC	U21MA6S2	MATHEMATICAL REASONING

Date & Session: 05.05.2025/FN**Time : 2 hours****Maximum: 50 Marks**

Bloom's K-level	Q. No.	<p align="center">SECTION – A (5 X 10= 50 Marks)</p> <p align="center">Answer <u>ALL</u> Questions choosing either (a) or (b).</p>
K3	1	<p>Read the following information carefully and answer the questions given below: There are six children playing football namely A,B,C,D,E and F. A and E are brothers. F is the only son of A's uncle. B and D are the daughters of the brother of C's father.</p> <p>i) How is C related to F? ii) How many male players are there? iii) How many female players are there? iv) How is D related to A?</p> <p>Deepak is brother of Ravi. Rekha is sister of Atul. Ravi is son of Rekha. How is Deepak related to Rekha?</p> <p align="center">(OR)</p> <p>Read the following information carefully and answer the questions. A+B means A is the son of B, A-B means A is the wife of B A×B means A is the brother of B, A÷B means A is the mother of B and A=B means A is sister of B.</p> <p>i) What does P+R-Q mean? ii) What does P×R÷Q mean? iii) What does P=R+Q mean? iv) What does P=R÷Q mean?</p> <p>A+B means A is the brother of B, A÷B means A is the father of B and A×B means A is sister of B. Which of the following means M is the uncle of P?</p>
K3	2.	<p>i) In a certain code, MONKEY is written as XDJMNL. How is TIGER written in that code? ii) If FRIEND is coded as HUMJTK, how is CANDLE written in that code? iii) In a certain code, RAIN is written as 8\$%6 and MORE is written as 7#8@. How is REMAIN written in that code? iv) In a certain code, 15789 is written as EGKPT and 2346 is written as ALUR. How is 23549 written in that code? v) In a certain code, a number 13479 is written as AQFJL and 5268 is written as DMPN. How is 396824 written in that code?</p> <p align="center">(OR)</p> <p>i) If orange is called butter, butter is called soap, soap is called ink, ink is called honey and honey is called orange, which of the following is used for washing cloths? ii) If man is called girl, girl is called women, women is called boy, boy is called butler and butler is called rogue, who will serve in a restaurant? iii) If banana is apple, apple is grapes, grapes is mango, mango is nuts, nuts is guava, which of the following is a yellow fruit? iv) In a certain code language, 'oka peru' means 'fine cloth'; 'meta lisa' means 'clear water' and 'dona lisa peru' means 'fine clear weather', which word in that</p>

		<p>language means weather?</p> <p>v) In a certain code, 'nee tim see' means 'how are you'; 'ble nee see' means 'where are you', what is the code for 'where'?</p>
K4	3.	<p>In a school, there were five teacher. A and B were teaching Hindi and English. C and B were teaching English and Geography. D and A were teaching Mathematics and Hindi. E and B were teaching History and French.</p> <ol style="list-style-type: none"> Who among the teacher was teaching maximum number of subjects? Which of the following pairs was teaching both Geography and Hindi? More than two teaching were teaching which subject? D, B and A were teaching which of the following subjects? Who among the teachers was teaching less than two subjects? <p style="text-align: center;">(OR)</p> <p>a) P,Q,R,S,T and U are six members in a family in which there are two married couples.</p> <p>b) T, a teacher is married to the doctor who is the mother of R and U.</p> <p>c) Q, the lawyer is married to P.</p> <p>d) P has one son and one grandson.</p> <p>e) Of the two married ladies one is a housewife.</p> <p>f) There is also one student and one male engineer in the family.</p> <ol style="list-style-type: none"> How is P related to R? Who among the following is the Housewife? How is R related to U? Which of the following represents the group of females in the family? Which of the following is true about the granddaughter in the family?
K5	4.	<p>In each question below are given two statements followed by two conclusions numbered I and II. You have to take the given two statements to be true even if they seem to be at variance from commonly known facts. Read the conclusion and then decide which of the given conclusions logically follows from the two given statements, disregarding commonly known facts. Give answer</p> <ol style="list-style-type: none"> If and only conclusion I follows If only conclusion II follows If either I or II follows If neither I nor II follows and If both I and II follows <p>Statements: Morning walks are good for health.</p> <p>Conclusion: I. All healthy people go for morning walks. II. Evening walks are harmful.</p> <p>Statements: Good voice is a natural gift but one has to keep practising to improve and excel well in the field of music.</p> <p>Conclusion: I. Natural gifts need nurturing and care. II. Even through your voice is not good , one cand keep practising.</p> <p>Statements: Death keeps no calendar.</p> <p>Conclusion: I. Man must die one day. II. Death can come at any time.</p> <p>Statements: Reading makes a full man, conference a ready man and writing an exact man.</p> <p>Conclusion: I. Pointed and precise expression comes only through extensive writing. II. Extensive reading makes a complete man.</p> <p>Statements: The T.V programmes, telecast specially for women are packed with a variety of recipes and household hints. A major portion of magazines for women also contain the items mentioned above .</p> <p>Conclusion: I. Women are not interested in other things. II. An average woman's primary interest lies in home and specially in the kitchen.</p>

		<p style="text-align: center;">(OR)</p> <p>In each question below is given a statement followed by two assumptions numbered I and II. Consider the statement and decide which of the given assumption is implicit. Give answer</p> <ol style="list-style-type: none"> if only assumption I is implicit; if only assumption II is implicit; if either I or II is implicit; if neither I nor II is implicit and if both I and II are implicit. <p>Statements: It is faster to travel by air to Delhi from Bengaluru.</p> <p>Assumptions: I. Bengaluru and Delhi are connected by air II. There are no other means of transport Available to Delhi from Bengaluru</p> <p>Statements: "Use of cell phones and pagers is not allowed inside the auditorium. Please switch off such devices while you are inside the auditorium."-A notice</p> <p>Assumptions: I. All those who have such devices will switch Term off before they take their seat in the auditorium. II. Generally people do not bring such devices when they come to attend functions in the auditorium.</p> <p>Statements: It is desirable to put the child in school at the age of 5 or so.</p> <p>Assumptions: I. At that age the child reaches appropriate level of development and is ready to learn. II. The schools do not admit children after six years of age.</p> <p>Statements: 'Double your money in five months'.-An advertisement</p> <p>Assumptions: I. The assurance is not genuine. II. People want their money to grow.</p> <p>Statements: If he is intelligent, he will pass the examination.</p> <p>Assumptions: I. To pass, he must be intelligent. II. He will pass the examination.</p>
K5	5.	<p>Read the following passage and examine each inference given below in the context of this passage.</p> <p>Mark your answer as</p> <ol style="list-style-type: none"> If the inference is 'definitely true'; If the inference is 'probably true'; If the 'data provided is inadequate'; If the inference is 'probably false'; and If the inference is 'definitely false'. <p>The world Health Organization has called for an improved surveillance to combat dengue and says the outbreak can be controlled in two weeks if all necessary steps are taken to stop the mosquitoes from breeding and break the transmission cycle. Dengue is already the most widespread mosquito-borne disease among humans. In the past 15 years , outbreaks in South and South – East Asia have been rapidly rising mostly due to falling environmental and public health standards during urbanization. WHO reports that severe forms of the disease such as haemorrhagic fever (DHF) and shock syndrome(DSS) are putting more than 2.5 million people at risk worldwide each year. Importantly, 95% of the DHF cases are among children less than 15 years. Therefore, the disease has major impacts on public health and future generations.</p> <ol style="list-style-type: none"> If rate of urbanization in South Asia is controlled, outbreaks of all diseases may be reduced. World Health Organization has not collected data of outbreak of dengue in the past There was no outbreak of dengue in the European countries in the recent past. Over the last decade South Asian countries have not successfully stepped up mechanism to combat dengue. DSS type dengue seems mostly to be affecting the adults. Over the last decade South Asian countries have not successfully stepped up mechanism to combat dengue.

(OR)

i) Each of the following questions contains a small paragraph followed by a question on it. Read each paragraph carefully and answer the question given below it:
The only true education comes through the stimulation of the child's powers by the demands of the social situations in which he finds himself. Through these demands he is stimulated to act as a member of a unity, to emerge from his original narrowness of action and feeling, and to conceive himself from the standpoint of the welfare of the group to which he belongs.

The passage best supports the statement that real education-

- a) Will take place if the children imbibe action and feeling.
- b) Will take place if the children are physically strong.
- c) Is not provided in our schools today.
- d) Comes through the interaction with social situations.
- e) Comes from the self-centred approach of the students.

ii) The feature of women in India is quite bright and let us hope that they will justify their abilities by rising to the occasion. Napoleon was right when he declared that by educating the women we can educate the whole nation. Because a country can never rise without the contribution of 50% of their population.

The passage best supports the statement that:

- a) India is striving hard for the emancipation of women.
- b) All women should be well educated.
- c) A nation can progress only women are given equal rights and opportunities as men.
- d) Women ought to be imparted full freedom to prove their worth and contribute to the progress of the nation.

iii) Satisfaction with co-workers, promotion opportunities, the nature of work, and pay goes with high performance among those with strong growth needs. Among those with weak growth needs, no such relationship is present- and, in fact, satisfaction with promotion opportunities goes with low performance.

This passage best supports the statement that:

- a) Satisfaction is an inevitable organisational variable.
 - b) Job satisfaction and performance are directly and closely related.
 - c) Relationship between job satisfaction and performance is moderated by growth need.
 - d) Every organisation has few employees having weak growth need.
 - e) High performance is essential for organisational effectiveness.
- iv) There is a shift in our economy from a manufacturing to a service orientation . The increase in service – sector will require the managers to work more with people rather than with objects and things from the assembly line.

This passage best supports the statement that:

- a) Managers should have a balanced mind.
- b) Assembly line will exist in service organisations.
- c) Interpersonal skills will become more important in the future work place.
- d) Manufacturing organisations ignore importance of people.
- e) Service organisations will not deal with objects and things.

v) The school has always been the most important means of transferring the wealth of tradition from one generation to the next. This applies today in an even higher degree than in former times for, through the modern development of economy, the family as bearer of tradition and education has become weakened.

This passage best supports the statement that:

For transferring the wealth of tradition from one generation to the next-

- a) There are means other than the school.
- b) Several different sources must be tried.
- c) Economic development plays a crucial role.
- d) Modern technology must be put to use.
- e) Family, as ever, is the most potent means.