MAT Solved Paper-2006 (Feb.)

1. An application was received by inward clerk in the afternoon of a week day. Next day he forwarded it to the table of the senior clerk, who was on leave that day. The senior clerk put up the application to the desk officer next day in the evening. The desk officer studied the application and disposed off the matter on the same day *i.e.*, Friday. Which day was the application received by the inward clerk?
   (a) Monday
   (b) Wednesday
   (c) Tuesday
   (d) Previous week's Saturday

2. In a queue of children, Kashish is fifth from the left and Mona is sixth from the right. When they interchange their places among themselves, Kashish becomes thirteenth from the left. Then, what will be Mona's position from the right?
   (a) 4th   (b) 14th
   (c) 8th   (d) 15th

3. If the numbers from 1 to 45 which are exactly divisible by 3 are arranged in ascending order, minimum number being on the top, which would come at the ninth place from the top?
   (a) 18   (b) 24
   (c) 21   (d) 27

4. Which letter should be the ninth letter to the left of the ninth letter from the right, if the first half of the alphabet of English are reversed?
   (a) D   (b) F
   (c) E   (d) I

5. In a family, a couple has a son and a daughter. The age of the father is three times of his daughter and the age of the son is half of his mother. The wife is nine years younger to her husband and the brother is seven years older than his sister. What is the age of the mother?
   (a) 40 years   (b) 50 years
   (c) 45 years   (d) 60 years

6. A number of friends decided to go on a picnic and planned to spend Rs. 96 on eatables. Four of them, did not turn up. As a consequence, the remaining ones had to contribute Rs. 4 each extra. The number of those who attended the picnic was ?
   (a) 8   (b) 16
   (c) 12   (d) 24

7. Out of a total of 120 musicians in a club, 5% can play all the three instruments–guitar, violin and flute. It so happens that the number of musicians who can play any two and only two of the above instruments is 30. The number of musicians who can play the guitar alone is 40. What is the total number of those who can play violin alone or flute alone?
   (a) 30   (b) 44
   (c) 38   (d) 45

8. There are 50 students admitted to a nursery class. Some students can speak only English and some can speak only Hindi. Ten students can speak both English and Hindi. If the number of students who can speak English is 21, then how many students can speak Hindi, how many can speak only Hindi and how many can speak only English?
   (a) 39, 29 and 11 respectively
   (b) 28, 18 and 22 respectively

(c) 37, 27 and 13 respectively
(d) 21, 11 and 29 respectively

9. The letters of the name of a vegetable are I, K, M, N, P, P, U. If the letters are rearranged correctly, what is the last letter of the word formed?
   (a) M
   (b) N
   (c) K
   (d) P

10. At a farm, there are hens, cows, bullocks, and keepers to look after them. There are 69 heads less than legs; the number of cows is double than that of the bullocks; the number of cows and hens is the same and there is one keeper per ten birds and cattle. The total number of hens plus cows and bullocks and their keepers does not exceed 50. How many cows are there?
    (a) 10
    (b) 14
    (c) 12
    (d) 16

Directions (11–15) : *In each question, a statement is followed by two assumptions numbered I and II. Consider the statement and the following assumptions to decide which of the assumptions is implicit in the statement.*
Mark answer as :
(a) if only assumption I is implicit;
(b) if either I or II is implicit;
(c) if only assumption II is implicit;
(d) if neither I nor II is implicit.

11. **Statement :** Like a mad man, I decided to follow him.
    Assumptions :
    I. I am not a mad man.
    II. I am a mad man.

12. **Statement :** If it is easy to become an engineer, I don't want to be an engineer.
    Assumptions :
    I. An individual aspires to be professional.
    II. One desires to achieve a thing which is hard earned.

13. **Statement :** All the employees are notified that the organisation will provide transport facilities at half the cost from the nearby railway station to the office except those who have been provided with travelling allowance.
    Assumptions :
    I. Most of the employees will travel by the office transport.
    II. Those who are provided with travelling allowance will not read such notice.

14. **Statement :** An advertisement of a Bank "Want to open a bank account ! Just dial our 'room service' and we will come at your doorsteps."
    Assumptions :
    I. There is a section of people who require such service at their home.
    II. Now-a-days banking has become very competitive.

15. **Statement :** I can take you quickly from Kanpur to Lucknow by my cab but then you must pay me double the normal charges.
    Assumptions :
    I. Normally, it will take more time to reach Lucknow from Kanpur.

II. People want to reach quickly but they will not pay extra money for it.

Directions (16–20) : *In each of the following questions, various terms of a series are given with one term missing as shown by (?). Choose the missing term.*

16. QPO, SRQ, UTS, WVU, (?)
   (a) XVZ   (b) YXW
   (c) ZYA   (d) VWX

17. 19, 2, 38, 3, 114, 4, (?)
   (a) 228   (b) 352
   (c) 256   (d) 456

18. YEB, WFD, UHG, SKI, (?)
   (a) QOL   (b) TOL
   (c) QGL   (d) QNL

19. AZ, CX, FU, (?)
   (a) IR   (b) JQ
   (c) IV   (d) KP

20. 2Z5, 7Y7, 14X9, 23W11, 34V13, (?)
   (a) 27U24   (b) 45U15
   (c) 47U15   (d) 47V14

Directions (21–25) : *Read the information given below carefully and answer the questions that follow.*

From a group of six boys M, N, O, P, Q, R and five girls G, H, I, J, K; a team of six is to be selected. Some of the criteria of selection are as follows :
M and J go together.
O cannot be placed with N.
I cannot go with J.
N goes with H.
P and Q have to be together.
K and R go together.
Unless otherwise stated, these criteria are applicable to all the following questions.

21. If the team consists of two girls and I is one of them, the other members are :
   (a) GMRPQ
   (b) KOPQR
   (c) HNOPQ
   (d) KRMNP

22. If the team has four boys including O and R, the members of the team other than O and R are :
   (a) HIPQ
   (b) GJPQ
   (c) GKPQ
   (d) GJMP

23. If four members are boys, which of the following cannot constitute the team?
   (a) GJMOPQ
   (b) JKMNOR
   (c) HJMNPQ
   (d) JKMPQR

24. If both K and P are members of the team and three boys in all are included in the team, the members of the team other than K and P are :
   (a) GIRQ
   (b) HIRQ
   (c) GJRM
   (d) IJRQ

25. If the team has three girls including J and K, the members of the team other than J and K are :
   (a) GHNR
       MORG
       NOG
       HOR

Directions (26–30) : *These questions are based on the diagram given below showing four persons stationed at the four corners of a square piece of plot as shown.*
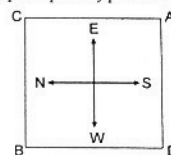
26. A starts crossing the plot diagonally. After walking half the distance, he turns right, walks some distance and turns left. Which direction is A facing now?
   (a) North-east   (b) North
   (c) North-west   (d) South-east

27. From the original position given in the above figure, A and B move one arm length clockwise and then cross over to the corner diagonally opposite; C and D move one arm length anti-clockwise and cross over the corner diagonally opposite. The original configuration ADBC has now changed to :
   (a) CBDA
   (b) DACB
   (c) BDAC
   (d) ACBD

28. From the original position, B and D move one and a half length of sides clockwise and anti-clockwise respectively. Which one of the following statements is true?
   (a) B and D are both at the midpoint between A and C
   (b) B is at the midpoint between A and C, and D is at the corner originally occupied by A.
   (c) D is at the midpoint between A and C, and B is at the corner originally occupied by C.
   (d) B and D are both at the midpoint between A and D.

29. From the positions in the original figure, C and A move diagonally to opposite corners and then one side each clockwise and anti-clockwise respectively. B and D move two sides each clockwise and anti-clockwise respectively. Where is A now?
   (a) At the north-west corner
   (b) At the south-east corner
   (c) At the north-east corner
   (d) At the south-west corner

30. After the movements given in the above question, who is at the north-west corner?
   (a) A   (b) C
   (c) B   (d) D

Directions (31–35) : *In each question, a statement is followed by three courses of action numbered I, II and III. Assume everything in the statement to be true. Decide which of the three given suggested courses of action logically follows for pursuing.*

31. **Statement :** In one of the worst accidents on a railway level crossing, fifty people died when a bus carrying them collided with a running train.
   Courses of action :
   I. The train driver should immediately be suspended.
   II. The driver of the bus should be tried in court for negligence on his part.
   III. The railways authorities should be asked to man all its level crossings.
   (a) None follows   (b) Only III follows
   (c) Only I and II follow   (d) Only II and III follow

32. **Statement** : There was a spurt in criminal activities in the city during the recent festival season.

Courses of action :

I. The police should immediately investigate into the causes of this increase.

II. In future the police should take adequate precautions to avoid recurrence of such a situation during festivals.

III. The known criminals should be arrested before any such season.

(a) None follows   (b) Only II and III follow

(c) Only I and II follow   (d) All follow

33. **Statement** : A mass mortality of shrimps in ponds on entire Andhra coast has recently been reported due to the presence of a virus.

Courses of action :

I. The water of the ponds affected should immediately be treated for identifying the nature of the virus.

II. The catching of shrimps from the ponds should temporarily be stopped.

III. The fishermen should be asked to watch for the onset of such phenomenon in nature.

(a) Only I follows

(b) All follow

(c) Only I and II follow

(d) Only II and III follow

34. **Statement** : The weather bureau has through a recent bulletin forecast heavy rainfall during the next week which may cause water logging in several parts of the city.

Courses of action :

I. The bulletin should be given wide publicity through the mass media.

II. The civic authority should keep in readiness the pumping system for removal of water from these parts.

III. The people should be advised to stay indoors during the period.

(a) None follows   (b) Only II follows

(c) Only I and II follow   (d) Only II and III follow

35. **Statement** : The world will have to feed more than 10 billion people in the next century, of whom half will be in Asia and will eat rice as their staple food.

Courses of action :

I. More funds should immediately be allocated for rice research to help ensure adequate supplies.

II. The people in Asia should be encouraged to change their food habits.

III. The rice should be grown in countries outside Asia to meet the demand.

(a) Only I and II follow   (b) All follow

(c) Only II and III follow   (d) Only I and III follow

Directions (36–40) : *Read the following passage and examine each inference given below it in the context of this passage.*

Mark the answer as :

(a) if the inference is 'definitely true';

(b) if the 'data provided is inadequate';

(c) if the inference is 'probably true';

(d) if the inference is 'definitely false'.

The space exploration has been done mainly by using unmanned satellites called spaces probes containing a large variety of latest scientific instruments on board. These space probes have provided us the close-up pictures and other data about planets and other bodies in the outer space. The climax of the intensive American space programme came when Neil Armstrong became the first man to set foot on the moon on July 20, 1969. Originally, the artificial satellites were launched for studying the upper atmosphere of the earth.

36. The space probes have increased our knowledge about space and the bodies in it.

37. Space probes are meant to study the upper atmosphere of the earth only.

38. Neil Armstrong was the first man to go into space.

39. Space probes are provided with computers.

40. Moon has been explored by man.

Directions (41–56) : *Study the passages below carefully and answer the questions that follow.*

PASSAGE 1

The National Institute of Oceanography (NIO) in Goa has developed a real-time reporting and Internet-accessible coastal sea-level monitoring system and it has been operational at Verem jetty in the Mandovi estuary in Goa since September 24, 2005. The gauge uses a cellular modem to put on the Internet real-time sea-level data, which can be accessed by authorized personnel. By using a cellular phone network, coastal sea-level changes are continuously updated on a web-server. The sea-level guage website can be made available to television channels to broadcast real-time visualization of the coastal sea level, particularly during oceanogenic hazards such as storm surges or a Tsunami. A network of such gauges along the coast and the islands that lie on either side of the mainland would provide data to disaster management agencies to disseminate warnings to coastal communities and beach tourism centres.

The gauge incorporates a bottom pressure transducer as the sensing element. The sea unit of the gauge, which houses the pressure transducer, is mounted within a cylindrical protective housing, which inturn is rigidly held within a mechanical structure. This structure is secured to a jetty. The gauge is powdered by a battery, which is charged by solar panels. Battery, electronics, solar panels, and cellular modems are mounted on the top portion of this structure. The pressure sensor and the logger are continuously powered on, and their electrical current consumption is 30 mA and 15 mA respectively. The cellular modem consumes 15 mA and 250 mA during standby and data transmission modes respectively. The pressure sensor located below the low-tide level measures the hydrostatic pressure of the overlying water layer. An indigenously designed and developed microprocessor based data logger interrogates the pressure transducer and acquires the pressure data at the rate of two samples a second. The acquired pressure data is averaged over an interval of five minutes to remove high-frequency wind-waves that are superimposed on the lower frequency tidal cycle. The averaged data is recorded in a multimedia card. The measured water pressure is converted to water level using sea water density and acceleration owing to the earth's gravity. The water level so estimated is then referenced to Chart Datum (CD), which is the internationally accepted reference level below which the sea level will not fall. The data received at the Internet server is presented in graphical format together with the predicted sea level and the residual. The residual sea level (that is, the measured minus the predicted sea level) provides a clear indication of sea-level oscillation and a quantitative estimate of the anomalous behaviour, the driving force for which could be atmospheric forcing (storm) or geophysical (Tsunami).

A network of sea-level gauges along the Indian coastline and islands would also provide useful information to

mariners for safe navigation in shallow coastal waters and contribute to various engineering projects associated with coastal zone management, besides dredging operations, port operations and management of inland water resources (reservoirs, dams). The system can also be used effectively for sharing of water resources between States and neighbouring countries, and for monitoring and implementation of river water treaties with greater transparency. Among the various communication (technologies used for real-time transmission of sea-level data are the wired telephone connections, VHF/UHF transceivers, satellite transmite terminals and cellular connectivity. Wired telephone connections are severely susceptible to loss of connectivity during natural disasters such as storm surges, primarily because of telephone line breakage. Communication via VHF/UHF transceivers is limited by line-of-sight distance between transceivers and normally offer only point-to-point data transfer. Satellite communication via Platform Transmit Terminals (PTTs) has wide coverage and, therefore, allows data reception from offshore platforms. However, data transfer speeds are limited. Further, many satellite (for example, GOES, INSAT) permit data transfer only at predefined time-slots, thereby inhibiting continuous data access. Technologies of data reporting via satellite have undergone a sea change recently in terms of frequency of reportage, data size, recurring costs and so forth. Broadband technology has been identified as one that can be used optimally for real-time reporting of data because of its inherent advantages such as a continuous two-way connection that allows high-speed data transfer and near real-time data reporting. While satellite communication is expensive, wireless communication infrastructure and the ubiquity of cellular phones have made cellular communication affordable. Low initial and recurring costs are an important advantage of cellular communication. A simple and cost-effective methodology for real-time reporting of data is the cellular-based GPRS technology, which has been recently implemented at the NIO for real-time reporting of coastal sea level data.

41. According to the passage which one of the following statements is *not* true?
    (a) Network of gauges along the coast and the islands would help disaster management agencies to disseminate warnings.
    (b) Cellular base GPRS technology is not a simple and cost effective method for real-time reporting of data.
    (c) Disadvantage of wired telephone connections is the loss of connectivity during disasters due to line breakages.
    (d) Data reporting via satellites has undergone changes in terms of frequency, data size, recurring cost etc.

42. What is the outermost part of the sea unit of the gauge?
    (a) Pressure transducer
    (b) Mechanical structure
    (c) Cylindrical protective housing
    (d) Sensing element

43. What is the limitation of satellite communication via platform transmit terminals?
    (a) Coverage   (b) Off shore platforms
    (c) Data transfer speed (d) None of these

44. Which one of the following relationships is correct as per the passage?
    (a) Predicted sea level is a product of measured sea level and residual sea level.

(b) Predicted sea level is the sum of measured sea level and residual sea level.
(c) Residual sea level is the sum of predicted sea level and measured sea level.
(d) Predicted sea level is obtained by dividing measured sea level and residual sea level.

PASSAGE-2

The World Trade Organisation (WTO) Ministerial Conference, which commenced in Hong Kong on December 13, 2005 adopted a declaration on December 18, 2005 after six days of acrimonious negotiations between developed and developing countries. Although initially there was a show of unity among developing countries especially on the issue of agriculture, which was reflected in the formation of the G–110, the final outcome of the Ministerial Declaration has been thoroughly anti-development. The Ministerial Declaration has not only failed to address substantially the concerns of developing countries but has actually paved the way for an eventual trade deal by the end of 2006, which is going to be severely detrimental to their interests. It is clear by now that the so-called 'Development Round' launched in Doha in 2001 has been manipulated by developed countries, especially the United States and the members of the European Union, to push for further trade liberalization in developing countries while they continue to protect their economies through high subsidies and non-tariff barriers. Far from redressing the asymmetries of the global trading system, the Doha round seems to be heading for another catastrophe for the developing world. The E.U. stuck to its intrasigent position on the deadline of 2013 for the elimination of export subsidies and developing countries gave up their demand for an earlier end date despite the initial collective efforts of the G-110. The gross inadequacy of this so called 'concession' can be understood from the fact that export subsidies comprise less than 2 per cent of the total farm subsidies in the developed world. There has been no concrete commitment on the reduction of domestic support other than export subsidies. The E.U. can continue to subsidize agriculture to the tune of 55 billion Euros a year. The E.U. budget adopted recently ensures that nothing can be touched in the agriculture budget till at least 2013. The U.S. budget reconciliation process and the final vote in the Congress are set to extend domestic support to agriculture and counter-cyclical support to commodities up to around 2011. Even in the case of cotton, the agreement to eliminate subsidies by 2006 is restricted to export subsidies only and does not include other forms of domestic support. The U.S. refused to give duty-free access to exports from Least Developed Countries (LDCs) for 99·9 per cent of product lines and the final agreement was on 97 per cent of them, which would enable the U.S. and Japan to deny market access to LDCs in product lines such as rice and textiles. Much of the Aid for Trade for LDCs, which is being showcased by developed countries as a 'development package', is disguised in conditional loan packages that are contingent upon further opening up of their markets.

India's prime interest in agriculture was to ensure the protection of its small and marginal farmers from the onslaught of artificially low-priced imports or threats thereof. The proposals for agricultural tariff cuts, which are already on the table, are quite ambitious and the G-20 has already committed itself to undertake cuts to the extent of two-thirds of the level applicable to developed countries. Moreover, India has 100 per cent tariff lines