1 Round off 10.5327 correct to three significant figures
   A 11.0       C 10.53
   B 10.5       D 10.533

2 \(2.4 \times 10^4 + 3 \times 10^3 =\)
   A \(2.7 \times 10^3\)       C \(5.4 \times 10^4\)
   B \(2.7 \times 10^4\)       D \(5.4 \times 10^7\)

3 The speed of a comet is \(9 \times 10^4\) km/s. The time taken, in seconds for the comet to travel \(3.6 \times 10^7\) km is
   A \(4 \times 10\)       C \(4 \times 10^3\)
   B \(4 \times 10^3\)       D \(4 \times 10^{-2}\)

4 Express 0.0000304 in standard form
   A \(3.04 \times 10^{-5}\)       C \(30.4 \times 10^6\)
   B \(3.04 \times 10^3\)       D \(30.4 \times 10^7\)

5 \(\frac{5.67 \times 10^{-3}}{(3 \times 10^{-3})^2} =\)
   A \(6.3 \times 10^{-13}\)       C \(9.45 \times 10^{-13}\)
   B \(6.3 \times 10^2\)       D \(9.45 \times 10^2\)

6 Factorise \(4x^2 + 4x - 3\)
   A \((2x - 3)(2x + 1)\)
   B \((2x + 3)(2x - 1)\)
   C \((4x + 1)(x - 3)\)
   D \((4x - 3)(x + 1)\)

7 Solve \(\frac{x + 4}{x + 1} = \frac{3}{2x}\)
   A \(-2\) or \(-3\)
   B \(\frac{1}{2}\) or \(\frac{1}{3}\)
   C \(2\) or \(\frac{1}{2}\)
   D \(-3\) or \(\frac{1}{2}\)

8 \(\text{Diagram 1}\)

   \(\triangle ABC\)
   \(x \text{ cm}\)
   \((2x - 5) \text{ cm}\)
   \((x + 1) \text{ cm}\)

   In the diagram \(1\), \(ABC\) is a right-angled triangle. Find the value of \(x\)
   A \(\frac{3}{2}\)       C \(\frac{4}{2}\)
   B \(3\)       D \(5\)

9 Solve \(2w = \frac{12}{w} - 5\)
   A \(\frac{1}{2}\) or \(-6\)       C \(-\frac{3}{2}\) or 6
   B \(-\frac{1}{2}\) or 4       D \(\frac{3}{2}\) or \(-4\)

10 It is given the the universal set \(\xi = \{x : 2 \leq x \leq 12, x\text{ is an integer}\}\), set \(P = \{3, 5, 7, 8, 9\}\), set \(Q = \{\text{factors of 30}\}\) and \(R = \{\text{multiples of 3}\}\). The elements of the set \(P \cap (Q \cup R)\)

   A 7,8       C 3,5,7
   B 4,11       D 4,7,8,11
11

The Venn diagram shows the number of elements in sets P, Q and R.

If $n(Q \cup R) = n(P')$, then $k =
\begin{align*}
A & 4 & C & 6 \\
B & 5 & D & 7
\end{align*}$

12

The $y$-intercept of the straight line $-2x + 3y = -18$ is
\begin{align*}
A & -8 & C & -5 \\
B & -6 & D & -4
\end{align*}

13

Diagram 2

Diagram 2 shows a point $K(h, 9)$ that lies on the line $3y = x + 2$.
The value of $h$ is
\begin{align*}
A & 10 & C & 18 \\
B & 14 & D & 25
\end{align*}

14

The gradient of line $\frac{x}{4} + \frac{y}{3} = 1$ is
\begin{align*}
A & -4 & C & -\frac{4}{3} \\
B & -3 & D & -\frac{3}{4}
\end{align*}

15

Simplify $\frac{2h + k}{4hk} - \frac{3 - 5k}{6k}$
\begin{align*}
A & \frac{13 + 10h}{12h} \\
B & \frac{3 - 10h}{12h} \\
C & \frac{12h + 10hk - 3}{12hk} \\
D & \frac{2h + 6k - 3}{24hk}
\end{align*}

16

Express $\frac{3}{4kp} - \left( \frac{1 - \frac{1}{3}p}{kp^2} \right)$ as single fraction in its simplest form.
\begin{align*}
A & \frac{5p - 12}{12kp^2} \\
B & \frac{13p - 12}{12kp^2}
\end{align*}
17 Diagram 3
The histogram in Diagram 3 shows the time taken by a group of students watching television during school days. The percentage of students watching television longer than 1.5 hours is
A 20%  C 30%
B 24%  D 76%

18 If the median of a set of integers, 3,8,9,x and 7 is x, the probable value of x is
A 5  C 8
B 6  D 9

19

<table>
<thead>
<tr>
<th>Score</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-2</td>
<td>3</td>
</tr>
<tr>
<td>3-5</td>
<td>7</td>
</tr>
<tr>
<td>6-8</td>
<td>15</td>
</tr>
<tr>
<td>9-11</td>
<td>12</td>
</tr>
<tr>
<td>12-14</td>
<td>8</td>
</tr>
<tr>
<td>15-17</td>
<td>5</td>
</tr>
</tbody>
</table>

The table shows the frequency distribution of the scores obtained by 50 participants in a competition. The mean score of the 50 participants is
A 8  C 8.8
B 8.5  D 9

20 It is given that the probability of selecting a blue button from a bag is \( \frac{2}{7} \). If 35 button are selected at random from a bag, how many of the buttons would be blue?
A 10  C 30
B 20  D 35

21 \( \frac{2}{3} \) of a class of pupils own computers. If a pupil is randomly selected from the class, what is the probability that the pupil owns a computer?
A \( \frac{1}{5} \)  C \( \frac{2}{3} \)
B \( \frac{1}{3} \)  D \( \frac{5}{6} \)

22

Diagram 4
The Diagram 4 shows some number cards. A card is picked at random. State the probability that a prime number is picked.
A \( \frac{2}{3} \)  C \( \frac{1}{2} \)
B \( \frac{1}{3} \)  D \( \frac{1}{6} \)
Diagram 5
The Diagram 5, TB and TC are tangents drawn from T to the circle, with centre O, The value of z is
A 25 C 45
B 35 D 55

Diagram 6
In Diagram 6, QRS is a tangent to the circle centre O, at R. The value of x is
A 40 C 60
B 50 D 70

Diagram 7
In Diagram 7, ABC is a tangent to the circle centre O, at B. BOE and CDF are straight lines. The value of x is
A 15 C 35
B 25 D 40

Diagram 8
Diagram 8 shows a regular hexagon EFGHJK. Given that GEL and JKL are straight lines, then \(x + y\) =
A 180 C 240
B 210 D 270

List all the integers that satisfy both the inequalities
\(5 - \frac{k}{2} < 3\) and \(3(k + 2) < 30 - k\)
A 5 C 5,6
B 4,5 D 4,5,6
Diagram 9
Diagram 9 shows the unit circle. The value of $\cos \theta$ is
A -0.8192   C -0.7002
B 0.5736   D 0.8192

29 Given $\tan \theta = \tan 140^\circ$ and $0^\circ \leq \theta \leq 360^\circ$, then $\theta =$
A 40°   C 312°
B 220°   D 320°

Diagram 10
The diagram 10 shows the graph of trigonometric function. The trigonometric function is
A $y = \tan \theta$   C $y = 2 \sin \theta$
B $y = \sin \theta$   D $y = \cos \theta$

Diagram 11
The diagram 11 shows a vertical pole OT. BAO are on a straight line on the horizontal ground. Given that $\angle BTO = 60^\circ$ and $\angle TAO = 42^\circ$, find the angle of depression of A from T.
A 60°   C 42°
B 48°   D 18°

Diagram 12
In Diagram 12, AT and OH are two vertical poles on a horizontal ground. Name the angle of depression of T from H.
A $\angle OHB$   C $\angle UHT$
B $\angle THO$   D $\angle VHB$
Diagram 13
Diagram 13 shows that O, Q and S are on a straight horizontal line. The angle of elevation of R from S is $31^\circ48'$. The length of PR in m is

A  95  C  150
B  100  D  155

34 Factorise $5m - 20m^3$ completely.

A $5m(1 - 4m^2)$
B $5m(1 - 2m)^2$
C $5m(1 + 2m)(1 - 2m)$
D $5(1 - m)(1 + 4m^2)$

Diagram 14
Diagram 14 shows a prism with rectangular base PQRS and VWRS is the uniform cross-section. The angle between the line TQ and the plane PQRS is

A $36^\circ38'$
B $36^\circ48'$
C $67^\circ20'$
D $67^\circ23'$

Diagram 15
Diagram 15 shows a pyramid with an isosceles base OAB. V is vertically above O and M is the midpoint of AB. The angle between the plane VAB and the plane OAB is

A $\angle MVO$
B $\angle VAO$
C $\angle VBO$
D $\angle VMO$

37 Express $\frac{2-x}{5y} + (x-2)$ as a single fraction.

A $\frac{(2-x)(1-5y)}{5}$
B $\frac{(x-2)(5-5y)}{5}$
C $\frac{(2-x)(1-5y)}{5y}$
D $\frac{(x-2)(1-5y)}{5y}$
38 Given that \( \frac{5x - 2}{x + 2y} = 3 \), express \( x \) in terms of \( y \).

A \( 3y + 1 \)

B \( 3y - 1 \)

C \( \frac{1}{4}(3y + 1) \)

D \( \frac{1}{4}(3y - 1) \)

39 In Diagram 16 the gradient of the line PT is \( \frac{3}{4} \). Find the value of \( q \).

A \( -\frac{9}{4} \)

B \( \frac{4}{9} \)

C \( \frac{9}{4} \)

D \( 4 \)

40 Find the range of the values of \( x \) for \( 7 \leq 3x + 12 \leq 15 \).

A \( -\frac{5}{3} \leq x \leq -1 \)

B \( -\frac{5}{3} \leq x \leq 1 \)

C \( -\frac{5}{3} \leq x \leq 1 \)

D \( 1 \leq x \leq \frac{5}{3} \)

Diagram 16

END OF QUESTION PAPER

Prepared By, Approved By,

……………………………  ……………………………

Pn. Ruzihan Abdullah  Pn Jaswinder Kaur