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மேல் மாகாணக் கல்வித் திணைக்களம்
Department of Education – Western Province

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ஆண்டிறுதி மதிப்பீடு - 2019
Third Term Evaluation

ශ්‍රේණිය தரம் Grade	විෂයය பாடம் Subject	පත්‍රය வினாத்தாள் Paper	කාලය காலம் Time
10	Mathematics	II	03 hours

- **Answer 10 questions selecting 5 questions from part A and 5 questions from part B.**
- **Each question carries 10 marks.**
- **Volume of a cylinder with the radius r and the height h is $\pi r^2 h$.**

Part A

Answer five questions only.

01. It is estimated that 12 workers can complete a certain task in 5 days, by working 8 hours per day. In first 3 days, all the 12 workers were assigned for the task and all of them worked two hours overtime.

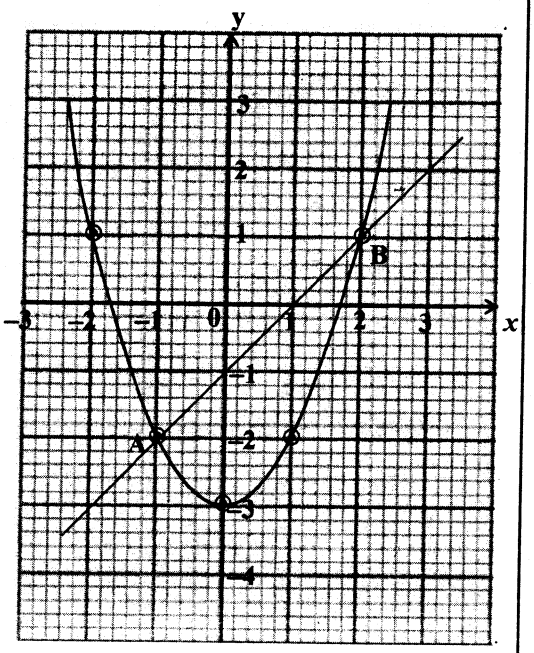
(i) What is the magnitude of work in man hours?

(ii) How many man hours were completed in first three days?

(iii) What fraction of the whole work is done in first three days?

(iv) After three days, 7 workers were assigned for another task. If it is decided to complete the remaining work with remaining workers on expected date, how many hours should a man work per day?

02. Using the graphs shown in the figure, answer the following questions.



(i) What is the minimum value of the quadratic equation?

(ii) Write the coordinates of the turning point of the function.

(iii) Write the equation of the quadratic function in the form $y = ax^2 + b$

(iv) Write the interval of the values of x, where the function increase negatively.

(v) Write the equation of the straight line which passes through the points A and B.

03. (*a*) Number of children who came to see a film in a certain day is twice the number of adults who came to see the film. The total income gained by selling the tickets on that day was Rs. 14 000. If the price of a child ticket is Rs. 100 and the price of an adult ticket is Rs. 150,

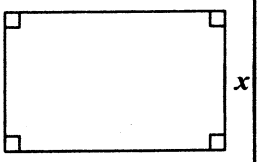
(i) By taking the number of children who came to see the film as x and the number of adults who came to see the film as y, build up a pair of simultaneous equations.

(ii) Solve the two equations and find the value of x and y.

(b) Make 'u' the subject of the formula $v = \sqrt{u^2 + 2as}$

04. (*a*) Solve. $\frac{2}{x+2} + \frac{1}{2(x+2)} = 1$

(b) (i) Length of the rectangular flower bed shown in the figure is ~~5m~~ 4m longer than its breadth. If the area of the flower bed is 45 m^2, by taking the breadth of it as x and build up a quadratic equation.



(ii) Solve the equation and find the breadth of the flower bed.

05. A person who is at the top of a 50 m tall building, observes a foot of a lamp post at an angle of depression of 40^0 and the top of the lamp post at an angle of depression of 30^0. Using the given information draw a scale diagram and find the height of the lamp post.

06. Following table elicits the profit gained by a certain lottery ticket seller, from selling the lottery tickets within last 30 days.

Profit (Rs.)	350 - 400	400 - 450	450 - 500	500 - 550	550 - 600	600 - 650	650 - 700
No of days	2	3	5	9	4	4	3

(i) What is the modal class of this distribution?

(ii) By taking the mid value of the modal class as assumed mean, calculate the mean profit gained by the seller during a day.

(iii) If it is need to spend Rs. 10 000 for a renovation of the selling center, show that the profit gained by selling the tickets in 20 days will be sufficient for that.

Part B

Answer five questions only.

07. First four terms of an arithmetic progression is given below.

5 , 9 , 13 , 17 , ...

(i) Find the 12^{th} term of the progression.

(ii) Find the sum of the first 12 terms of the progression.

(iii) Without using the formulae, find the first 13 terms of the progression.

(iv) Which term of it is 61?

08. Using only the straight edge with the scale cm/mm and the pair of compasses, do the following constructions.

(i) Construct the triangle ABC where AB = 7.5 cm , $B\hat{A}C = 60°$ and $A\hat{B}C = 45°$.

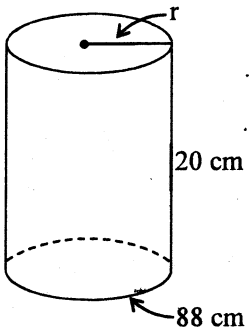
(ii) Construct a perpendicular to AB, from C.

(iii) Construct the locus of points moving equidistance to A and C.

(iv) Mark the intersection point of the locus and the perpendicular drawn from C as O. Construct the circle with the center O and the radius OA.

(v) Measure and write the radius of the circle.

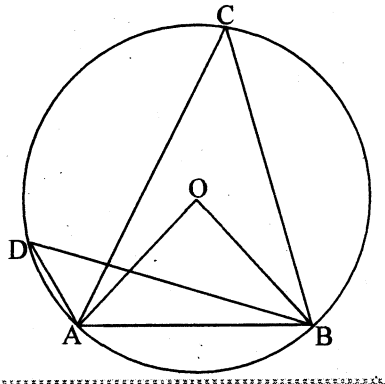
09. ***(a)*** In the given cylindrical container, ~~radius~~ circumference is 88 cm and the height is 20cm. Calculate its volume.



(b) Find the value using logarithmic tables.

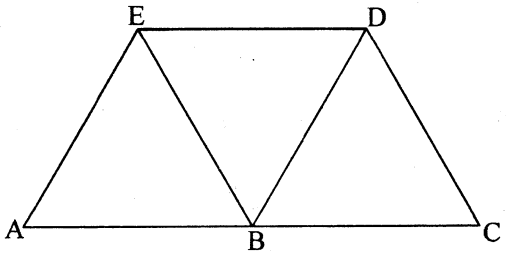
$$\frac{78.5 \times 9.321}{342.6}$$

10. In the figure, center of the circle is O. Points A , B , C and D are on the circle. If $A\hat{D}B = O\hat{A}B$, Show that $A\hat{C}B = 45°$



11. In the given figure, mid point of AC is B. If

$A\hat{E}B = E\hat{B}D$ and AE = BD,

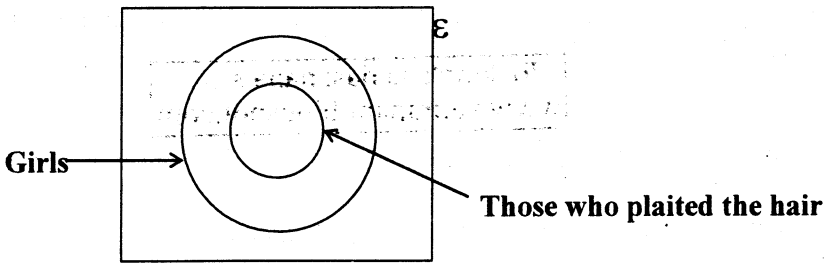


(i) Show that ABE $\Delta \equiv$ BDE Δ

(ii) Show that AB // ED.

(iii) Prove that BCDE is a parallelogram.

12. A Venn diagram drawn to include the information about 50 students who were participated for a certain drill display is given below.



- Number of boys who were participated for the drill display was 20.
- 18 girls who were participated, plait their hair.

(i) Copy the given Venn diagram in your answer sheet and enter the above information.

(ii) Find the number of girls who do not plait their hair. Shade the relevant region in the Venn diagram.

(iii) If the girls represent by A and those who plaited the hair represented by B, write down the shaded region using set notation in terms of A and B.

(iv) From the students who were participated for the drill display, 25 wore in red t-shirts. Number of girls who wore red t-shirts were 12. Draw another Venn diagram and include this information.