Registration No.: .....

# BHARTIYA SKILL DEVELOPMENT UNIVERSITY

**School of General Education**

**Session: 2019-20 (Summer Semester)**

**B. Voc. Program, 1st Semester**

**2nd In-Sem. Examination**

**Course Code: GEN 1101** **Time: 1 Hour**

**Course Name: English Language & Comprehension** **Max. Marks: 20**

**Instruction:** The question paper comprises three sections A, B & C. Marks allotted are mentioned against each section.

## Section-A (1*5=5)

**Q1.** State the comparative degree of the following words:
(a) Pretty
(b) Wise

**Q2.** State the superlative degree of the following words:
(a) Famous
(b) Lazy

**Q3.** Choose the correct article and fill in the blanks:
(a) Henry is_____ good boy. (a/an)
(b) Where is_____ book that I gave you? (a/the)

**Q4.** Arrange the jumbled words in a proper sentence:
(a) at the villagers/in their huts/he would go down the hillside/into the cultivated lands/by night and/look very curiously.
(b) in the jungle/with the/ Mowgli grew up/wolf cubs

**Q5.** Fill in the blanks with the correct option:
(a) Rip Van Winkle lived in a small _____ in North America. (village/town)
(b) Rip saw_____old men dressed just like the first old man. (nine/seven)

## Section- B (2*3=6)

**Q 6.** Explain the following with reference to the context:
*Stop crying, Rip. The old man won't hurt you.*

**Q 7.** Why did everyone like Rip Van Winkle?

**Q 8.** What did Mowgli do when he was not learning?

## Section- C (3*3=9)

**Q 9.** Write the summary of 'Mowgli.'

**Q 10.** Write about your student life in about ten lines.

**Q 11.** Make sentences with the following words. (Total six sentences)
(a) help
(b) mountain
(c) thirsty
(d) dog
(e) white
(f) twenty

*Registration No.....*

# Bhartiya Skill Development University

## School of General Education

## II In-Semester Examination- Nov., 2019

## Summer Semester, Sem-I (2019-20), B.Voc. Program

*Answer Key*

**Course: English Language & Comprehension** **Time: 1 Hour**

**Course Code: GEN1101**

**Max. Marks: 20**

**Instructions: The question paper comprises three sections A, B & C. Marks allotted are mentioned against each section.**

**Section-A** **(1*5=5)**

**Ans 1.** (a) Prettier
(b) Wiser

**Ans 2.** (a) Most famous
(b) Laziest

**Ans 3.** (a) a
(b) the

**Ans 4.** (a) He would go down the hillside into the cultivated lands by night and look very curiously at the villagers in their huts.
(b) Mowgli grew up with the wolf cubs in the jungle.

**Ans 5.** (a) village
(b) seven

**Section- B** **(2*3=6)**

**Ans 6.** From the story Rip Van Winkle. Said by Rip's daughter to her son who was crying when he saw the old man.

**Ans7.** They liked him because he was kind and helpful.

**Ans 8.** He swam, ate and slept.

**Section- C** **(3*3=9)**

**Ans 9.** Mowgli was raised by wolves and lived in harmony with all the animals in the jungle. He led a carefree life. He learnt that human beings could not be trusted.

**Ans 10.** Life of a student. Daily routine, things, studies, hobbies etc.

**Ans 11.**

(a) Please help me.
(b) This is a mountain.
(c) I am thirsty.
(d) This is a dog.
(e) Snow is white.
(f) I am twenty years old.

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# BHARTIYA SKILL DEVELOPMENT UNIVERSITY

**School of General Education**

**Session: 2019-20 (Summer Semester)**

**B. Voc. Program, 1st Semester**

**2nd In-Sem. Examination**

**Course Code: GEN 1103** **Time: 1 Hour**

**Course Name: Applied Mathematics** **Max. Marks: 20**

**Instruction:**

1. All questions are compulsory.
2. Missing data if any can be suitably assumed.
3. Calculator is not permitted.

## Section – A

$05 \times 01 = 05$ Marks

Q1. Which of the following is the derivate of $y = x^3 + 9x$:

(a) $\frac{dy}{dx} = x^4 + 9x^2$

(b) $\frac{dy}{dx} = 3 + 9x$

(c) $\frac{dy}{dx} = 3x + 9$

(d) $\frac{dy}{dx} = 3x^2 + 9$

Q2. Given $y = 4e^{4x}$, then $\frac{dy}{dx}$ is

(a) 4

(b) $4e^{4x}$

(c) $16e^{x}$

(d) $16e^{4x}$

Q3. If we differentiate $y = 2x^4 - \sin x$ with respect to $x$, then

(a) $\frac{dy}{dx} = 8x$

(b) $\frac{dy}{dx} = 8x + \sin x$

(c) $\frac{dy}{dx} = 8x^3 - \cos x$

(d) $\frac{dy}{dx} = 8x - \sin x$

Q4. $\int \frac{1}{x} dx =$

(a) $\log x + c$

(b) $\frac{1}{\log x}$

(c) $x + c$

(d) 0

Q5. $\int 1.dx =$

(a) 0

(b) $x$

(c) $x + c$

(d) 1

## Section – B

$03 \times 02 = 06$ Marks

Q6. If $y = ax^2 + bx + c$, then find $\frac{dy}{dx}$.

Q7. Evaluate $\int (\frac{1}{x} + a^x) dx$.

Q8. Evaluate $\int (7x^8 + x^4 + \sec^2 x - 1)\, dx$

## Section – C

$03 \times 03 = 09$ Marks

Q9. If $y = \sqrt{\frac{(x-3)(x^2+4)}{3x^2+4x+5}}$ then find $\frac{dy}{dx}$.

Q10. If $x = 3t^2$ and $y = 9at$ then find the derivative $\frac{dy}{dx}$.

Q11. Integrate the following w.r.t. $x$.

$\int 3^x . 2^x dx$.

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# Answer key (Set A)

## NEN 1103

## Applied Mathematics

Q1 (d) Q2 (d) Q3 (c) Q4 (a) Q5 (c)

Q6 given $y = ax^2 + bx + c$

diff. w.r.t $x$, then we have

$$\frac{dy}{dx} = 2ax + b$$

Q7 given $\int \left(\frac{1}{x} + a^x\right) dx$

Integration w.r.t $x$

$$\rightarrow \log x + \frac{a^x}{\log a} + C$$

Q8 given $\int (7x^8 + x^4 + \sec^2 x - 1)\, dx$

Integration w.r.t $x$.

$$= 7\frac{x^9}{9} + \frac{x^5}{5} + \tan x - x + C$$

Q9 given $y = \sqrt{\frac{(x-3)(x^2+4)}{3x^2+4x+5}}$

taking log on both sides

$$\log y = \log\left[\frac{(x-3)(x^2+4)}{3x^2+4x+5}\right]^{1/2}$$

$$\log y = \frac{1}{2}\left[\log(x-3) + \log(x^2+4) - \log(3x^2+4x+5)\right]$$

diff. w.r.t. $x$

$$\frac{1}{y}\frac{dy}{dx} = \frac{1}{2}\left[\frac{1}{x-3} + \frac{2x}{x^2+4} - \frac{6x+4}{3x^2+4x+5}\right]$$

$$\frac{dy}{dx} = \frac{y}{2}\left(\frac{1}{x-3} + \frac{2x}{x^2+4} - \frac{6x+4}{3x^2+4x+5}\right)$$

$$\frac{dy}{dx} = \frac{1}{2}\sqrt{\frac{(x-3)(x^2+4)}{3x^2+4x+5}}\left(\frac{1}{x-3} + \frac{2x}{x^2+4} - \frac{6x+4}{3x^2+4x+5}\right)$$ M.

**Q.10** given $x = 3t^2$, $y = 9at$

$$\frac{dx}{dt} = 6t, \quad \frac{dy}{dt} = 9a$$

$$\therefore \frac{dy}{dx} = \frac{\frac{dy}{dt}}{\frac{dx}{dt}} = \frac{9a}{6t} = \frac{3}{2}\frac{a}{t}$$ M.

**Q.11** given $\int 3^x \cdot 2^x dx$ $\left\{\int a^x dx = \frac{a^x}{\log a} + c\right.$

$$= \int (3\times 2)^x dx = \int 6^x dx$$

$$= \frac{6^x}{\log_e 6} + c$$ M

# BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Registration No.: .....

**School of General Education**

**Session: 2019-20 (Summer Semester)**

**B. Voc. Program, 1st Semester,**

**2nd In-Sem. Examination**

**Course Code: GEN1104** **Time: 1 Hour**

**Course Name: Elementary Mathematics** **Max. Marks: 20**

**Instructions:**
1. All questions are compulsory.
2. Missing data if any can be suitably assumed

## Section – A

05X01 = 05 Marks

**Q1.** The value of sin30° is:

a. 0 c. 1

b. $1/\sqrt{2}$ d. 1/2

**Q2.** Is cos A=4/5, find the value of tan A:

a. 3/5 c. 3/4

b. 4/3 d. 5/3

**Q3.** The value of $\frac{tan\,47^0}{cot\,43^0}$ is

a. 0 c. 2

b. 1 d. none of these

**Q4.** The value of $2\cos^2 45°$ is:

a. $1/\sqrt{2}$ c. 1/4

b. 1/2 d. 1

**Q5.** The value of $2\cos45° + 2\sin45°$ is:

a. 3 c. 2

b. $4/\sqrt{2}$ d. none of these

## Section – B

03X02 = 06 Marks

**Q6.** A ladder 13 m long is placed on the ground in such a way that it touches the top of a vertical wall 12 m high. Find the distance of the foot of the ladder from the bottom of the wall.

**Q7.** If $\sqrt{3}\ \tan\theta = 1$, find the value of $\sin^2\theta + \cos^2\theta$.

**Q8.** The foot of a ladder is 10 feet from the wall. The ladder is 2 feet longer than the height that it reaches on the wall. What is the length of the ladder?

## Section – C

03X03 = 09 Marks

**Q9.** The height of two building is 34 m and 29 m respectively. If the distance between the two building is 12 m, find the distance between their tops.

**Q10.** If $4\tan\theta = 3$, find $\frac{(4\sin\theta - \cos\theta)}{(4\sin\theta + \cos\theta)}$

**Q11.** Write all the trigonometric ratios in terms of $\cos\theta$.

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ANSWER KEY

SCHOOL OF GENERAL EDUCATION

SESSION: 2019-20 (Summer semester)

2nd In-Sem. B.Voc. I-semester

SET-A

COURSE CODE: GEN1104

COURSE NAME:- Elementary Mathematics

## Section-A

1.) d (1/2)

2.) c ($\tan A = 3/4$)

3.) b (1)

4.) d (1)

5.) b ($4/\sqrt{2}$)

## Section-B

6.) $AC^2 = AB^2 + BC^2$

$(13)^2 = (12)^2 + (BC)^2$

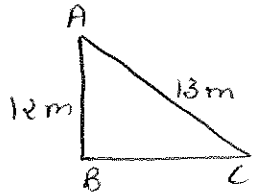
$169 = 144 + (BC)^2$

$169 - 144 = (BC)^2$

$25 = (BC)^2$

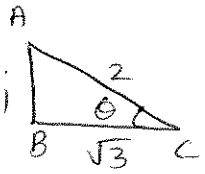
$BC = \sqrt{25}$

$BC = 5m$



7.) $\sqrt{3}\tan\theta = 1$

$\tan\theta = \frac{1}{\sqrt{3}}$




$AC^2 = (AB)^2 + (BC)^2$

$= 1 + 3$

$= 4$

$AC = \sqrt{4}$

$AC = 2$

$\sin\theta = \frac{1}{2}$ ; $\cos\theta = \frac{\sqrt{3}}{2}$

$\therefore \sin^2\theta - \cos^2\theta = \frac{1}{4} + \frac{3}{4} = \frac{4}{4} = 1$

8.) Let the height of ladder be $x$

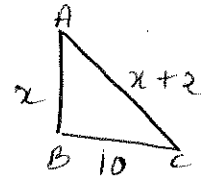
$AC^2 = AB^2 + BC^2$

$(x+2)^2 = x^2 + (10)^2$

$x^2 + 4 + 4x = x^2 + 100$

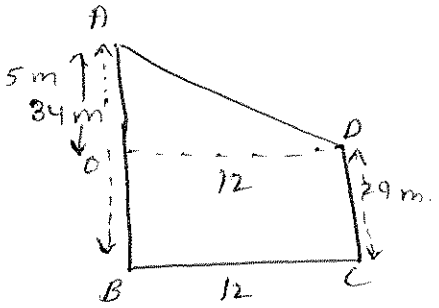
$4x = 96$

$x = 96/4 = 24$ ft.




Thus, the length of ladder is $24+2 = 26$ ft.

## Section-C




9.) $AD^2 = AO^2 + OD^2$

$AD^2 = (5)^2 + (12)^2$

$= 25 + 144$

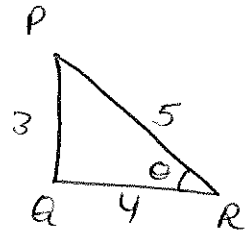
$AD^2 = 169$

$AD = \sqrt{169}$

$= 13\ m$

10.) $4\tan\theta = 3$

$\tan\theta = \frac{3}{4}$




$PR^2 = PQ^2 + QR^2$

$= 3^2 + 4^2$

$= 9 + 16$

$= 25$

$PR = \sqrt{25}$

$= 5$

$\therefore \frac{4\sin\theta - \cos\theta}{4\sin\theta + \cos\theta} = \frac{4 \times \frac{3}{5} - \frac{4}{5}}{4 \times \frac{3}{5} + \frac{4}{5}}$

$= \frac{\frac{12}{5} - \frac{4}{5}}{\frac{12}{5} + \frac{4}{5}}$

$= \frac{8}{8} \times \frac{5}{16} = \frac{1}{2}$

11.)

$$\sin^2\theta + \cos^2\theta = 1$$

$$\sin\theta = \sqrt{1-\cos^2\theta}$$

$$\operatorname{cosec}\theta = \frac{1}{\sqrt{1-\cos^2\theta}}$$

$$\sec\theta = \frac{1}{\cos\theta}$$

$$\tan\theta = \frac{\sin\theta}{\cos\theta}$$

$$= \frac{\sqrt{1-\cos^2\theta}}{\cos\theta}$$

$$\cot\theta = \frac{\cos\theta}{\sqrt{1-\cos^2\theta}}$$